

City of Regensburg

Planning and Building Division

(Editor)

EARTH WIND WATER FIRE

Environmental Challenges to Urban World Heritage

Organization of World Heritage Cities (OWHC)

Northwest-European Regional Conference in Regensburg

from September 16-18, 2008

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PREFACE

Environmental challenges to urban World Heritage sites

Integrated Strategies and Interdisciplinary Approaches

Regensburg is honoured to have been a UNESCO World Heritage site since 2006. Being part of the network of World Heritage cities and sites all over the world has greatly increased our awareness of what "heritage" means: It is not only the task of individuals, cities or even nations to safeguard the world's cultural and natural heritage for future generations; it is the shared responsibility of all mankind.

In World War II Europe experienced the bitter truth that military conflicts not only cost the lives of millions of people, but also devastate cultural and natural places that are among the most special and unique ones on our continent.

Luckily the City of Regensburg was largely spared the damages of war. For that reason the city is the only intact example of a medieval metropolis in Germany and most of the buildings in Regensburg's Old Town are still original. To a great extent, the building fabric dates back to the Middle Ages or even to the Roman era.

Nowadays the menace of war, at least in Europe, has almost vanished. Instead new challenges have arisen - not only for World Heritage Cities. This summer for example, a tornado caused enormous damage to the small town of Hautmont in France. Many buildings were destroyed, some inhabitants were injured, three even killed. Unpredictable natural catastrophes seem to be appearing more often and with greater intensity in Northwestern Europe and all over the World. Numerous examples of comparable cases could be listed here.

For that reason the OWHC Northwest European Regional Conference "Earth, Wind, Water, Fire", that took place in Regensburg from 16th to 18th September, dealt with the importance of raising awareness of the environmental challenges that World Heritage Cities will have to face in the future: World Heritage Cities with their special responsibilities can thereby serve as a role model for other cities by developing effective strategies for prevention and protection.

Regensburg for instance is at risk because of its location close to the Danube River: Protection from flooding is a high priority policy topic for our city as well as for many other cities situated on waterfronts or close to rivers. Other World Heritage cities are endangered by the possibility of earthquakes, tornadoes and other natural catastrophes: It is very important to exchange information about suitable and well-working preventive measures in a timely manner.

We are happy to assume that our conference contributed to the international exchange about these risks: representatives from the different Northern European Heritage Sites got the opportunity to meet and to discuss their special experiences and to develop solutions. Especially the dialogue between representatives of the humanities and natural scientists was a very productive, interesting and efficient one – a debate that generated new points of view for all participants. It was a great pleasure for our city to host the Organization of World Heritage Cities Northwest-European Regional Conference here in Regensburg. We are very glad that we can record some of the results of the conference in this publication so that they will be accessible to everyone who is interested. We cannot close our eyes to the dangers our World Heritage Cities are exposed to. We cannot resolve

every task on our own, but we are convinced that together we can face our duty for the future and work responsibly in terms of World Heritage. The final document, the "Regensburg Recommendation", has already been communicated to the different levels of government that are touched on by this issue. It has also been transferred to the attendees of several other conferences that have dealt with similar topics.

Here in Regensburg the conference with its lively discussions and comments showed once again that the integrated approach to organising the city's

World Heritage Management by working together with a large variety of stakeholders and public bodies is a smart way to organise the safeguarding and enhancement of urban cultural heritage. It also works when it comes to the quite dangerous threat of environmental challenges to Urban World Heritage Sites. We are glad that we had the chance to learn about the strategies and problems of other World Heritage Sites and are looking forward to future fruitful exchanges and further cooperation with our partners thus started.

CHRISTINE SCHIMPFERMAN AND MATTHIAS RIPP



Old Town of Regensburg with Stadtamhof from above

OLD TOWN OF REGENSBURG WITH STADTAMHOF UNESCO WORLD HERITAGE

DR. EUGEN TRAPP

Department for Preservation of Monuments and Historic Buildings, City of Regensburg

Old Town of Regensburg UNESCO World Heritage

On July 13, 2006 the Old Town of Regensburg with Stadtamhof was inscribed on the UNESCO World Heritage List. The ensemble is about 183 hectares (452 acres) in size and includes 984 monuments. Approximately 17.100 people live in Regensburg's historic city centre (status: 2006). Regensburg is the 32nd UNESCO World Heritage site in Germany.

In order to become UNESCO World Heritage, a site needs to fulfil at least one of the ten criteria listed in the Operational Guidelines for the Implementation of the World Heritage Convention. The Old Town of Regensburg with Stadtamhof is inscribed on the basis of criteria (ii), (iii) and (iv).

The architecture of Regensburg represents the city's role as a medieval trading centre and its influence in the region north of the Alps. Regensburg was an important transition point on continental trade routes to Italy, Bohemia, Russia and Byzantium. It also had multiple connections with the transcontinental Silk Roads. As such, the city exhibits an important interchange of cultural and architectural influences, which have shaped its urban landscape. (Criterion ii)

The Old Town of Regensburg bears an exceptional testimony to cultural traditions especially in the Holy Roman Empire, being the location for most of the assemblies of the Empire in the High Middle Ages. Regensburg also significantly contributed to more recent European history being the seat of the Perpetual Assembly from the 1663 to 1806. As a testimony to these functions, there are the remains of two imperial palatine palaces from the 9th century, and a large number of other well preserved historic buildings, which are testimony to the wealth and political importance of the community. (Criterion iii)

The Old Town of Regensburg is an outstanding example of a central-European medieval trading town, which has well preserved its historical stratigraphy, and which is an exceptional illustration to the development of commerce particularly from the 11th to 14th centuries. (Criterion iv)



The Old Town of Regensburg

The Old Town

Since 1945 Regensburg is the only intact medieval metropolis in Germany, which, from the Middle Ages till today, has been able to function as an urban mechanism without interruption.

Regensburg's Old Town has been able to preserve – as can be clearly seen from its layout today – its original basic outline since the 14th century.

The inter-relationship of public buildings, private residences, workshops and the imposing grounds of the churches, monasteries and religious foundations all contribute to creating an authentic picture of medieval urban culture and architecture – a constellation destroyed and lost forever elsewhere in Germany. The many preserved patrician palaces and large townhouse complexes with their imposing towers are outstanding examples of a style of architecture – influenced by Italy – which can be found nowhere else north of the Alps.

Stadtamhof

A small settlement at the northern end of the Stone Bridge, Stadtamhof was initially an integral part of Regensburg's cityscape. In the middle of the 13th century Regensburg broke away from the Bavarian duchy, whereas Stadtamhof remained under Bavarian rule.

Due to its immediate vicinity to Regensburg and the Stone Bridge, Stadtamhof was affected by Regensburg's armed conflicts and therefore also had to bear the consequences of siege and destruction. The face of Stadtamhof today shows its reconstruction after destruction during the Napoleonic Wars in 1809.

The Stone Bridge

Built between 1135 and 1146, the Stone Bridge enjoys the status of being a unique masterpiece of medieval engineering. One of the major achievements of medieval bridge building, it was for many centuries the only stone bridge spanning the Danube between Ulm and Vienna. It was not only a technological masterpiece of engineering, but of strategic importance in terms of transport and, as a result, of great commercial value. No written documents concerning the construction of the bridge have survived, but it has been ascertained that it was in full use by the year 1147. Built with the strong, active support of the merchant class of Regensburg's citizens, the Stone Bridge is regarded as a symbol, expressing the growing wealth, influence and determination of the patricians.



Stadtamhof

THE VENUE

The Venue

The conference took place in the "Salzstadel" (Historic Salt Barn), which is one of Regensburg's most significant buildings and which is located close to the river Danube and the famous old Stone Bridge.

Background Information

Regensburg's numerous public warehouses, which were of vital importance for the city's inhabitants in troubled times, left their mark on the city's silhouette. These so-called Stadel (= barn/shed) were built between the 16th and 18th centuries and were located for the most part near the banks of the Danube. Among them are the Wein(=wine)stadel in Keplerstrasse, the Amberger Stadel and the massive municipal Salz(=salt)stadel at the south end of the Stone Bridge, the eastern Salzstadel at Donaulände, the "Leerer Beutel" (=empty bag) near the Church of the Friars Minor which was used as grain warehouse and the Holz(=wood)stadel near Jakobstor. Other warehouses were built on the east side of Unterer Wöhrd near the municipal brick-works which were used primarily to store building material. Another important store-house within the area of the city is the so-called Bavarian Salzstadel which was built in 1597 in Stadtamhof along the banks of the Danube.



The Salzstadel (Historic Salt Barn) and the Stone Bridge



The Amberger Stadel on the right

CONFERENCE PROGRAMME

Organization of World Heritage Cities
Northwest Europe Regional Conference 2008

Conference Programme

Tuesday, September 16, 2008

Venue: Salzstadel (Historic Salt Barn), Regensburg

8.00 - 10.00 Registration

10.00 - 10.30 Opening Session

Welcome Addresses:

CHRISTINE SCHIMPFERMANN, Deputy Mayor of Regensburg

LEE MINAIDIS, OWHC Interim Secretary General

DR. RAY BONDIN, President CIVVIH

10.30 - 11.15 Coffee Break

11.15 - 12.30 Introductory Session

Chair: DR. SIRI MYRVOLL, OWHC Regional Coordinator Northwest Europe

RAINER FÜRHAUPTER, Member of the Board of Management,
Versicherungskammer Bayern, Germany
"The managing of rising catastrophe risks"

DR. MECHTILD RÖSSLER, Chief of the Europe and North America Section,
UNESCO World Heritage Centre
"New challenges: World Heritage in the urban context"

12.30 - 14.00 Lunch Break

14.00 - 15.15 Introductory Session (continues)

Chair: DR. SIRI MYRVOLL, OWHC Regional Coordinator Northwest Europe

PROF. DR. MICHAEL PETZET, President of ICOMOS
"The ICOMOS Heritage@Risk programme"

CRISTINA GUTIÉRREZ-CORTINES, Member of the European Parliament,
President of the sub-committee on Climate Change, Brussels, Belgium
"Heritage: The forgotten face of climate change"

15.15 - 16.00 Coffee Break/Poster Session

16.00 - 18.00

Session EARTH

Chair: DR. CHRISTOF ELLGER, Managing Director, GeoUnion and Geographical Society of Berlin, Germany

Introductory presentation by DR. CHRISTOF ELLGER

THOMAS LÖRNER, World Heritage Centre Bamberg and

ULRICH SIELER, LGA Bautechnik GmbH, Germany

"Being at risk? Monuments on the slopes of Bamberg"

DR. EBERHARD BRECHT, Mayor of the City of Quedlinburg, Germany

"Münzenberg and Schlossberg: 2 rocks - 1000 problems"

Panel Discussion EARTH

20.00

Reception in the Old Town Hall

Welcome Addresses:

HANS SCHAIDINGER, Lord Mayor of Regensburg

EMILIA MÜLLER, Bavarian State Minister for Economic Affairs,

Infrastructure, Transport and Technology

Wednesday, September 17, 2008

Venue: Salzstadel (Historic Salt Barn), Regensburg

8.45 - 10.15

Session WIND

Chair: DR. RAY BONDIN, President CIVVIH

DIPL.-ING. HANS WEBER, Head of the State Building Authority Regensburg, Germany

"Weathering and harmful environmental influences - the permanent cathedral building site."

Panel Discussion WIND

10.15 - 11.00

Coffee Break/Poster Session

11.00 - 12.30

Session WATER

Chair: MATTHIAS RIPP, World Heritage Coordinator, Regensburg, Germany

HAN HEFTING, Alderman of Beemster, and Harry Roenhorst, Project Leader Bureau Des Beemsters, The Netherlands

"The Des Beemsters Project"

CLAES-ÅKE KINDLUND, Architect and Senior Advisor to the Municipality Karlskrona, Sweden

"Karlskrona - World Heritage and waterfront city"

TONY CROUCH, Heritage & Environment Manager, Bath, England

"Facing the river"

12.30 - 14.30

Lunch Break/Guided tours of St. Peter's Cathedral

CONFERENCE PROGRAMME

Organization of World Heritage Cities Northwest Europe Regional Conference 2008

14.30 - 16.00	Session WATER (continues)
	Chair: MATTHIAS RIPP, World Heritage Coordinator, Regensburg, Germany PROF. DR.-ING. THEODOR STROBL, Technische Universität München, Germany "Flood protection for the City of Regensburg - a challenge for hydraulic engineers and architects" LISBETH IVERSEN, Commissioner for Climate, Environment and Urban Development, Bergen, Norway "Bryggen - waterlogged World Heritage" ANDREAS KÜHL, Saxon State Ministry of the Interior, Germany "The INTERREG III B project ELLA - preventive flood management measures by transnational spatial planning"
16.00 - 16.45	Coffee Break/Poster Session
16.45 - 17.45	Session WATER (continues)
	Chair: MATTHIAS RIPP, World Heritage Coordinator, Regensburg, Germany ING. ARCH. TOMÁŠ DRDÁČKÝ, Academy of Science of the Czech Republic, Prague, Czech Republic "Floods 2002 in Prague" Panel Discussion WATER
18.00 - 19.00	OWHC Regional Delegates Meeting
20.00	Dinner at Fürstliches Brauhaus Thurn und Taxis

Thursday, September 18, 2008

Venue: Salzstadel (Historic Salt Barn), Regensburg

8.45 - 10.15	Session FIRE
	Chair: HAN HEFTING, Alderman of Beemster, The Netherlands JOHANNES BUCHHAUSER, Chief Officer of the Fire Department, Regensburg, Germany "Fire prevention in the Historic Salt Barn" TORBJØRN EGGEN, Conservation Officer of Røros, Norway "The Røros experience on fire and possible strategies towards town fires" WILLIAM GARRETT, Development Planning Group Leader, City of Edinburgh Council, Scotland "The blaze in Edinburgh's old town in December 2002"
10.15 - 11.00	Coffee Break/Poster Session

11.00 - 12.30

Session FIRE (continues)

Chair: HAN HEFTING, Alderman of Beemster, The Netherlands

JOHANNES FEYRER, Deputy Chief Fire Officer, Cologne Fire Service, Germany
"Fire prevention and fire defence - a protection concept for Cologne Cathedral"

(11.30 - 12.00)

DIPL.-ING. GERD GEBURTIG, Expert for fire protection/Chairman WTA-D,
Weimar, Germany

"Preservation of historic buildings and monuments versus fire protection:
The Herzogin-Anna-Amalia-Library in Weimar"

Panel Discussion FIRE

12.30 - 15.00

Lunch Break/Boat trip to Walhalla

15.00 - 16.30

Closing Session

Chair: DR. SIRI MYRVOLL, OWHC Regional Coordinator Northwest Europe

Closing Speech:

MATTHIAS RIPP, World Heritage Coordinator, Regensburg, Germany

"Facing the challenges - changing parameters for World Heritage sites:
The European-funded project HerO"

Panel Discussion "Earth, Wind, Water, Fire"

Adoption of the Regensburg Recommendation



Conference room in the historic salt barn



WELCOME ADDRESSES

HANS SCHAIDINGER
Lord Mayor of Regensburg

To my honoured guests who have travelled from numerous parts of Europe; to my esteemed guest Minister Emilia Müller, you have been a loyal friend and constant companion to our city in its time of development. For this we owe you a debt of gratitude.

Let me extend a heartfelt welcome to you all to the city of Regensburg, an old city of the Empire and a young World Heritage City. Your presence here honours us and our history and serves at the same time as confirmation that our city is making a recognised contribution to the urbanity of the European Union. Of this contribution, we are naturally a little proud.

Regensburg stands for two thousand years of history - history not locked away in the showcases of museums or dusty archives but living history. History, a visitor comes face to face at every corner and at every step of the way on a walk through the old city.

Situated at the northernmost point of the Danube, the first settlement in all probability was Celtic in origin and predated the birth of Christ. Regensburg had its official "coming-out" in the history of the Romans in Germany. A foundation stone survives which documents the establishment of a fortress, *Castra Regina*, by the Roman emperor Marcus Aurelius. To this day the *Porta Praetoria*, the main gate of the fort, can be viewed at the original site in its massive glory.

From about the time of Charlemagne in the 8th century, Regensburg blossomed into a powerful commercial city. In Paris, people wore scarves made in Regensburg; coins minted in Regensburg were in circulation in Scandinavia and the Baltic.

This was Regensburg's golden age when contemporary chroniclers extolled the city as being the most populous and mightiest metropolis in Germany.

The stone bridge, a famous landmark of Regensburg was built between 1135 and 1146 and was regarded at the time as one of the world's technical wonders. Last weekend we celebrated the 850th anniversary of our stone bridge.

On two separate occasions, Regensburg was the point of departure for crusaders marching to the Holy Land.

The construction of the Regensburg Cathedral, which is regarded today as a major work of the Gothic period in Southern Germany, began in 1250.

Originally built in 1360 as a ballroom for the medieval patrician families, the simple elegance of our "*Reichssaal*" still serves to lend dignity and grace to receptions, concerts and other ceremonial events of the city.

The Imperial Hall in which we find ourselves gathered today was the setting for the so-called Perpetual Imperial Diet of the Holy Roman Empire between 1663 and 1806. A Diet, incidentally, that was more international than its name reveals to us as the hubbub of many languages echoed against its walls while parliament was in session.

Taking stock of the work carried out by this perpetual parliament, one realises that it wasn't the monumental decisions on war and peace that were constantly in the foreground. This hall witnessed almost the same struggle and negotiation for local issues and problems that we see in the European parliament of today.

Ladies and gentlemen,
It goes without saying that we are proud to be hosting this year's Northwest European Regional Conference as quite a young World Heritage City.

The theme of the conference "Earth, Wind, Water, Fire - Environmental Challenges to Urban Heritage" is without question one of the most relevant of our generation.

The rapid environmental changes that have taken place in Europe are a sign that we will face great challenges in the future. And in Europe too, no land, no state can protect itself alone. Only together can we keep these existential dangers at bay.

We must be prepared for extreme changes in weather conditions. Storms, heat waves and the rainy seasons that bring flooding in their wake will be the cause cumulative devastation.

Such a situation can and will not leave our cities and their historic architectural structures unscathed. Fire and water are two dangerous forces which through the centuries have been a constant source of destruction and ruin.

With its tightly packed buildings, the medieval architectural style of our Old Town demanded and still demands to this day the highest standards in terms of legislation on fire protection.

Regensburg is not only situated on the most northerly point of the Danube; it is also the site where two other rivers, the Naab and the Regen, merge into Europe's mighty waterway. As a consequence, flood control measures are high up on the city's priority list.

Our experts will of course be presenting and discussing the various solutions that we have come up with, solutions that we find to be both sound and intelligent.

Nevertheless, we are convinced that we will learn yet a great deal more from the expert knowledge of the international group gathered here. No system of protection is so perfect that it cannot be improved upon, particularly when the environment is in a state of perpetual change.

It is a truism that what matters in the life of the individual as well as in the life of the community is based on give and take. Only together do we make up a strong European and indeed global team.

Ladies and gentlemen,
Regensburg sees itself as a bridge between the past and the future.

Being a World Heritage City does not mean resting on the laurels earned by generations past. Rather, this distinction entails three major commitments. They are, as it were, the sine qua nons of:

- Preserving the treasures of history
- Letting modern urban life unfold in historic works of architecture
- Bequeathing both of these to future generations

We can all feel a certain pride for the unique cultural legacy exhibited by European cities. Their cathedrals, churches, cloisters, patrician courts and town halls bear visible witness to positive developments in Western Civilisation.

And ours is not a static legacy: at best it is a solid foundation and each successive generation must prove itself worthy of it. It is precisely in old cities such as Regensburg that one learns to revere the achievements of our ancestors, achievements that inspire us to excel in our own lifetimes. For this indebtedness is something we are already aware of: we are tall only because we are standing on the shoulders of giants.

Ladies and gentlemen,
I ask you to make an allowance for the inhabitants of Regensburg, who love their city dearly and see it as something quite exceptional - and are not at all opposed to talking about it. Of course we know that Regensburg is merely a pearl - and what a pearl! - in the splendid necklace of European cities.

So what is so special about our pearl?

Regensburg bears unique testament to the important milestones of political, economic and religious development in the Middle Ages.

The World Heritage Site proper is comprised of the Old Town together with the neighbouring part of the city known as "Stadt-am-Hof" and it is this Site

which represents the only medieval metropolis in Germany to survive the long nights of bombing in the catastrophe that was World War II.

With this in mind one can only marvel at what is the biggest, interrelated collection of Romanesque and Gothic works of architecture north of the Alps. Through such a unique collection, we can learn something authentic about city culture, the century-old network of life in public buildings, in burghers' buildings, in the many houses of craftsmen, and also something authentic about the sense of community the citizenry felt with the churches and cloisters.

An excellent example of the type of building that in its density and vividness of form occupies a unique cultural position north of the Alps are the Italian-influenced burgher house complexes with their trademark family towers.

And apropos fire protection: alongside such impressive works of architecture, Regensburg boasts the oldest and completely preserved frame house in Germany; it was originally built in 1250 and belonged to Johannes Kepler in his day.

Ladies and gentlemen,
Culture and economics are two sides of the one coin. Our cities - and indeed the idea of a city in general - generate their drive to innovate, their vitality and their sustainability from the interdependence of these two sides.

Here, too, from its beginnings in the Roman Empire right up to the present day, Regensburg offers eloquent testimony. Whether it was the Romans who founded their *Castra Regina* close to the mouth of the Regen, or whether it was the Agilolfingians or the Carolingians that made Regensburg the main meeting place for their domain; whether it was the enormous assemblies of the Empire right up to the Perpetual Imperial Diet, or whether it is, in the end, the prosperity of our own age, one thing has remained clear: the periodic economic growth of the city has always brought with it a cultural florescence in every epoch.

Naturally enough the inhabitants emit some moans and groans of complaint regarding the financial, organisational, transportation and construction

problems entailed in acquiring the title of a World Heritage Site.

For reasons related to safety and many years after private and commercial traffic was banned from its cobblestones, the stone bridge, an unrivalled specimen of the art of medieval bridge building, is now finally closed to the local bus system. A replacement bridge is planned that will not impair the cityscape.

Or think of flood protection: protection must be sufficiently effective but should not go so far as to cover the city's river landscape in concrete.

Who has counted the millions spent on monument conservation in the last 50 years?

Who counts the months and the years and the kilowatts of personal energy that go into what are often heated arguments over the reconcilability of monument conservation with the interests of traffic flow, residency, and the economy of the Old Town?

Ladies and gentlemen,

Despite the above, I still say to you that such concerns, when viewed from a distance, do not represent a burden for the inhabitants of Regensburg. On the contrary: they constitute a privilege, even if this privilege is not subject to entertainment tax.

And is it not work in all its forms and with all its challenges that contributes to a sense of self-confidence and indeed to a certain degree of happiness in the life of each individual human being? We grow along with the tasks assigned to us by the past, the present and the future. Success ultimately confirms for us that we are sailing in the right direction.

Regensburg is a rich and animated mirror of history. Housing quality and the quality of recreational and cultural activities all explain why Regensburg has continued to rank high in Germany's list of top cities. As a World Heritage Site, Regensburg is growing more and more attractive to tourists around the world.

With its continuing education programmes, its University and Polytechnic, Regensburg is an excellent place to conduct research or take a world-class degree.

And the Regensburg economic area with its growing high-tech sector and attractive shareholding prospects is there to offer graduates a solid foundation with secure jobs. All of course in close association with the business and services of modern tradesmen and tradeswomen.

Honoured guests,

As a city of the Empire, Regensburg was once a territory of numerous domains. This resulted in conflict and quarrel. But time and again practical life - and the cornerstone of compromise upon which it is built - prevailed.

You can see how this medieval European city - not only with all of its problems and the pragmatic solutions to those problems, but also with its complex set of rules and standards - serves as a

blueprint for a consolidated Europe and, if you will, for an enjoyable life in the globalised world.

Regensburg is a European city with an historical record in the culture of dialogue. Its charter was always a synonym for the exchange of ideas and interests both on the level of the everyday and the practical as well as in grand historical dimensions.

I am sure that this Northwest European Regional Conference will do its share in enhancing the readiness and capacity for dialogue in our city, in Germany, and indeed in Europe.

In the name of the citizens of Regensburg, I wish the congress every success in its search for new insights and predict that the exchange of information over the next two days is going to be an exciting one. You may rest assured that in the development of World Heritage Cities lies unlocked potential for urbanity and, by turns, for peace. This reservoir is far from being exhausted. You belong to those who replenish its stocks.



Reception in the Old Town Hall with Lord Mayor Hans Schaidinger



WELCOME ADDRESSES

EMILIA MÜLLER

Minister for Federal and European Affairs of the Free State of Bavaria

Dear:

- Lord Mayor, Hans Schaidinger,
- Representatives of parliament,
- honoured guests of the UNESCO and the international organizations for the protection of historical monuments
- Mayors and representatives of West European World Heritage Cities,
- Ladies and Gentlemen!

I. Welcome

Also for me, it is a great pleasure to warmly welcome you here in the Imperial Hall of the Old Town Hall of the City of Regensburg.

First of all I am happy to pass on the best wishes of the Bavarian Minister-President Dr. Günther Beckstein and the Bavarian State Government. We are delighted to welcome you as our guests in Bavaria this week.

Lord Mayor Schaidinger has already introduced his beautiful city to you. Regensburg is not only one of the oldest cities in Germany. It is also one of the best preserved medieval cities in our country.

Regensburg is a worthy member of the World Heritage Cities

For years I worked in Regensburg myself. I therefore know from experience that the city not only offers many medieval town houses and monuments, but it is also a lovely place that people like living in. It is a worthy member of the World Heritage Cities.

The World Heritage needs a future

I think this is an important point. A World Heritage City needs not only a past, but also a future. Its inhabitants have to feel at home in the city. There has to be the right quality of life. Then people are

much more willing to support the preservation of their home town and they are also willing to spend money on the preservation of their city and its historical substance.

II. The preservation of culture is an important task of the Bavarian State Government

Important topic: natural risks

Ladies and Gentlemen,

The Organization of World Heritage Cities has chosen an important topic for this year's Northwest European Regional Conference. The dangers posed by the elements, earth, wind, water and fire are a great challenge for the cultural heritage of mankind.

Monuments are irreplaceable

When cultural heritage falls victim to natural forces, it is gone forever. Monuments are irreplaceable. You can rebuild houses. You can recreate paintings and books. But you can only make copies and not originals.

I therefore wish you all the best for this 3-day conference, a satisfying outcome and many significant findings for your future work.

The protection of cultural assets is very important for Bavaria

The protection of culture and in particular of our World Heritage Sites is very important for the Bavarian State Government as well. Bavaria can look back on 1500 years of political, intellectual and cultural history. We are very proud of this rich history and we want to preserve this heritage. This is why Bavaria has been a strong supporter of the protection and preservation of ancient monuments for a long time.

Long tradition in the preservation of ancient monuments

In 1835, some 173 years ago, the first institution for the protection of ancient monuments was founded. This institution was the predecessor of today's Bavarian State Office for the Preservation of Monuments.

The Bavarian law for the protection and preservation of monuments

Since 1973 the Bavarian law for the protection and preservation of monuments has been an important legal foundation for the modern preservation of monuments. It was used as a basis for developing standards for the rehabilitation of historical buildings – especially here in Regensburg. These standards then served as a benchmark for the rehabilitation and preservation of historical buildings in other towns and cities of Bavaria.

Since then, the protection of monuments has become a long-term task. Important tools are, for example, the advisory service for owners of historical monuments and financial aid.

The protection of monuments as an economic factor

We should not overlook the fact that the preservation of ancient monuments is also an economic factor. The preservation of historical buildings leads to investments and provides new jobs. In Bavaria, every Euro of government funding in this area triggers seven to nine times the volume of private investments.

Particular protection of World Heritage

The UNESCO World Heritage Sites in Bavaria enjoy special protection. They have a particular place in the Bavarian State Development Programme. Bavaria undertakes to maintain the UNESCO World Heritage Sites, to restore them, treat them correctly and to protect them against any danger. This is a binding goal of the State Development Programme for all public planning and all Bavarian authorities.

III. Distinction as an obligation

The distinction offers many opportunities

Ladies and Gentlemen,
The distinction of being designated as a World Heritage offers many opportunities. Especially tourism and leisure activities receive a boost. World

Heritage Sites are attractive travel destinations for many tourists. Regensburg benefits from more tourism and increasing numbers of overnight stays.

Risks

At the same time, we have to work against the danger over-usage. Their historical substance should not be endangered.

IV. HerO Network

Regensburg takes challenges seriously

The City of Regensburg takes these challenges very seriously. A good example is the fact that the city has taken on the organisation of this conference as a newcomer to the list of UNESCO World Heritage Sites. Furthermore, Regensburg is also working on a European level to further develop its cultural heritage.

HerO Network

Under the leadership of Regensburg, 10 European cities in the Heritage have grouped together to form the Opportunity Network (HerO). Their aim is to develop sustainable strategies for World Heritage Cities. Other members of the network are Graz, Naples, Vilnius, Sighisoara, Liverpool, Lublin, Poitiers, Valencia and Valetta.

URBACT II funding

The HerO Network has successfully applied for funding under the URBACT II Programme of the European Union. URBACT II aims to foster the exchange of experience among European cities and promote sustainable urban development. I strongly supported the application by the City of Regensburg to the European Commission and the German Federal Government.

In May 2008, the HerO Network was awarded the 'Fast Track Label' by the European Commission. Fast Track models will build a bridge linking networks like HerO to the programmes of the European Regional Development Fund (ERDF).

Support by the Bavarian State Government

A prerequisite is the close coordination with the administrative authorities of the ERDF programme. This also concerns the Bavarian State Government. My Ministry, the Bavarian State Ministry of Economic Affairs, is one of these administrative authorities. We

have therefore supported the City of Regensburg and its partners right from the start. Today I can assure you that we will also actively support the HerO Network in the future.

V. Closing words

Ladies and Gentlemen,
I wish you a successful conference with satisfying results. I am sure you will gain inspiring information on how to protect your home towns against natural risks. The protection of our cultural roots and our identity is a challenging and important task for all of us.

The schedule of this conference is very tight. I hope that you will nevertheless find time to get to know the City of Regensburg and experience the flair of this city.

But first of all enjoy the evening here in the beautiful Old Town Hall of Regensburg.

Here in the Imperial Hall great history has been written.

I hope you enjoy some good and relaxing conversations.

Thank you for your attention.



Lord Mayor Hans Schaidinger, Minister for Federal and European Affairs Emilia Müller, UNESCO Chief of Regional Units Section Dr. Mechthild Rössler, Interim Secretary General of the "Organization of World Heritage Cities" Lee Minaidis, "Organization of World Heritage Cities" Northwest-European Regional Coordinator Dr. Siri Myrvoll (clockwise)



Das Spitzwegquartett: former members of the Regensburger Domspatzen serenaded the reception with classical music



WELCOME ADDRESSES

CHRISTINE SCHIMPFERMAN

Deputy Mayor and Councillor for Planning and Construction of the City of Regensburg

It is a great pleasure for me to host the Organization of World Heritage Cities Northwest-European Regional Conference here in Regensburg - and I would like to warmly welcome all of you to our beautiful city.

Most notably, I would like to welcome

- Prof. Dr. Cristina Gutiérrez-Cortines, Member of the European Parliament and President of the Sub-committee on Climate Change
- Lee Minaidis, Interim Secretary General of the "Organization of World Heritage Cities"
- Dr. Siri Myrvoll, the "Organization of World Heritage Cities" Northwest-European Regional Coordinator
- Dr. Mechtild Rössler, Chief of the Europe and North America Section at the UNESCO World Heritage Centre
- Prof. Dr. Michael Petzet, President of ICOMOS International
- Dr. Ray Bondin, President of CIVVIH, the ICOMOS International Committee on Historic Towns and Villages

and last but not least

- Rainer Fürhapter, Member of the Board of Management of the Versicherungskammer Bayern, which kindly supported this conference with a generous donation.

Furthermore, I would like to warmly welcome all speakers, moderators and participants of this conference that have come from all over Europe to contribute with their expertise, knowledge and active participation to a successful meeting.

We are gathered here in the beautiful old salt barn which is part of the World Heritage ensemble and which has become a symbol for the City of

Regensburg - along with other landmarks like the famous Stone Bridge or St. Peter's Cathedral.

The ensemble of the "Old Town of Regensburg with Stadtamhof" testifies to our cultural achievements and is silent witness to our past and our present alike.

It is our shared responsibility to safeguard the World's cultural and natural heritage for future generations. Regensburg is honoured to be a UNESCO World Heritage City since 2006.


Not only has Regensburg been an important crossing point of continental trade routes, it exhibits as well an important interchange of cultural and architectural influences, which have shaped its urban landscape.

The Old Town of Regensburg also bears an exceptional testimony to cultural traditions especially in the Holy Roman Empire. The city hosted the majority of Imperial Diets since the Middle Ages. Furthermore, the more recent European history has left its mark on well preserved historic buildings that show the wealth and political importance of the community.

Since 1945 Regensburg is the only intact example of a medieval metropolis in Germany.

Most buildings in Regensburg's Old Town are still authentic. To a great extent, the building material dates back to the Middle Ages or even to the roman era. For this reason we have got almost one thousand monuments within the World Heritage ensemble.

While other cities were partly or completely destroyed in World War II, Regensburg's Old Town survived almost unscathed.



Nowadays new challenges arise - not only for World Heritage Cities. This summer, for example, a tornado caused enormous damage to the small town of Hautmont in France. Many buildings were destroyed, some inhabitants were injured and three were even killed. Unpredictable natural catastrophes seem to appear more often and with increased intensity in Northwest-Europe and all over the World. Numerous examples of comparable cases could be listed here.

This conference emphasises the importance of raising awareness for the environmental challenges that we will have to deal with in the future. World Heritage Cities with their special responsibility can serve as a role model for other cities by developing effective strategies for prevention and protection.

On that account the City of Regensburg shares with you the hope that at the end of this conference we can summarise ideas and suggestions for improvement in a recommendation which will be an important document for World Heritage Cities in recognising natural risks as a serious threat to our built cultural heritage.

With these brief remarks, I declare the Northwest-European Regional Conference officially open.

Have a nice stay in Regensburg!



WELCOME ADDRESSES

LEE MINAIDIS

Interim Secretary General of the OWHC

As Interim Secretary General of the Organization of World Heritage Cities, it is an honor and pleasure to welcome you to the sixth Northwest European Regional Conference of our Organization.

On behalf of the OWHC, I would like to thank the Lord Mayor of Regensburg, Mr. Hans Schaidinger for kindly hosting this year's conference, in such an outstanding venue. I was present in Vilnius, Lithuania in July 2006 when Regensburg was inscribed on the UNESCO World Heritage List and I am very pleased that the city has assumed an active role in the OWHC.

The conference theme is indeed appropriate considering the climatic changes which are occurring in the world today and the natural catastrophes that are a direct result of these phenomena. The Northwest European Region has always chosen timely and relevant topics for deliberation as we have experienced at our previous meetings in Bath, Karlskrona, Telford, Bamberg and Edinburgh.

I look forward to the presentations over the next three days and to the interaction of the participants. This is, of course, the essence of our Organization – to provide opportunities for the fruitful exchange of information and expertise among our member cities.

The regional conferences provide a forum which can better relate to the needs of those cities that share cultural, linguistic or geographic affinities whereas our World Congresses give us the opportunity to share experiences with our members from all over the world.


The theme of our next World Congress in Quito, Ecuador in September 2009 will be the "Revitalization of historic centers: How to involve all social actors?"

The theme is based on the premise that the revitalization of historic cities goes beyond the preservation and conservation of their fabric. It requires a process that takes into account all the cultural values embedded in the spatial and physical components of the place, and involves residents and all the relevant participants from the public and private sectors to ensure the appropriate conservation and development of the historic centers.

The Congress will examine the pivotal role of heritage conservation and social engagement as a catalyst for urban regeneration and revitalization and for the development of sustainable solutions to secure lively and livable cities.

Our projects and programs also reflect our objective of providing a means of exchange. Our City2City program has made possible the transfer of know-how among many of our members and has the potential to be an even more useful tool to this end.

A new project, recently approved by our Board last July in Quebec, will further serve to facilitate the exchange of knowledge. It is an initiative by the OWHC in cooperation with the UNESCO World Heritage Centre, the France UNESCO Convention and the Getty Conservation Institute, to compile case studies, in various aspects of conservation and management, to be submitted by our member cities from all over the world. Our aim is to capitalize on the experiences of our members and, having chosen the most exemplary case studies, to produce a publication to be entitled "Historic Cities and Development: Keys to Understanding and Taking Action".



In this process, the role of our Regional Coordinators will be essential in helping to identify the expertise of the cities within their regions. The cooperation of our member cities in responding to the questionnaire that will be sent next month, where each city will have the opportunity to relate a specific case study, will be crucial to the success of the project.

In closing, I would like to thank our Regional Coordinator for Northwest Europe, Dr. Siri Myrvoll, for her efforts in the realization of this conference. I think that I speak for all of us who are a part of the OWHC, that we greatly appreciate her continuous, outstanding work in promoting the values and objectives of our Organization. Furthermore, I wish to express our gratitude for the generosity and contribution of the City of Bergen in sustaining the Regional Secretariat for so many years.

We have been provided with a challenging theme and a forum in which we may debate the issues and express our opinions. This has been made possible through the dedicated planning and work of the Organizers, whom I warmly congratulate.

Let us go forth, then, to the task, in the firm belief that our deliberations will once more produce concrete measures and strategies for the better protection of our cities.



WELCOME ADDRESSES

RAY BONDIN
President CIVVIH

Environmental challenges to urban World Heritage

I must first of all start by congratulating the City of Regensburg and OWHC for undertaking to organize this meeting. It is a fact known to everyone nowadays that the world is going through rapid climatic changes. We do not have to be experts to feel the pressures of climate change in our daily life. These changes are seriously affecting our heritage through two ways: first of all the direct impact of these changes on our heritage, both natural and cultural sites, and secondly through the changing patterns in the way we live, in our tourism and in the way we make use of our resources.

At the same time that knowledge is ever on the increase, most of us try to ignore these changes, hoping that they will not change the way we live, the way we use up our resources, the way we look at everything as if what is important is what we do today and not what we will find tomorrow. It is therefore very courageous of OWHC and Regensburg to face this challenge, to discuss it now and to try and come up with solutions on the matter.


I have personally been a member of the ICOMOS World Heritage Panel for the past eight years. I have done a serious number of evaluation and monitoring missions for UNESCO itself, for ICCROM, ICOMOS and OVPM. I must admit that I have never given consideration to the problems of the climatic changes on this heritage, simply because it has never been discussed or presented, and it has never been, as it should be, one of the indicators in understanding how the heritage is being protected by the State Party.

The World Heritage Centre itself has only just started to discuss this matter. The first concrete step in this direction was when experts were brought together for a meeting that was held in March 2006 at the

UNESCO headquarters in Paris. This was the result of some pressure put on the Centre by some NGOs and also by some governments. Following this, two documents were presented to the World Heritage Committee that met later that year in Vilnius. During that meeting, at which I was present, some State Parties were actually shocked into listening about the effects of climate change. The World Heritage Committee reviewed these two documents and took the decision to request all the State Parties to implement the strategy so as to protect 'the outstanding universal values, integrity and authenticity of the World Heritage sites from the adverse impacts of climate change'. The Committee also requested that everyone who is involved in the process of world heritage must develop and implement pilot projects in World Heritage sites so that they will form the base of good case studies on the matter.

All the Committee Members were very much in favour of this action except for the United States that were very reluctant to allow the Committee to discuss the adverse effects of climate change on World Heritage sites and in particular to put sites on the World Heritage List in Danger without the consent of the State Party. [The reasoning behind this is debatable.]

There is also some fear among State Parties that taking into consideration climate changes may increase their costs of managing sites. In reality this is not the case at all. What in simple terms needs to be done is to ensure that climatic changes are considered in all the actions that are taken and in any system of indicators that we use for our sites. In actual fact if climate changes are taken into consideration we can actually improve the way we keep our sites.



It is also very clear that part of the problem is related to management, as are all problems. The effects of climate changes are so vast that we need to listen more to all the stakeholders in all the work that we do. I have also insisted in my personal work and in my lectures that we need to have a participative system of management. That is we need to include as many stakeholders and interested parties as possible. We need to include all sectors of our communities. Such wide participative management systems give much better results.

The reports that were prepared outlined three clear actions that need to be taken:

Preventive Action

We need to update our systems of preventive conservation with stronger emphasis on monitoring and reporting. By stronger action of monitoring we will make sure that we notice changes happening to sites well in advance and take the necessary action to stop the damage before it is too late or becomes too costly to solve. This action must ensure that we make decisions and choices in our actions that are environmentally sound and which give the best results to mitigate the effects of climate change. We must involve all levels of society, from individuals, communities and institutions.

Corrective Action

We have to take into consideration climate change in everything we do but in particular in our management plans. Our plans must be revised to reflect the changes that can be necessary as a result of climate change. Our strategies, both local and national, must reflect these problems.

Sharing Knowledge

This is an area in which we are all still learning. We do not know enough about the effects of climate change. We need to share our knowledge, discuss best practices and case studies. We need to conduct more research and training. We need to inform the public but also site managers, train our curators and ensure that everyone involved is aware of the related problems. It is however much more difficult to get the financial support needed to undertake such programs so we need to educate both the public and the politicians and we need to make our institutions aware of the problems involved. We need to pull in all sectors of society, especially those

that can help with research such as universities and scientific institutions.

It has also been rightly stated that this whole discussion can help to bring in more closely together the two sectors of heritage as mentioned in the World Heritage Convention, that is the cultural and heritage sites. Unfortunately, and in spite of various efforts, that is still a great divide between the two sectors when this should not be so.

Of course none of our actions can have the desired effect if they are treated solely at the local level. Climate changes do not affect a site on its own but is related to a region or a country and even beyond that. Therefore site managers cannot take action on their own unless there is policy backing on a regional and national level. It is useless for a site manager to take certain action when what happens around the site is not seen as well. The State Parties must therefore address the issue at a site level, encouraging site managers to monitor climatic parameters and report on changes, but they must also be backed by stronger action on a wider level. The State Parties must understand the complexity of the situation, must react through a national policy. It is very important that State Parties avoid duplication of work and take into consideration the protection of heritage through all the other actions and programs related to climate changes. This will avoid unnecessary duplication of work.

My work related to World Heritage is mainly related to cities. As President of CIVVIH, the International Committee of Historic Towns and Villages, I have to address the issues related to cities. The management of historic cities is becoming more and more complicated, and it certainly does not help that now we also have to consider climate changes.

Management of historic cities is becoming more complicated due to the pressures that are being made on cities as they try and resolve the differences between conservation and development, between request for new services and building on the one side and the cost of restoration on the other, between the need to increase tourism and the need to mitigate the damage done by tourism. Site managers of World Heritage cities do not have an easy task.

Certainly today we can treat cities as museums, we have to accept certain changes, but we also have to be innovative in the way we manage our historic cities.

The very concept of what a historic city is has changed drastically over recent years. When the World Heritage Convention was written in 1972 it talked about cities as a 'group of buildings'. The emphasis was on protecting individual monuments. It was thought that only the most important monuments deserved to be protected. This attitude allowed for various changes to be made to our cities in the seventies and early eighties.

However our concept of historic cities has changed dramatically as we have seen the devastation that the cities faced as a result of this attitude. Suddenly important monuments were surrounded by new developments, new shopping areas and new apartments. The pressure on cities is still very strong as we approach a situation whereby two thirds of our population will soon live in cities. Most of our citizens want the comfort of new apartments but would prefer to live in a historic city with their public spaces, enjoying an evening out walking or stopping in a piazza or enjoying cultural activity. This is not an easy dilemma to deal with.

The problems get even more complicated with the demands from tourism. We all need tourism. Nowadays even the richest countries of the world need tourism. We need the jobs and the financial resources that come with tourism. We strive to win tourism from upper economic levels but in reality we do not have real control over the kind of tourists we get or our control is, at most, limited. We speak of tourism models, of cultural tourists, of high end tourists but in the end we all accept what we get. We do not really have a choice. If there is one thing that we all agree about is that tourism brings in revenue and it is one of the best sources of revenue because it employs a very wide range of people.


On the other hand a lot of investment is done in tourism and tourist related structures or infrastructure but very little is given back to the protection of our heritage sites. Certainly none of us have enough financial and human resources to conserve our heritage in the best way possible.

Climate change also affects tourism and the way our cities function. In a way I look at this problem in a positive way as it is known fact that it is much easier to find financial resources for environment protection than for heritage protection so hopefully we will find more funding for heritage protection now.

Our view of what a historic city is has been largely widened to the concept of historic urban landscape so that we are more and more becoming aware of the fact that the conservation of a city is seriously affected by what happens around it. We cannot consider the preservation of a cathedral or a temple and ignore the urban context around it. Such an important building was built to give a service to a community and could not have existed without that community. You do not build a cathedral in the desert but in a city. We must therefore protect the city around the monument and we must protect all levels of that city. Cities are not, as unfortunately is stated in the 1972 World Heritage Convention, a 'group of buildings'. They are much more and should be treated as such. But if what is important around a monument should be protected in the same way that the monument is protected so that it does not lose its historic context, in the same way we have to protect the landscape around the city as this also formed part of our historic views of the city. The visual axis towards a historic core, the skyline, the streetscape and all elements in between including such natural areas as rivers or green areas of the city, all form part of the urban tissue.

Of course mentioning principles is one thing, actually putting them into action is completely different. As I have already stated cities are going through dramatic changes and we cannot stop all development.

The issue of climate change should help us to give stronger consideration to the way we deal with cities as a whole. There is no doubt that these climate changes will affect our cities. We have to be extra careful in our conservation projects but we must be even more careful in introducing new buildings and in changing the environment of our cities. In this regard we see nothing but mistakes around us. We see new buildings coming up that not only do not fit the historic context of our cities, both in shape and materials, but also create new problems because



many times they are created in materials and design that increase and not decrease the effects of climate change on both the building itself and on the urban fabric around it. We certainly must be more careful in the design of new buildings not only because they must be compatible with the historic areas but also they must not be allowed to increase our problems.

Conservation will become more complex as climate change increases. Buildings were designed for a specific local climate, and may not 'function' in the best way with these changes. We are already seeing devastating effects of new pests that are affecting some historic materials. Climate change will put more pressure on the request for air conditioning, and the installation of lifts, leading to increased pressures on our heritage. Problems with traffic and parking, already the major headache for historic cities, will increase substantially. The increase in sea levels will seriously affect low altitude towns, or towns that depend on tides. Fortifications in particular will be seriously affected. We will also be seeing an increase in dampness and in salt formations. The changes in soil temperature will surely affect archaeological remains and new solutions will have to be found for these threats. We are already seeing an increase in shelters even though both aesthetically and from a conservation point of view they are definitely not always the ideal solution. The list of physical threats as a result of climate change on cultural heritage is endless.

But there is more. Cities in particular are very vulnerable to social changes and there is no doubt that climate change will bring about changes in the way we live and organize our lives, in the time we spend on leisure and how and where we go for leisure.

All these changes will surely affect the OUV, Outstanding Universal Values, of our World Heritage site. We need to understand better how these changes will affect these sites. We need to be prepared and prepare now. We need to educate the public. We need to educate our curators, site managers, our maintenance teams.

There is no doubt that we will be facing increase in maintenance costs at a time when financing for maintenance is already substantially down. Politicians and cities will always find it easier to

provide funding for new projects and tend to look down on maintenance. Climate change will increase the need for more frequent maintenance interventions and we therefore need to inbuilt maintenance programs in the conservation projects that we undertake rather than expect to get more finance later.

The changes in climate will seriously affect facades of our buildings and our monuments. We will have to experiment with new conservation materials. We have to monitor what is happening to our monuments more frequently.

Some case studies already show that climate change is already seriously affecting our cultural sites. The effects on natural sites is obviously more devastating as we see strong changes in the environment with serious effects on a lot of environmental and biological systems.

We are warned and have been receiving these warnings for a long time. Little has as yet been done. We need to be more pro-active in discussing and solving these problems. We need to have longer term master plans. Maybe a 10 year plan is not enough. We need to have systems that adjust our master and management plans more frequently.

We all admire beauty but beauty is very fragile. We have already made so many mistakes even though everyone, even the simplest person, will tell you what is acceptable and what is not acceptable. Now we have the challenge of climate change. We need to ensure that we are much better prepared for these changes as a time will come when citizens will turn to politicians and conservators alike and ask us what we did to make sure that their heritage has not been harmed.



INTRODUCTORY SESSION

The management of increasing catastrophe risks

RAINER FÜRHAUPTER

Dealing with large risks is the daily business of an insurer. But there are also catastrophes, events which because of their effects deserve extremely close attention and which represent a special challenge for us.

1. Fire and earthquake

The Historical Salt Barn (Salzstadel) 1988

We are meeting here today in one of the two historical Salzstadel (Salt Barns) in Regensburg. About 20 years ago, in September 1988, the other one was destroyed by fire. The cause was never determined.

The Salzstadel was, like almost all buildings in Bavaria, insured against fire with the Versicherungskammer Bayern. Thus the reconstruction costs of about 2,000,000 Euro were covered by us.

Our mission is to do more than just pay out claims. Our team of engineers consists of more than 40 experienced experts who oversee the reconstruction of damaged buildings. The preservation of original materials in historical buildings is very important. Questions rise as to what methods of restoration are appropriate and which building materials can be saved? In most cases the restoration of artistically designed surfaces is more expensive than simply starting from scratch.

However, we are not satisfied with simply restoring destroyed buildings. At the end of the day such catastrophic damage should be prevented from ever happening again. We therefore think it is obvious we should offer advice about fire prevention alongside the reconstruction. Questions such as how a building can be more secure in the future are discussed with the owners and, in the case of historical buildings, also with representatives for the

preservation of historical monuments. Since we have to consider the appearance of the buildings very carefully, creative solutions are needed, some of which may go beyond current guidelines and regulations. You can see an example of this thinking in the restoration of this salt barn. The barn has been modernized to include fire preventative measures and with this meeting of the old and the new I assume that you feel safe and well here!

Of course we also carry out fire prevention counselling in cases where there has not yet been a fire. Perhaps that is the reason why we in Bavaria have a better loss ratio than the German average. The Bayerische Landesbrandversicherungs AG, a non-life stock company belonging to the Versicherungskammer Bayern, has been providing active fire prevention since 1852. At that time the first engineers were employed under the name "Fire inspectors".

The Landesbrandversicherung AG's field of activity is Bavaria and the Palatinate, but, because of our good reputation, we operate in other regions, too. The Wartburg in Thuringia serves as an example of the reasons for which our experts have created a fire protection concept.

The most important features of this are:

- The creation of fire areas, especially by means of self-closing and fire-resistant doors
- The control and renewal of the electrical installation, a typical source of fire, especially in the case of historical buildings
- The organization of the defensive fire protection.

By means of technical improvements to the fire protection system, the probability of fire damage has been reduced. However, a major loss is still possible. It is, therefore, important that the Probable

Maximum Loss (PML) of this building complex be reduced from about 55 to 37 Million Euro. This naturally has a positive effect on the technical insurance risk, but its main effect is that in the event of a claim, a much larger part of the historical structure would be saved.

We also have a good example of an earthquake claim for another castle, the home of the Hohenzollerns near Sigmaringen (Burg Hohenzollern Earthquake 1978), in 1978.

Although there are not many areas in Germany that are prone to earthquakes, the Hohenzollern rift is the most dangerous one.

The probability of an earthquake occurring is much lower than for a storm or a flood, but if one were to occur, the damage could be enormous.

2. Climatic Change (Wind and Water)

We must reckon with an increase in temperatures of between 2°C and 6°C in the next 100 years, with a probable average value of about 3°C in Central Europe.

Parallel to global climatic change there will also be changes at the regional level. Due to its location in the high latitudes of the northern hemisphere, the northern edge of the Alps will be particularly affected by climatic change.

Even more important will be the redistribution of seasonal rainfall and the increase in extreme weather events, which will likely have extreme consequences.

Climatic Change also means an increase in Winter Storms.

Here is a list of the largest winter storms since 1990:

- 26/02/1990 winter storm (Hurricane) "Vivian", 2 days later "Wiebke" - 53 deaths
- 27/10/1999 storm "Xylia", strong rainfall, five people drowned
- 03/12/1999 "Anatol": serious havoc, ten people died
- 26/12/1999 "Lothar und Martin": wind speeds of over 200 km/h. Massive damage and 125 human victims
- 06/07/2001 "Willy", 25 deaths
- 16/12/2005 "Dorian", 100,000 households without electricity

- 18/01/2007 "Kyrill" causes billions in damage in Europe
- 01/03/2008 "Emma" major claims in Bavaria, "half-Kyrill" - VKB about 40 million €
- ...

We were particularly affected by the winter storm Kyrill, which in January 2007 caused insurance claims running into the billions of Euros. A special challenge after this event was the prompt settlement of claims amounting to 1,3 [one point three] billion Euros. Fortunately they were not all as spectacular as what you will see on the following slide¹.

The perils arising from climatic change are on the one hand currently insured by the storm and hail insurance for buildings and contents and, on the other, by the insurance for so-called natural hazards. By the latter we mean perils arising from the following events:

- Heavy rains and floods
- Subsidence and landslips
- Avalanches and snow pressure
- Earthquakes and volcanic eruptions

Natural catastrophes are increasing

Natural catastrophes are increasing dramatically worldwide, both in terms of frequency and severity. The insurance industry paid 35 billion USD in claims in 2007, an amount that was three times the amount as in 2006. In 2007 950 natural catastrophes were recorded (in comparison, in 2006 there were 850). On a really topical note, in August of this year in Dortmund 200 litres of rain per square meter were measured in just one hour!

In particular the increase in flooding and heavy rain is very noticeable and this is very likely due to climatic change. Whereas flooding from rivers attracts a great deal of attention, regional events such as the increasingly heavy rainfall are usually only noticed in the places they occur.

Flood Risks - Flood water in the Elbe in 2002

In Dresden, Germany, portions of the River Elbe rose from the usual summer height of 6 feet (1.8 meters) to over 30 feet (9.1 meters). **Damage in Saxony: 6 Billion Euro.** In Grimma, Saxony, the old city was

¹ the lecture was presented as a power point lecture, the pictures could not be printed however (note of the editorship).

completely under water. The result of the flooding was serious. Houses collapsed or were near to collapsing. The facades were destroyed.

3. Risk Management Service

In order to insure risks, it must be possible to quantify them. Sometimes it is only possible when individual improvements have been made. Our experts also work out special preventive measures in such cases.

In order to calculate and insure flood waters at all, a zoning system had to be developed, from which it is possible to see the degree of danger for each individual building. In this field the Versicherungskammer Bayern has been at the forefront of developments and, in 1999, it introduced its first system. In the meanwhile ZÜRS (Zoning System for Flooding, Heavy Rain and Backwater) has been introduced into the German insurance industry.

ZÜRS – Flood Zoning-System

There are 4 hazard classes covering all areas of Germany:

- GK 1: statistically less than one flood every 200 years
- GK 2: statistically one flood every 50 - 200 years
- GK 3: statistically one flood every 10 - 50 years
- GK 4: statistically more than one flood every 10 years

ZÜRS – Regensburg detail (Salzstadel)

Using this slide I can show you the flood risk assessment for the venue where we are today.

Content: Prevention

Rising Temperatures ► Rising Energy in the Atmosphere

- Stronger storms and heavier hail and rainfall
- Need for prevention
- Need for warning systems
- Need for evacuation plans

Finally: Historic buildings and their interiors can't be brought back.

The Insurance Claims Payment is no real replacement of what has been lost!

Possibilities for Prevention

Now I will show you my favourite example of prevention. The Versicherungskammer Bayern has developed with the Fraunhofer Institut ISST and meteorologists an early warning system for bad weather.

WIND – Weather Information on Demand

It is called WIND (weather information on demand) and sends the participants extremely precise severe weather warnings in their medium of choice. The reports are usually received as an SMS. More details are shown in emails sent simultaneously.

- 2002: Introduction of the innovative weather warning system "WIND" Versicherungskammer Bayern
- Warning: storm/hurricane, heavy rain, heavy snowfall, freezing rain and thunderstorms (with heavy rain, hail, storm gusts and tornadoes)
- Currently more than 350,000 customers in Germany and Austria
- <http://www.unwetterzentrale.de>
- Special offers for municipalities and counties
- Exclusive access to radar and precipitation data for our "special customers"

Emergency management - sometimes every minute counts

- Evacuation of art and cultural goods
- Drying/Freezing (old books or art/paintings) after flood or damage by extinguishing water
- Drying or "static support" of buildings
- Fast reduction of damage after the catastrophe occurs is essential!

Summary - Activities of Versicherungskammer Bayern

We understand our role as being not only here to pay insurance claims, but also to improve preventive measures and develop solutions to meet future challenges. And so we recognize our duty to deal responsibly with the environment and to reward appropriate behaviour accordingly.

Our customers are rewarded if they build houses that save energy and regenerative energy is encouraged by means of attractive insurance proposals. Furthermore, we participate actively on research projects in order to support improvements in

construction and forward looking solutions in connection with climatic change.

Since 1997 the following ecological features have been components in the residential property insurance:

- Discount for energy savings
- Free insurance surcharge of solar energy systems

Since 1998:

- Participation in the "Umweltpakt" (Environmental Pact) of Bavaria
- Ongoing research and development for the improvement of structural engineering and weather forecasting

ZUSAMMENFASSUNG

Rainer Fürhaupter, Vorstandsmitglied der Versicherungskammer Bayern, gibt in seinem Aufsatz Auskunft darüber, wie sich aus Sicht einer Versicherung Naturrisiken darstellen und welche Gegenmaßnahmen getroffen werden, zukünftige Schäden zu minimieren. Welche Summen dabei im Spiel sind, zeigt er unter anderem am Wiederaufbau des Regensburger Salzstadels auf. Wichtig für einen Versicherer ist zudem das genaue Systematisieren von Gefahrenstufen, wie Fürhaupter am Beispiel der Überflutung demonstriert.

Da präventive Maßnahmen der beste Schutz für wertvolle Objekte sind, beteiligt sich die Versicherungskammer Bayern stark an der Entwicklung von Instrumenten, die diese ermöglichen. So wurde beispielsweise ein satellitengestütztes Frühwarnsystem entwickelt, das Klienten über SMS vor Stürmen oder starkem Regenfall informiert. Für die Versicherung sei es überdies wichtig, ihre gesellschaftliche Verantwortung wahrzunehmen, weshalb sich die Versicherungskammer Bayern auch im Umweltschutz engagiert. Beispielsweise, indem sie besonders Energie sparenden Kunden niedrigere Beiträge gewährt.

*Salzstadel Regensburg – Versicherung –
Präventive Maßnahmen – Klimatischer Wandel –
Zunahme von Naturrisiken – Hochwasser in
Grimma, Sachsen – Stürme – Kyrill – Notfall
Management – Elektronische Frühwarnsysteme
– Risk Management Service*



INTRODUCTORY SESSION

New challenges – World Heritage in the urban context

MECHTILD RÖSSLER

1. Introduction

Coming back to Regensburg, is a great pleasure for me as I had the privilege to inaugurate this site in November 2007 at an event celebrating the achievement of the World Heritage inscription with the local people and all those cherishing our heritage of outstanding universal value.

First of all let me transmit most cordial greetings by the Director of the World Heritage Centre Mr. Bandarin who is not able to be with us today.

Secondly I would like to thank the Organization of World Heritage Cities (OWHC) for organizing such a challenging event on "earth wind water fire", an event of global importance also beyond the European Region.

With the topic of "New challenges – World Heritage in the urban context" I will try to tackle some of the major themes in urban conservation in the following. I divided it into three sections in order to cover three key issues of urban conservation through the lenses of our work for the World Heritage Convention and the World Heritage Committee: setting, context and environment.

2. Setting

Setting is one of the major issues which came up at many World Heritage Committee discussions – the setting of properties in the urban context and for cities inscribed on the World Heritage List; threats to these sites and their setting came from the demolitions of buildings important to the outstanding universal value, from ongoing urbanization and ill advised developments and in particular from a number of high rise buildings which do not respect the setting in the urban

landscape in the broadest sense, including beyond the built environment the natural environment and geological conditions.

The City of Graz (Austria) tries to include the Eggeberg as an extension to the existing site. This would take into account the natural setting and geological features important for the development of the city. The Committee however dealt mainly with threats to the setting by ill advised architectural developments such as the one we call "the Alien"¹.

Setting is one of the catchwords of our reactive monitoring missions, such as to the Historic Peninsula of Istanbul (Turkey) in 2006 and 2008. The site is not only threatened by large scale developments and new structures in and around the historic peninsula but also by potential threats of earthquakes and fires threatening the traditional wooden buildings and vernacular architecture of this living city. Seismic threats and preventive measures have been integrated into the work on the management plan.

The picture of the City of Tallinn (Estonia), reminds us that a recent study by the University of Frankfurt/Oder showed that major issues of high rise development happened only after the inscription of the property on the World Heritage List, which clearly illustrates a major problem of lack of awareness about World Heritage conservation, values and integrity of the sites facing major economic development. However I mention Tallinn as one of the cities in the Nordic and Baltic Region facing increased extreme weather events in the future, including wind and storms as well as increases in precipitation. This gives me the opportunity that only in December 2007 the first meeting on World Heritage in the Arctic was held in Narvik, Norway,

which specifically drew the attention of all to the effects of climate change to this region, may be more affected than other areas.

The case of the City of Vienna (Austria) not only illustrates a successful and constructive interaction towards the protection of the setting and integrity of the property with the revision of the Wien Mitte project following the discussion of deletion of this site by the World Heritage Committee! This case and the following of Cologne (Germany) also show that developments threatening the setting are often outside of the sites or even any buffer zone. With Cologne Cathedral, we see a single building in an urban context – but setting here meant the setting of an iconic building next to the Rhine River and illustrates the issues of integrity which led to Danger listing because of a high rise development outside of the property on the other side of the river.

For the two World Heritage sites located in London, Westminster Cathedral and the Tower of London (United Kingdom) potential risks to integrity by both developments and natural hazards were now taken into account for the management plans for the two sites.

Even more dramatic were the discussions on integrity for the case of the Dresden Elbe Valley (Germany) as the flood plains of the Elbe Valley were specifically mentioned historically not be built on not only because of the regular flooding in these areas, but also protecting the views towards the city. It was argued against a tunnel solution that it was difficult because of potential flooding. Another site, the "Venice of the North" St. Petersburg (Russian Federation) is a city which has to face global change and climate change with increased floods and increases in temperature.

3. Context

For a long time the context of heritage properties has been neglected and again a number of issues have to be noted in this regard, covering volumes, shapes and materials and therefore very much linked to the environment, our key topic.

I would like to flag that the issue of context is also an issue about values and identity. Local people and communities feel very much attached to their heritage; we have however to keep in mind that

context may be different for different ages, social groups or minorities. Today we have the first city in Europe with more than 50% inhabitants of non-European origin, this is Birmingham located in the United Kingdom. Therefore I believe that context has to be seen in a much larger sense taking into account global processes such as migration and its impact on safeguarding heritage. This is also linked to the loss of traditional knowledge in our fragmented societies, as this traditional knowledge covered also the long-term understanding of changes to the environment.

4. Environment

Issue of environment is not only one of the key issues at this conference and in particular during the UN year of Planet Earth. This takes into account the complexity of the environment, including clean water, air, energy, waste etc. and the landscape setting of the cities;

The World Heritage Centre jointly with ICCROM prepared a "Strategy for Reducing Risks to World Heritage Properties" in 2006 following a request by the World Heritage Committee and taking into account increasing challenges and management of disasters and emergencies. The main purposes of producing such a strategy were to strengthen the protection of World Heritage properties and to integrate it into risk reduction policies and management planning and in general to provide guidance for World Heritage strategic and planning processes. This strategy was also integrated into training programmes and took into account traditional knowledge systems existing in communities about risks to their heritage such as floods.

Practically all themes of this conference have been brought to the attention of the World Heritage Committee with specific cases also in Europe:

Water: International assistance was provided by the World Heritage Committee to sites in emergency situations due to floods such as Prague and Czesky Krumlov (Czech Republic) after the major floods in central Europe in 2002;

Earth: The Citadel of Bam (Iran) or the Historico Cultural Region of Kotor (Montenegro) were

included on the List of World Heritage in Danger due to the damage and destruction by earth quakes;

Wind: Extreme weather events such as storms affected numerous World Heritage sites such as Notre Dame within of the Banks of the Seine World Heritage Area or the historic trees in the gardens of Versailles (France);

Fire: Fire protection systems were discussed for many World Heritage sites and the impacts of blazes on World Heritage cities such as Edinburgh (United Kingdom) or Olympia (Greece) were taken up.

However considering global change and new and emerging issues I will focus in the following on climate change and World Heritage cities.

The issue of climate change was first discussed at a World Heritage Committee session in Durban, South Africa in 2005. Subsequently, two international expert meetings were held in 2006 and 2007 and a strategy was discussed and adopted by the World Heritage Committee in 2006. In only three years, this topic – climate change and World Heritage - was discussed for the first time globally for cultural heritage. It should be noted that this is a major step forward. However there are hardly any cultural sites and in particularly cities which have included climate change within their management plans, risk preparedness plans or even thinking a step further including reflections currently under way on impacts of climate change for tourism management in our cities and cultural heritage sites; It may result in different tourism patterns and visitation schemes for the World Heritage sites. In Venice the increasing frequency of the "Aqua Alta" impacts already visitor schemes. Some sites in Southern Europe with heat waves may be visited in the future at different times of the year than before.

5. Environmental Challenges and Standard Setting Instruments

Paralleling the evolution in thinking about setting, context and environment, some of these issues evolved and were reflected in standard setting instruments by UNESCO and charters by ICOMOS International and other bodies.

The Amsterdam Declaration (1975) about architectural heritage as "joint possession of all the

peoples of Europe, they have a joint responsibility to protect them against the growing dangers with which they are threatened - neglect and decay, deliberate demolition, incongruous new construction and excessive traffic" and considered it "a major objective of town and country planning" and one of "integrated conservation";

The Recommendation concerning the Safeguarding and Contemporary Role of Historic Areas, (November 1976) covered the environment and setting in a very general way.

The Washington Charter of 1987 went a step further with "Historic towns should be protected against natural disasters and nuisances such as pollution and vibrations in order to safeguard the heritage and for the security and wellbeing of the residents. Whatever the nature of a disaster affecting a historic town or urban area, preventative and repair measures must be adapted to the specific character of the properties concerned."

This means the notion of risk preparedness was well established at the time.

With the evolution of new concepts such as cultural landscapes or the intangible heritage the question of risks and threats evolved in parallel and was much enlarged; The conservation evolution from monuments to living cities and cultural landscapes meant larger areas, management of change and adaptation and integration of participatory planning processes which included other disciplines than architecture;

The principles of urban conservation planning evolved and in a number of management plans and systems, risks including floods, fires or landslides were analyzed and integrated. Concepts and tools under the World Heritage Convention reflect this development and are at constant evolution and the risk preparedness specifically has evolved during the last ten years with the ICOMOS ICCROM Manual on risk preparedness in 1998 and the ICCROM training kit on "Risk Preparedness for Cultural Heritage" designed to make managers aware of conservation concerns and approaches and accordingly define and prioritise heritage values as part of risk preparedness measures. It also aims at integrating heritage concerns in overall planning for risk management.

The International Workshop on Disaster Risk Management in Olympia/Athens, Greece in November 2008 reviewed specific case studies (see <http://whc.unesco.org/en/disaster-risk-reduction/>)

6. Conclusion

In moving ahead it is necessary to develop more tools and enhance the evolution of concepts. We have to see cities as sites in their overall context to evaluate potential risks and we have to improve the analysis of the outstanding universal value in this context including natural values, geology as well as intangibles and traditional knowledge of people about these risks. The review and redefinition of buffer zones will further help us to address risks better in particular for the case of floods.

It would be worthwhile to further explore a landscape approach for living cities including layers of cultural and natural factors and context as a guiding tool.

Finally, I would like to express my sincere thanks to the organizers for such a challenging topic for this conference and I hope for a lot of input from the World Heritage risk preparedness discussions and also hope for future discussions. I would also like to take this opportunity to thank Mr. Petzet as outgoing President of ICOMOS in view of the ICOMOS conference on "the spirit of place" in Quebec (October 2008); Mr. Petzet accompanied our work both at the UNESCO World Heritage Centre and the World Heritage Cities Organization for many years and was in particular a forerunner and pioneer for awareness raising for "Heritage at Risk".

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ZUSAMMENFASSUNG

Mechtild Rössler erörtert in ihrem Vortrag die neuen Herausforderungen aus Sicht der UNESCO. Dabei misst sie vor allen Dingen der Verortung und dem Umfeld („Setting“, „Environment“, „Context“) von Welterbestätten große Bedeutung zu. Durch bauliche Fehlentscheidungen könne dabei schnell der außergewöhnliche universelle Wert der Stätten bedroht werden, etwa durch Umweltschäden oder Beeinträchtigungen der Sichtachsen. Anhand unterschiedlicher Fallbeispiele (u.a. London, Wien, Dresden) verdeutlicht Rössler die Konfliktpotentiale, die oftmals auch wegen mangelndem Bewusstsein für Welterbestätten entstünden. Eine weitere Herausforderung sieht sie in der Vermittlung des Welterbegedankens als Frage nach Identität und Werten. Durch eine sich verändernde Gesellschaft wechsele auch die Bezugnahme zu Welterbestätten.

Obwohl sich das Welterbe-Komitee der UNESCO dem Thema Klimawandel in der Vergangenheit verstärkt zuwandte, stellt Rössler fest, dass die wenigsten Welterbestätten etwaige Auswirkungen in ihren Managementplänen berücksichtigen.

Beim Thema Naturrisiken habe sich hingegen in den letzten zehn Jahren eine konstante Entwicklung ergeben, Gefahren zu analysieren und Risiko-Management zu propagieren. Dennoch müssten aus der Sicht Rösslers neue Konzepte entwickelt werden, die Risiken auch in übergeordneten Kontexten analysieren. Beispielsweise bei der Gefährdung des außergewöhnlichen universellen Wertes einer Stätte.

Setting – Umgebung – Kontext von Welterbestätten – Architektur vs. Welterbezone – Visuelle Integrität – Identität – Werte – gesellschaftliche Veränderungen – Naturrisiken



INTRODUCTORY SESSION

New challenges to conservation politics in a globalized world – the ICOMOS "Heritage at Risk" action

MICHAEL PETZET

As a non-governmental organization, ICOMOS has been working in the theory and practice of conservation for more than 40 years. Its setting up was directly linked to the renowned Venice Charter of 1964, in the meantime complemented by a number of ICOMOS charters and guidelines, many of them on questions of architectural conservation. If we go back to the roots of our organization our goal is conservation of "monuments and sites", not only classical monuments, but monuments in the sense of the often quoted definition from a late classical commentary on Cicero, that everything which evokes remembrance of something is a monument ("omnia monumenta sunt, quae faciunt alicuius rei recordationem"); a definition that refers to man as a "historical being" and recalls the basic, one could even say primal human wish to maintain, preserve, and if necessary even to reconstruct evidence of remembrance.

Today, for the conservation and restoration of historic buildings we have an almost inexhaustible arsenal of materials and techniques at our command; there are countless opportunities and challenges, we are equipped not only with documentation methods that range from exact measurements to virtual reconstructions of every state of a building but also with highly developed conservation and stabilization techniques for the most varied types of materials and structures. Naturally this is an arsenal that will be tested further and developed continuously in coming decades. Given the complex tasks in the field of conservation this development will also include a corresponding diversity in participating professions: not only architects, art historians, archaeologists and restorers, but also various natural scientists such as geologists or mineralogists, not to forget anthropologists, lawyers etc.

But in spite of the accomplishments of a "science"-oriented conservation profession, in which work is scientifically justified, prepared, carried out and documented, we must be aware that in the majority of cases it is traditional maintenance measures and traditional skilled repairs using traditional materials and techniques that are most appropriate, since in fact our basic concern, the preservation of authentic historical evidence, is often better served by limitation of work to the truly necessary. Limitation to the necessary means, for instance, resisting the possibility of a magnificent restoration or of "restoring back" to an earlier state, in favour of mere conservation of a condition that perhaps is not satisfying but that is a result of historic development over time; it means doing without extensive excavations, indeed doing without any archaeological excavations at all at sites where excavations are not made necessary by external circumstances.

From the perspective of ever-increasing worldwide exchanges of experience we will continue to give careful consideration to how we can avoid further destruction and best achieve our objective as it is defined in the preamble of the Venice Charter: to preserve monuments "in the full richness of their authenticity". In the often desperate battle against destruction of our cultural heritage global conservation practice will have to refer to the authentic spirit of monuments as described in the Nara Document of 1994; an authentic spirit that is not only found in "historic fabric" but is also expressed in form and design, in the historic location and setting and in the historic function. This has consequences not only for the principles of conservation that are relevant in the particular case, but also for the politics of conservation, for which different nations and regions may set different emphases in accordance with cultural diversity.



Obelisk on the top of the Four Rivers Fountain in Rome

In past centuries, what could be called "politics of conservation" referred to monuments in the form of obelisks, triumphal arches, tombs, etc. Thus certain monuments, such as the Cheops pyramid or Louis XIV's Versailles, embody the political concept of entire epochs of humankind. Today, monument protection and conservation are or at least should be a part of the self-image of every community, of every state party claiming to be a cultural state. There is no longer concern only with a comparatively limited number of "art and history monuments" which the so-called "modern cult of monuments" had in mind one hundred years ago, but rather – and this is perhaps the most important consequence of the definition of "monuments" in protection laws around the world – there is an attempt to give consideration to the entire profusion of monuments and sites that contribute to our understanding of the history of a pluralistic society. In Germany, there are now supposedly almost a million listed historic buildings, plus historic districts (ensembles) and building complexes that encompass an even greater

number of structures. On average, however, only about 3 % of the current building stock is under monument protection, since in the 20th century, and particularly in the period since the Second World War, more "building mass" has been produced than in all the centuries before. In addition, and not to be forgotten, there is the "underground" archive of our archaeological monuments, which are also endangered daily and are constantly dwindling in number.

Dealing with monuments, with real "objects of remembrance", has its particular appeal in a world that is increasingly determined by virtual experiences. In a world in transition from an industrial society to a communication society, where everything is becoming banal and the same under the heading of globalization, conservation will also experience positive impulses that could have an effect on cultural politics. The global outlook also opens up new opportunities for global conservation politics. Thus in the future we will hope for a greater number of serious initiatives for conservation protection on a worldwide level, and we will expect more international exchanges of experience in practical issues of conservation. More and more countries are seeing the chance of strengthening their cultural identity by protecting and conserving their monuments and sites. Nonetheless, the possibilities for foreign assistance through conservation projects are seldom taken up in the external cultural politics of the wealthy countries. This is hard to understand since in this field good opportunities would be offered for sensible development aid that is adapted to the particular circumstances and traditions of the individual country – in contrast to failed projects that may even have an environmentally destructive effect. At any rate, conservation is a crucial investment in the future.

When reflecting the role of monument conservation in the wide field of cultural politics one tends to forget that conservation is not only an important "school of architecture" especially for the treatment and use of traditional materials and techniques. At the same time it is a challenge for new architectural and artistic developments. After all, monument conservation in the way it has developed since the 19th century has always been in close interrelation with the "modern" architecture of the time. As a child of Romanticism the monument conservation

movement of the 19th century developed after the first brutal wave of destruction at the time of revolution and secularisation and was closely linked to the architecture of Historicism. In fact, monument conservation in those days was floating between "restoration" and creation, for which the whole vocabulary of historic styles could be used. To a certain extent the conservation practice of the 19th century was therefore part of the architecture of the time. "Classical" monument conservation since the early 20th century has strongly rejected this tendency (at least in theory) and has focused on the mere "conservation" of monuments of artistic or historical value. At the same time the Modern Movement jettisoned all "historical ballast". Under these circumstances modern architecture and preserved historic architecture could only be viewed as a pair of contrasts, if only for the mere sake of "honesty" and "legitimacy of materials" (Materialgerechtigkeit), two catchwords used by the Modern Movement and occasionally also for aspects of monument conservation, although they can hardly do justice to the spirit of the architecture of former centuries. However, since a certain "crisis" of modern architecture at the end of the post-war building boom and with the beginning of the so-called "post-modern age" when anything in architecture seemed to be allowed once again ("anything goes"), the interrelation between monument conservation and new architecture seemed once more fundamentally changed. At the beginning of the 21st century, it is at least noticeable that compared with former decades modern architecture and town planning have far more possibilities to carefully integrate monuments and historic urban contexts. In the sense of a new "repair society" there is even a tendency to mitigate the destructive effects of brutal building projects. On the other hand, it cannot be denied that the strategy practised so far to constantly renew large parts of the built environment is becoming more questionable, anyway. In the sense of the justly demanded ideal of a sustainable development it is very likely that, independently of questions of monument conservation and merely for ecological and economic reasons, tomorrow's society will simply no longer be able to afford the extensive replacement of everything that has been built in previous centuries. Now already one of the main tasks of urban renewal is to repair and reuse existing buildings.

The special role of conservation in relation to trends in modern architecture as described here shows that in future monument protection and conservation will be viewed not only from the perspective of cultural politics but also from environmental, economic and socio-political perspectives. The considerable economic significance of monument protection, maintenance and conservation/restoration is still underestimated. On the one hand, it needs to be stated that the maintenance and repair of historic buildings and districts requires appropriate skilled craftsmanship, and thus also ensures jobs for the future. Masons, carpenters, joiners, etc. with their traditional skills are needed; and dying professions are thus preserved. On the other hand, historical architecture is of considerable importance for the "image" of a place, for the inhabitants just as much as for visitors from other countries. This is the reason for the relevance of conservation for the tourist industry, which uses and markets monuments as attractions, – in some countries tourism even seems to be the only incentive for monument protection politics of any kind. Here we could ask if the globally operating tourist industry, in particular, should promote not only the (sometimes destructive) use of the cultural heritage but also its preservation. Under these circumstances it is disappointing that, despite the many assurances at countless conferences on the theme of tourism and preservation, there is a lack of commitment by the tourist industry, which with its billions of sales has become one of the most important industrial branches world-wide. In many cases the tourist industry exploits the cultural heritage through over-use that is sometimes ruinous, but does not render any serious financial contribution to the protection and preservation of the cultural heritage. A community-based soft tourism naturally could have its positive effect on preservation. But the consequences of mass tourism, to which entire cultural landscapes have fallen victim over the last decades, are all too evident. Future "politics of conservation" should not only be determined by cultural and economic politics. In order to be successful they must also be accepted and supported by society. In this context the often neglected emotional basis of conservation quite definitely plays a role: an emotional concern by society for the cultural heritage which, thanks in part to the mass media with its generally very positive reporting on conservation issues in recent years, must

be reckoned with by anyone who desires to disfigure, remove or destroy monuments, for whatever reason. Perhaps in the past we have not been sufficiently interested in certain values in our field that are more difficult to define in a positivistic sense, such as spirit and feeling. "Monument feeling" has to do with the aesthetic dimension, in the sense of enthusiasm for a work of art; as a "breath of history" it has to do with the historic dimension, beyond a strictly historical or scientific understanding of conservation criteria. Is this monument feeling different at the beginning of the 21st century? One hundred years ago, particularly in Europe, national feeling, the pride in one's national history was considered as a mainspring for conservation. In his "Modern Cult of Monuments" published in 1903 Alois Riegl, the famous Austrian conservator, linked this monument feeling to his central concept of "age-value" expressed in traces of ephemerality. If Riegl's age-value has been connected with a certain longing for death – the 1900 fin-de-siècle idea of "letting things pass away in beauty" – now, at the beginning of the 21st century, there is a kind of longing for survival, which can be identified as an essential mainspring for our new "cult of monuments": an attempt to preserve memory in a world that is changing as never before. It represents the need to at least undertake a few attempts of repair after the violent destructive processes and turning points of the 20th century. Here the term "repair" would be applied to all spheres of life, above and beyond issues of conservation: In light of the apparently un-checkable "progress" in our world, we would hope at least for a reprieve in which the destruction of and damage to our built as well as our natural environment would be "repaired", in order to secure a remnant of continuity. Beyond issues of cultural and economic politics, from our current perspective it is a self-evident, fundamental prerequisite in our field that the politics of conservation be viewed within the framework of a general environmental policy; conservation politics cannot be separated from environmental-political issues.

Instead of going into detail here about the diverse connections between monument protection and environmental protection, reference to the subject of air pollution and its horrible effects on monument fabric of stone, glass or metal will suffice. We need only think of the Acropolis in the smog of Athens.



Acropolis in Athens

The aspect of a general environmental protection which aims at saving not only the natural environment but also the environment created by man in the course of his history – that means our "cultural heritage" including monuments and sites – is confronting all actors in monument conservation with new tasks. These tasks require much more than a consistent application of conservation methods and technologies and a smooth handling of administrative matters. In future we need new initiatives supported by society to combat the worldwide advancement of environmental destruction on a gigantic scale, and it can only be hoped that the recently published UN Climate Report about the dramatic consequences of "global warming" will finally force the international community to rethink.

Recognizing that such developments gravely threaten future generations, as early as at the United Nations conference in Rio de Janeiro in 1992 the society of nations agreed upon an action program for the 21st century, the so-called AGENDA 21, which formulates objectives and guidelines for politics and economics: the model for sustainable development. The programmatic demand for a unity of ecological, social, economic and cultural goals also opens new perspectives for conservationists and frees the practice of conservation from a certain isolation that is sometimes perhaps too anxiously and dogmatically cultivated by professionals in our field. The conservation of historic buildings and ensembles together with their "setting", the natural or built environment, in fact can offer crucial contributions to the model of sustainable development. As an alternative to the short cycles of demolition and construction that are usual today – and in the long-run represent an intolerable burden on our environment because of the materials that must be disposed of – historic building fabric in general proves

INTRODUCTORY SESSION

MICHAEL PETZET – New challenges to conservation politics in a globalized world – the ICOMOS "Heritage at Risk" action

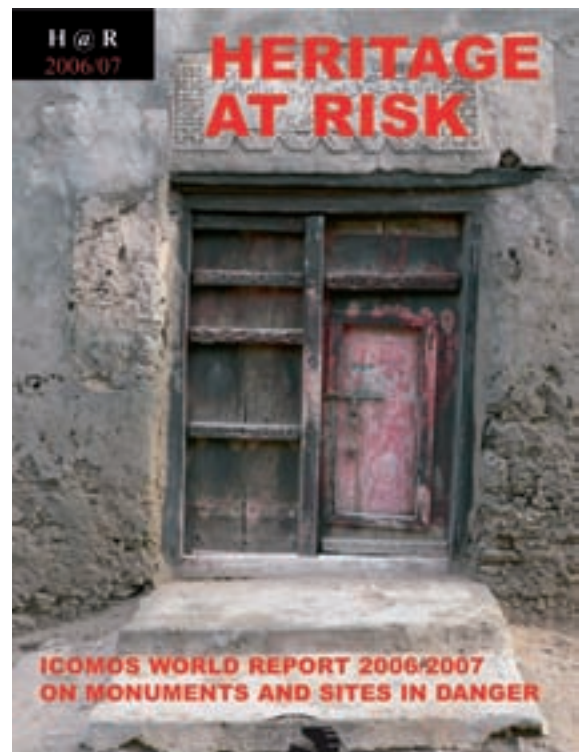
to be comparatively long-lived. Besides, historic buildings usually consist of relatively solid building materials that are even "ecological" from today's perspective, among them structures that have survived over centuries: our historic building stock as an important "resource". Monuments serve as examples of the sustainability of products: "Five Hundred Year Guarantee" was the title of an exhibition on the subject of conservation and examples of sustainable development ranging from wooden windows that can be repaired again and again to entire urban ensembles. Architectural conservation as a trailblazer for the future? Regardless of how conservation politics might change in future under perhaps quite different economic and social circumstances we can state that a theme only peripheral during much of the 20th century has become, in a surprisingly short period since the mid-1970s, an issue of public concern in many countries receiving broad general support and much attention from the media: monument protection and conservation not as a fashionable trend, but as a general political concern. Faced with the global challenges, ICOMOS since the year 2000 has published its annual World Reports on Monuments and Sites in Danger, the Heritage at Risk initiative, which according to the preface by Mounir Bouchenaki, former Deputy Director General of UNESCO, is "significant in view of its capacity to expose the dangers facing heritage in various countries of the world and promote practical measures to avert or at least allay them." With its Heritage at Risk Report, ICOMOS hopes not only to gain the moral support of the world public in the battle against all kinds of threats, but also to achieve practical results in co-operation with all forces interested in the preservation/conservation of the cultural heritage. As a non-governmental organisation, ICOMOS can identify monuments in danger from a strictly preservation-based perspective, can bluntly address the absolutely desperate situation facing the cultural heritage in many countries of the world, and can detect dangerous trends at an early stage. The types of threats that show up in the Heritage at Risk reports are very diverse. On the one hand, humankind's built heritage has always been threatened by the consequences of earthquakes, typhoons, hurricanes, floods and fires. Natural disasters have therefore been brought up time and again in Heritage at Risk: e.g. the

earthquake in Bam whose consequences our colleagues of ICOMOS Iran have had to face; the Tsunami disaster after which ICOMOS Sri Lanka showed exceptional commitment; the devastations caused by a hurricane in the New Orleans region.




House in Biloxi, USA; damaged by Hurricane Katrina

The lessons learnt from such disasters – risk preparedness, rescue actions, opportunities for reconstruction, etc. – were discussed with the colleagues concerned at an international conference of ICOMOS on "Cultural Heritage and Natural



Cover of the ICOMOS Heritage at Risk Report 2006/2007



Disasters" during the Leipzig conservation fair in October 2006. On the other hand, wars and ethnic confrontations, as in the region of former Yugoslavia or now in Iraq, are still leading to tremendous losses. But human-made disasters also include the dramatic climate change and the consequences of the world-wide pollution of our air, water and land – including the pollution-linked destruction of monuments of metal and stone that in some cases have deteriorated faster in the last decades than in the previous centuries.

The current threats to our cultural heritage are in many ways incomparable to those of earlier times, now that we live in a world that has been undergoing faster and faster change since the last decades of the 20th century. This rapid development, taking place under the pressures of world population growth and progressive industrialisation, leads to ever-greater consumption of land – destroying not only archaeological evidence under the earth but entire historic cultural landscapes – and to faster and faster cycles of demolition and new construction with their concomitant burden on the environment. Faced with this social and economic change, historic buildings that are no longer in use become endangered by deterioration or by destruction through neglect. In many countries, however, not only the financial resources are unavailable to guide such developments in the direction of cultural continuity, but sometimes the political will is also missing. This is demonstrated, for instance, if there is no state conservation organisation with appropriate experts, if there are no monument conservation laws, or if the extant legal regulations are not put to use. The continuous loss of cultural heritage is pre-programmed if there is not a certain degree of public-sector protection in the interest of the general public. As well, without sufficient protection, many archaeological sites are plundered by illegal excavations, and the illicit traffic of works of art represents a continuous loss of cultural goods that, from the conservation perspective, should be preserved in their original context. Not only paintings, sculptures and artefacts, inseparable elements of cultural sites are being decimated in many countries. Art monuments are actually being destroyed in order to gain fragments for the market: temple complexes are being looted, sculptures decapitated, and frescoes cut up.

Finally, in the development of an increasingly globalized world dominated by the strongest

economic forces, the tendency to make all aspects of life uniform represents an obvious risk factor for cultural heritage. With the new global "lifestyle", attitudes to historic evidence of the past naturally also change. However, there is hope that in some places this very globalisation is causing a renewed consciousness of the significance of monuments and sites that embody regional and national identity. This trend can also be identified for artistic and craft traditions, out of which our cultural heritage has developed in the course of the centuries.

Nevertheless, the mass products of industrial society that are distributed world-wide remain a tremendous threat, because they continue to displace the historic techniques of skilled craftsmen, and thus prevent the possibility of repair with authentic materials and techniques.

With its Heritage at Risk initiative, ICOMOS is concerned with monuments and sites in the broadest sense: not only individual monuments but also different types of immovable and movable cultural properties, like archaeological sites, historic areas and ensembles, cultural landscapes and various types of historic evidence from prehistory up to the Modern Movement of the 20th century. Innumerable historic urban districts suffer from a careless, often totally unplanned renewal process and uncontrolled urban sprawl in their environs. Construction methods using clay, wood and stone are being lost, making room for concrete constructions used all over the world. We are also losing the built evidence of our industrial history; these structures erected with modern techniques and now themselves worthy of preservation pose difficult problems for conservationists when the original use is no longer possible. And even architectural masterpieces of the Modern Movement of the 20th century are threatened with demolition or disfigurement. In 2007, a Heritage at Risk Special was published on highly endangered examples of Soviet avant-garde architecture of the 20th century. This report is the result of a Heritage at Risk symposium held in Moscow on 18 April 2006 (every year since 1982 ICOMOS celebrates the International Day for Monuments and Sites on 18 April).

ICOMOS, the International Council on Monuments and Sites, with some 9000 members organized in roughly 130 National Committees and 30 International Scientific Committees is the advisory body for UNESCO on issues concerning the World Cultural Heritage, in particular the evaluation of monuments and sites that have been placed on the World Heritage List or are under consideration for listing. On the whole, the UNESCO Convention for the Protection of the World Cultural and Natural Heritage remains one of the few successful efforts at world cultural politics directed at saving humankind's cultural heritage, and ICOMOS is proud to be able to work with UNESCO as an advisory body. The monuments and sites, historic districts and cultural landscapes that are entered on UNESCO's World Heritage List should in fact be numbered among the non-endangered monuments, but here, too, there are not so few cases of substantial danger: for example the scandalous condition of such a famous site as Pompeii; also problems with cities on the World Heritage List, for example celebrated historic towns like Toledo or Salamanca. Lately, in connection with historic towns on the World Heritage List there has been a whole series of dangerous projects for high-rise buildings at totally inappropriate locations, for instance the project for a Gazprom building in St. Petersburg. ICOMOS has nothing against high-rise buildings in general. But what would a skyscraper of 600 metres, two so-called "Dubai Towers" of 300 metres and additional clusters of high-rise buildings mean for the visual integrity of the World Heritage zone of Istanbul and for the famous historic skyline of that city, even if they are situated at some distance from the historic centre? There have already been some spectacular cases, like the Wien-Mitte project or the project for a cluster of high-rise buildings as some kind of counterpart to Cologne Cathedral, both successfully prevented or given up because the World Heritage Committee threatened to delete the sites from the World Heritage List. At the moment there are plans for a new version of the so-called Vienna Memorandum of 2005. Unfortunately, the present version of this memorandum could be understood as a *carte blanche* for any kind of renewal and modernisation. This has to do with the fact that the tenor of the memorandum assumes that all questions of urban development in historic towns are just a matter of the quality of the design or of the "architectural achievements" of our time. However, the goal of the

World Heritage Convention is first of all the protection and conservation of monuments, groups of buildings (ensembles) and sites. New buildings, which may be necessary and make sense, have to pay respect to the historic fabric already existing and should therefore be subordinate. There are also some historic ensembles which are so complete – perfect, if you like – that any modern additions, whatever they may be, will only harm the visual integrity; take the Piazza San Marco in Venice, for instance. Of course, this does not mean that sustainable repair, necessary technical modernisation or an improvement of the infrastructure will not be allowed. In any case, at least from the point of view of ICOMOS destructive interventions in the urban structure of World Heritage zones should be rejected on principle.

ICOMOS, advisory body for the World Heritage together with ICCROM and IUCN, is by no means only concerned with the World Cultural Heritage; instead in "furthering the conservation, protection, rehabilitation and enhancement of monuments, groups of buildings and sites" (ICOMOS Statutes, art. 4) it has an abundance of responsibilities together with its partners on national and international levels. Therefore, our Heritage at Risk Report, providing information on the endangered cultural heritage worldwide, is not only meant as an appeal to the public; instead, ICOMOS hopes that on the basis of this report and together with its National and International Committees it will be possible to implement an increasing number of pilot projects organised by its experts. Under the present financial and organisational conditions of ICOMOS the opportunities to realise projects that should set standards for a professional treatment of special conservation problems in different regions still remain behind our expectations. New perspectives are opened up by the ICOMOS International Conservation Centre (IICC) in Xi'an, founded thanks to an exceptional Chinese initiative. The IICC is concerned with such topics as "traditional knowledge and conservation science" and will be concentrating most of all on questions of conservation in the Asia/Pacific region and on the Silk Road.

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ZUSAMMENFASSUNG

Michael Petzet, Präsident von ICOMOS Deutschland und Honorary President von ICOMOS überblickt die Entwicklung von über 40 Jahren ICOMOS und fragt nach neuen Aufgaben und Herausforderungen. ICOMOS ist bei Denkmalangelegenheiten die beratende Organisation für die UNESCO, ihr gehören eine Vielzahl von Experten unterschiedlichster Provenienz an.

Trotz der umfassenden Möglichkeiten der Denkmalpflege, spricht sich Petzet für eine Reduzierung auf das Nötigste aus. Ziel sei es, die Authentizität eines Objekts zu wahren, wozu auch der historische Kontext, Funktion und Umgebung eines Denkmals Berücksichtigung finden müssten.

Petzet rekapituliert die Geschichte des Denkmalschutzes. Heute habe die moderne Stadtplanung viele Möglichkeiten einer Integration von Denkmälern in den städtischen Kontext. Denkmalschutz kann auch aus ökonomischer Sicht betrachtet werden. Hierbei verlangt Petzet der Tourismus-Branche mehr Verantwortung ab, da diese in Form des Massentourismus Denkmäler schädige und ausbeute, ohne aus ihren Gewinnen zum Erhalt des Kulturerbes beizutragen.

Der Schutz von Denkmälern benötige laut Petzet gesellschaftliches Engagement, dem eine Bewusstseinsbildung vorausgehen müsse. Dafür böten uns Denkmäler in dieser hektischen Zeit Verankerung. Historische Baustoffe sind im Gegensatz zu heutigen Produkten zudem beste Beispiele für Nachhaltigkeit. Neben dem gesellschaftlichen Bewusstsein für Denkmalpflege bedürfe es allerdings auch politischen Willens. In vielen Staaten fehlen unter diesen Umständen immer noch die nötigen Denkmalschutzgesetze und es gibt einen blühenden illegalen Antiquitätenhandel. Auch angesichts der einschneidenden sozialen Veränderungen sieht Petzet zukünftige Gefahren für den Schutz des Welterbes. Beispielsweise indem zur Restaurierung und Reparatur benötigte Handwerksberufe

aussterben oder historischer Baubestand dem starken Entwicklungsdruck weichen muss. Doch auch architektonische und bauliche Fehlplanungen verursachen ständig erhebliche Schäden an kulturellen Gütern.

Dennoch gelang es in den letzten Jahren in Kooperation mit der UNESCO Bauvorhaben zu stoppen, die die Integrität der Welterbestätten gestört hätten (Wien, Köln, etc.).

ICOMOS – UNESCO – Geschichte der Denkmalpflege – Konstruktion von Identitäten – Authentizität – Visuelle Integrität – Massentourismus – Änderung des Wiener Memorandums – Gesellschaftlicher Wandel und Welterbe



INTRODUCTORY SESSION

From subsidiarity barriers to sharing knowledge and decisions

CRISTINA
GUTIÉRREZ-CORTINES

Subsidiarity barriers

Although Article 3 of the European Treaty - previously Article 2 - states that "The Union shall ensure that European cultural heritage is safeguarded and enhanced"; this goal has not brought about a common conservation and protection policy. Rather, cultural heritage is opening new paths with very laudable actions, but in a dispersed and discontinuous manner. This is a glaring deficiency, when it is considered that many European citizens have grown up in historic towns and have formed their visual identity from architecture and traditional urban spaces. On the contrary, there are numerous cities that have developed some of their economies based on **artistic wealth**.


There are several reasons that justify the difficulty in identifying a common policy in Europe regarding cultural heritage. The principle of subsidiarity is the dominant cause. When the EU 'Founding Fathers' were distributing powers between the European Institutions and member states, they protected education, culture and land management from any European intrusion. Member states reserved powers and freedom of action in these three main issues in order to sustain visual memory and identity. We cannot forget that they are three intangible instruments which generate a strong and powerful link between the public representatives and their citizens.

The EU was in favour of the independence of culture, as it was considered that all aspects related to artistic, historical and/or cultural expression were a closed territory. Thus in these aspects, European policy has been to hold back, limiting action to external financial support and/or to encourage specific actions. Most of this support has always been

distributed following the criteria for receiving state benefits.

The effects that the principles of subsidiarity have had on European development are many and diverse. The EU has no formal legal powers to enact community cultural legislation; even the diffusion of cultural heritage governance raises enormous complications. Without a directly competent authority, there is no clear hierarchy for cultural heritage decision making and the launch of common initiatives creates serious problems. We could argue that the member states promote 'bottom up' initiatives and increase their cultural coordination, but things are not moving in that direction. Member States have little political will to move cultural heritage onto the European agenda. Thus, common catalogues, networks of libraries, systematic technical cooperation and other measures cannot be promoted and financed.

Nevertheless, cultural heritage has, little by little, found refuge in the environment area, where the EU does have explicit treaty authority to legislate. Some directives, like the Impact Assessment Directive, include cultural heritage among the resources to be protected. This is not the place for an evaluation of the real implementation of this directive but the positive consequences of this legislation need to be appreciated and can lead to many new opportunities for cultural heritage. A result of this adoption of cultural heritage within the ambit of environment is the inclusion of this issue in research policies. The 5FP, 6FP and the 7FP have opened the door to a long list of research projects, all related to cultural heritage¹. Many specific calls for tender related to technical issues, like CHEF, focused on floods in relation to cultural heritage in all its complexity, equally, the



IRMA-SPONGE Umbrella Programme funded by the EU, which oversaw 13 European scientific projects on flood risk management issues along the rivers Rhine and Meuse covering methodologies and tools for assessing the impact of flood risk reduction measures and scenarios, and supporting the spatial planning process in establishing alternative strategies for optimal realization of the hydraulic, economic and ecological functions of these transnational river basins².

But this is not sufficient. This is an opinion shared by many researchers who have stated that there is a gap between understanding and capacities, and have identified numerous deficiencies in general and specific knowledge related to natural disasters and to the sustainability of cultural heritage³. It is clear that much more effort is needed in diagnosis and specific solutions in each case and place. The perception of risks and natural disasters and the ability to react to these events is a new challenge that calls for a systematic approach, understanding and consistent policies.

Coming back to the long shadow of subsidiarity, the increasing catastrophes related to floods, fires and other disasters with serious damages in old European cities, like Dresden or Prague (in 2006), have created a difficult and contradictory situation of how European power must be used. Floods and other catastrophes are environmental manifestations that require attention, but at the same time damaged or destroyed resources, like architecture, works of art, or other kinds of historical objects are in the basket of subsidiarity and Europe cannot reach out and help directly. That means that the criteria for prevention, restoration or conservation are under the authority of member states.

Cultural Heritage, river floods and trans-border cooperation

In flood catastrophes, it would be useful to distinguish between mitigation, prevention and protection. Real and effective prevention is generally located far away from the place affected. Nor do the problems always have the same origin. In many cases

we are faced with problems of natural origin, but in others, there are mixed reasons, related to land structure, inadequate urbanization, changes in land uses, and other manmade interventions. We are faced with very complex problems that should be analyzed with a multidisciplinary and scientific approach⁴.

We know about the destructive effects of floods, but few studies are dedicated to the reasons for catastrophes and the specific solutions that should be implemented. Perhaps they have been written or presented in the intimacy of academic circles, or have been commissioned by local authorities, but they are not made public in the media and are not in the foreground as essential information which could be used as a basis for making political decisions for future prevention.

This lack of debate in the field of avoiding or preventing flood disasters has deep roots inside the political process. A scientific and systematic analysis of the origin of these tragic events, presupposes the detection of many bad decisions, deforestation, building infrastructures or old canalization systems all carried out without any impact assessment. At the same time the resolution of these bad decisions is a very difficult and expensive task. A long term revision of such diverse developments in many cases is quite impossible to realize. A river basin prevention policy calls for a package of short and long-term measures that in most cases would need the intervention of different authorities, ideally with cooperative programmes of initiatives.

But if we want to launch a new European policy regarding the prevention of river floods, we do have some legal instruments. The Directive of the European Parliament and of the Council of October 23, 2000 establishing a framework for community action in the field of water policy and the Directive of the European Parliament and of the Council of October 23, 2007 on the assessment and management of flood risks⁵ both consider and ask for integral river basin management. This proposal recommends and requires agreements between all

² A recent study of the European Parliament provides a very clever description of the different research projects relating to disasters and risks "Protecting the cultural heritage from natural disasters. Policy Department Structural and Cohesion Policies. European Parliament, Brussels, February 2007.

³ Ibidem.

⁴ Thomas Will, Hans Rudolf Meier, Natural Disasters, Risk Preparedness and the Limits of Prevention. In Heritage at Risk. Icomos, 2008. Tud PressMunchen.2008.

⁵ Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks, 23 October 2007, Art. 7,8 and Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, 23 October 2000.

the countries which share the same river basin. In practice, some basins, such as the Danube, are working quite well. But it is one thing to decide about water resources or water quality or water management, and another to put in place a strategic plan for the use and treatment of the river banks and the lands the river drains. In many cases dams or other infrastructure is needed. Complementary projects including agricultural practices and a coherent plan for reforestation along with other concrete measures are also needed. This integral purpose goes beyond actual water legislation and the traditional "good governance" practices and is directly in the field of "land management". This is one of the most sensitive items with relations among countries of regions and one which is clearly excluded from European competences. Land management strategies require a high political will of compromises within inter-regional common cooperation.

The Soil Directive, establishing a framework for the protection of soil, debated in the Parliament and approved there in November 2007, was frozen in the Council of Ministers that December⁶.

This is possibly the European Directive that gives most recognition to cultural heritage. In this proposal the commission tried to regulate the protection of soil, while avoiding the destruction of historic and cultural heritage. The integral approach understands that soil preservation is in direct connection with the reduction of floods, sealing, deforestation and a careful and responsible planning of infrastructures and urban expansion. On its passage through the Parliament, cultural heritage was highlighted.

On the other hand, risk is not a homogenous category that can be introduced and normalized in the hierarchy of decisions. Infrastructures, bridges, houses, museums - all need specific treatment in relation to the geographical and physical situation and conditions. What could the best policies be? We are in the field of "adaptation to climate change", a complex problem that needs support requiring political will.

The only solutions inside this labyrinth of legal limits and national responsibilities are to strengthen regional cooperation, share knowledge and build up trans-border agreements in order to enforce common strategies. But, not all is lost. In the **Life+ Programme**⁷, a financial instrument, the Parliament calls for international cooperation programmes. Certain projects related to the prevention of risks to cultural heritage could now be carried out with the support of this programme. Ultimately, we need a good diagnosis of the problems, and a shared responsibility of the issues combined with the political will to overcome them. We can only hope that Europe will work to dissolve the barriers of subsidiarity.

⁶ The Directive establishing a framework for the protection of soil was approved by 414 votes to 167. In the Council of Ministers in December 2007, some countries, the United Kingdom, France, and Germany amongst them, froze the approval, using minority blockage. At the moment, this Directive sleeps in the "dream of the righteous". The main resistance comes from the agricultural sector, concerned with more bureaucracy. Many voices were raised arguing that the boundaries of subsidiarity could be trespassed.

⁷ Regulation (EC) No 614/2007 of the European Parliament and of the Council of 23 May 2007 concerning the Financial Instrument for the Environment (LIFE+) - Commission statement.

ZUSAMMENFASSUNG

Cristina Gutiérrez-Cortines diskutiert die Frage, inwiefern das Prinzip der Subsidiarität auf EU-Ebene ein gemeinsames Vorgehen zum Schutz des Welterbes behindert. Trotz der Vorteile dieses politischen Prinzips sieht sie in Bezug auf den Welterbeschutz etliche Probleme. Das größte Hindernis sei dabei, dass die Mitgliederstaaten der EU keine klare gemeinsame Linie verfolgen. Gemeinschaftliches Handeln bedürfe aber einer zentralen und hierarchischen Steuerung, um eine effektivere Wirkung zu erzielen. Positiv bewertet Gutiérrez-Cortines einige von der EU initiierten Forschungsprojekte, die sich unter anderem mit Hochwasser beschäftigen. Die Ergebnisse müssten jedoch auch Anwendung finden. Ihr zufolge sind bereits erlassene EU-Anordnungen nur erste Schritte in die richtige Richtung, die aber bei so einem komplexen Thema wie Welterbe noch ausgebaut werden müssten. Mehr als bisher müssten die Länder auf Zusammenarbeit setzen und gemeinsam Verantwortung tragen.

*Subsidiarität – Mangel an Kooperation –
Politische Ineffizienz – Hochwasser*



EARTH

Geohazards – an introduction

CHRISTOF ELLGER

The choice of "**Environmental Challenges to Urban World Heritage**" as the theme of the Northwest-European Regional Conference of the Organization of World Heritage Cities in Regensburg during the International Year of Planet Earth 2008 has been much acclaimed by the Geoscience community in Germany. It is an important step in intensifying communication on both scientific and practical aspects of mutual interest between the earth sciences and urban heritage conservation.

1. Geohazards

The events dealt with under the "earth" heading in the framework of the Regensburg conference are generally less common and, in general, less frequent – at least in the case of Northern and Western Europe – than floods, fire or storm. But once they occur they are no less spectacular and drastic than the hazards connected with air, water or fire.

Geohazards are 1) earthquakes and volcano eruptions, i.e. processes associated with tectonics, **2) gravitational movements of rock substrate material**, in the form of landslides, rockfalls, mudflows, debris flows etc. In addition, traditionally, geology and neighbouring disciplines also deal with **meteorite impacts** on earth; even if the origin of these events is not terrestrial but cosmic, the result is, first of all, a drastic change in the geology and morphology of the earth's crust and it is therefore studied by geoscientific, i.e. geological, geophysical, mineralogical etc., methods.

2. The Earth's Crust in Motion

"Geologie ist Gelassenheit", i.e. "geology is calmness" was the headline of a recent review article on new major geology textbooks. And, indeed, geologists tend to think in millions of years when describing the dynamics of Planet Earth. The planet, however, is dynamic indeed; and there is constant movement in the lithosphere, the upper layer of the earth (crust

and upper mantle), especially the floating of the Earth's solid crust (about 100 km thick) on the liquid or viscous mantle, at a rate of about 1-20 cm per year, which means that it is very slow compared to human and societal timescales.



Fig. 1: Planet Earth: general geological model

The present-day model of the Earth in Geosciences (see Fig. 1) focuses on a number of 10 -15 major tectonic plates (depending on the definition of a "major" plate), i.e. pieces of the earth's crust, and about 40 minor ones, which float on the upper mantle. According to this concept, the process is powered by convective heat flow from the lower mantle. Above the convection flows, the plates move away from one another: rift valleys open up in the process of "seafloor spreading", and along the mid-ocean ridges new (basaltic) lithosphere is produced persistently. (The Mid-Atlantic Ridge has itself been recently included in UNESCO's World Heritage list.) When plates collide, usually the (heavier) oceanic crust moves underneath the continental crust; these subduction zones are the regions of the strongest tectonic activity on earth: Long and high mountain ranges fold up, a process

which is accompanied by volcanic and earthquake activity. A map of earthquake epicentres on earth distinctly follows the major subduction zones. But it is not only the subduction zones where abrupt changes in the earth's crust may occur and result in earthquakes and volcano eruptions. Minor plate boundaries and other parts of the crust, e.g. above specific hot-spots of mantle convection, may also be affected by these tectonic or tectogenetic geohazards.

3. Earthquakes

An earthquake is the sudden release of mechanical energy resulting from stress in the tectonic movement of the continental plates, often stored and built up in a longer process, leading to a severe deformation of the Earth's crust in a smaller or more extensive region.

Among the essential features of earthquakes is the sudden occurrence, usually without warning, although there are mechanisms which we do not understand so far (e.g. the observation that some animals or even the biosphere as a whole may "feel" earthquakes building up).

Earthquakes are not directly harmful for humans, which differs them from floods, fire or storms, but rather indirectly, through the destruction of houses and infrastructure underneath which humans get buried or through the tsunami, landslides, floods or even fire which they may cause.

Not situated in a major subduction zone or anything comparable, in Central and Western Europe earthquakes – and volcanic eruptions, for that matter – are not a dominant earth hazard. There are, however, specific zones with a somewhat higher probability of occurrence. Seismically more active areas in Germany include the region on the lower Rhine to the west of Cologne (Niederrheinische Bucht), the Rhine rift valley in south western Germany, parts of the central Schwäbische Alb in Württemberg and Vogtland south of Leipzig. Famous examples for post-volcanic activities in Central Europe are known from north western Bohemia (Czech Republic), with thermal and mineral springs and also mofettes, where gas eruptions make mudholes bubble. These observations show that here magma flows are much closer to the earth's surface than is usually the case.

4. Landslides

Whilst the hazard processes of earthquakes and volcanic activities are powered by endogenous processes, i.e. in the end by the heat in the core and the mantle of the earth, gravitational movements on the earth's surface are the result of so-called exogenous processes, i.e. weathering due to the impact of solar energy, together with gravitation. Generally speaking, endogenous processes cause the differences in the face of the earth, forming mountain heights and deepsea trenches, whereas the exogenous processes, generally and collectively also addressed as "erosion", work towards the levelling out of the surface of the earth. This also means that landslides and other gravitational movements, of course, can only occur in situations with sufficient altitude differences and relief energy. The exogenous dynamics are the specific focus of geomorphology, the geographical subdiscipline operating on the borderline to geology. The other process in focus is the weathering of the rock material; here, again, a whole range of processes can be distinguished, like thermal expansion (cracks in the rocks due to stress after heating up and expansion), frost disintegration (when water cools down, it expands – having its maximum volume per mass unit at 4°C – , and also when it freezes, resulting in stress for the surrounding solid material). These processes, together with the forces of moving water or the expansion of salt crystals are classified as "physical weathering". On the other hand, there is "chemical weathering", e.g. the chemical dissolution of (soluble) rock material, such as limestone, in water, and "biological weathering" when plants or the aggressive solutions which they produce are involved in cracking up the rock material.

In gravitational mass movements substrate material may be falling, tilting or sliding down-slope. The various types of movement can be further distinguished by type of substrate material (boulders or any degree of finer rock material); water content: dry or with varying proportions of water (moist, water-saturated, floating or dissolved in water); they also may be associated with snow (in avalanches) or ice. Rock falls usually occur in high mountainous areas, with larger in-situ bedrocks exposed to the surface over steep slopes. Landslides, in contrast, in the form of earth flows or mud flows (water-saturated), may run down on slopes with an angle of

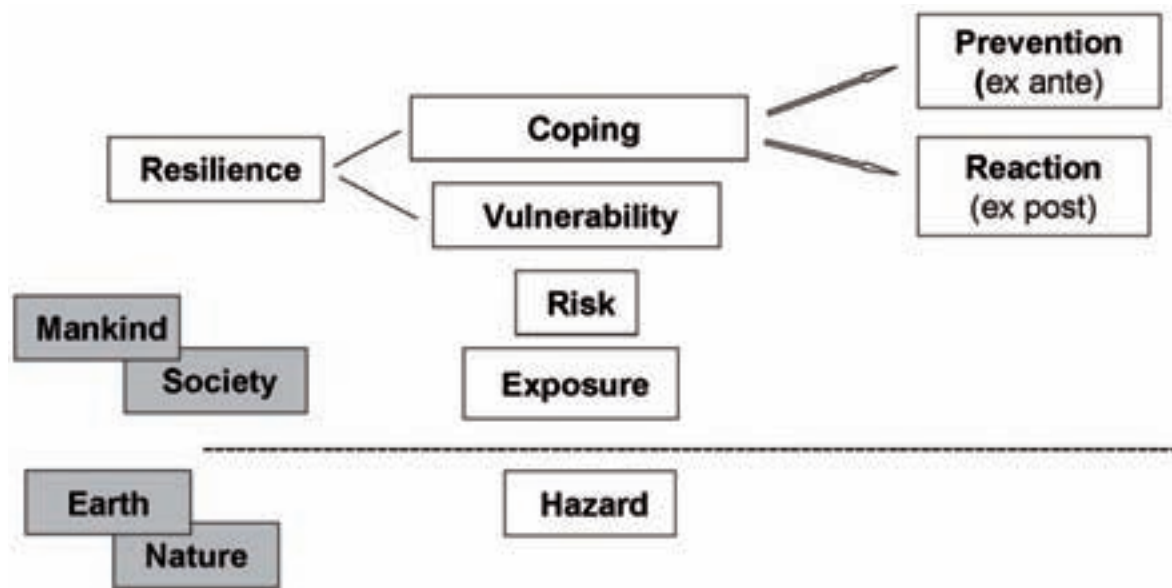


Fig. 2 : Essential concepts in hazard research

only a few degrees, especially when they are triggered by an earthquake or by heavy rain.

5. Human-Induced Hazards

In addition to the processes described so far, there are specific situations where hazards can also result from human activities with an impact on the earth's surface. These hazards may be associated with both endogenous and exogenous processes, with the latter category being the more probable scenario of events.

Nevertheless, there are examples for human-induced earthquakes: In December 2006, the region of Basel in Switzerland, bordering on both France and Germany, was hit by several earthquakes measuring up to 3.4 on the Richter scale, following test drillings and the operation of a water injection well connected with a geothermal power experiment in the area. Similarly, large (coal) mining or gas extraction activities are able to change the pressure conditions in the earth's crust and lead to at least minor earthquakes. These hazards will also have to be assessed for the projects to deposit CO₂ in the earth's crust. In addition, vibrations caused by heavy lorries on roads have been observed to cause damage in the built environment in the vicinity, e.g. in the UNESCO World Heritage City of Visby on the island of Gotland, Sweden.

Landslides and other gravitational mass movements can often be the result of human interference into ecosystems. Many instances of human interference into the dynamics of geomorphology accelerate

erosion processes. Major aspects here are forest clearance or overgrazing which both destroy forms of land cover with a protective potential against erosion.

6. Georisks and Human Vulnerability: Current Key Concepts of Hazard Research

In recent years, a simple man-environment model has been replaced by a more elaborate approach to georisks (Fig. 2). In particular, the notion of "natural catastrophe" has been abandoned, as the "catastrophe" is essentially in the human, societal sphere – and can possibly be contained or alleviated by societal strategies and measures. Instead, the discourse now focuses on hazards, which to the society/societies exposed to them appear as risks – and georisks are only a small, if important part of global risks in "risk societies" (Beck 2007), given increasing risks due to a widespread use of high-risk technologies and socio-political risks (see also Bohle 2008: 435ff.). The central concept is "vulnerability". Adapted from a general definition (see, e.g.: <http://www.global-greenhouse-warming.com/glossary-climate-change.html>), vulnerability is defined as the degree to which a system is susceptible to and able or unable to cope with the adverse effects of (in this case) geohazards or georisks. Vulnerability is a function of the character and the magnitude of the hazard on the one hand, and the system's sensitivity and adaptive capacity on the other hand. The latter, in turn, is now also treated under the notion of "resilience" (Bohle 2008): the ability of a given society

to cope with risks, to design and set up preventive strategies and measures and to react adequately during and after hazard events. Resilience, thus, describes the competence to cope, while coping refers to the actual performance, with regard to either prevention or reaction.

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Figure captions:

Fig. 1: Planet Earth: general geological model (drawn by the author, after Wyllie 1976 and Schellmann 2007)

Fig. 2: Essential concepts in hazard research (design by the author)

ZUSAMMENFASSUNG

Christof Ellger beschreibt in seinem Einführungsvortrag Grundlegendes über Aufbau und Struktur der Erde. Des Weiteren gibt er Einblicke in die Gefahren, deren Ursachen in Zusammenhang mit der Beschaffenheit der Erde stehen. Diese „Geohazards“, zu denen beispielsweise Vulkaneruptionen, Steinschläge oder Erdbeben zählen, sind in West- und Nordeuropa zwar weniger verbreitet, dennoch darf ihr Ausmaß nicht unterschätzt werden.

Der Erdoberfläche ist dabei abzulesen, welche enormen Kräfte in der Erde aktiv sind. Gebirge sind beispielsweise als Folge der Kollision von tektonischen Platten zu verstehen, die wiederum auf die Konvektionsströme im Erdinneren zurückzuführen sind. Die Freigabe der mechanischen Energie, die sich durch den Druck der tektonischen Bewegung aufbaut, ist uns als Erdbeben bekannt. Ausführlich beschreibt Ellger auch die sogenannten exogenen Prozesse, die oftmals unter dem Schlagwort Erosion firmieren. Die Vergangenheit hat gezeigt, dass der Mensch diese endo- und exogenen Prozesse negativ beeinflussen kann, indem er massiv in die Ökosysteme eingreift oder die Druckbedingungen in der Erdkruste verändert. Erdbeben und sogar vom Menschen ausgelöste Erdbeben waren bisher die Folge. Zuletzt skizziert Ellger einen kurzen Abriss über den fachinternen Diskurs zum Thema Schlüsselkonzepte in der Gefahrenforschung und beleuchtet den gegenwertigen Stand der Diskussion.

Geohazards – Subduktionszonen – Konvektionsströme – Erdbeben – Erdbeben – Schlüsselkonzepte der Gefahrenforschung



EARTH

Being at risk? Monuments on the slopes of Bamberg

THOMAS LÖRNER
ULRICH SIELER

Construction of a new street through the districts on the hills

Introduction

Bamberg has a road network that has grown radially. It is overtaxed by today's traffic. Thus, there were several attempts to build a capable ring of bypass roads around the city. Today there are fully developed bypass roads in the north, east and south. The western part of the historic town ("Bergstadt") does not have this road. The following contribution discusses the consequences of road construction using tunnelling, exit-and-entry structures and cuts in the Bergstadt with regard to geological risks.

Landscape

The Bamberg Bergstadt is a hilly town-landscape, shaped by little valleys. The underground is formed by a changing sequence of sandstone layers and "Letten" (clay and clay stone), a formation of the Keuper (Upper Triassic). Due to the hilly layout, the building density is not consistent. There are wide areas of open spaces that are important ecological habitat networks. Not being relics of a natural landscape, these spaces have been subject to previous cultivation. Habitat networks are a basis for high biodiversity in towns. In addition to the ecological importance, the habitats are important for the city's climate.

Furthermore, there are many listed buildings in the Bergstadt. For 800 years, the Bergstadt was the centre of power in the Bamberg prince-bishopric. The most famous buildings of Bamberg are located in this district, creating the image of the Bergstadt together with the settlements of the commoners along the river. The composition of historic buildings and cultivated areas forms a complex and unique town-cultural landscape.

Geology

Following the steep climb from the Regnitz valley there is a flat area on the surface of the sandstone and clay stone layers of the middle Keuper – with particular Rhaetic-Lias-mountains poking out. Approaching these mountains, the layers of the Burgsandstein are increasingly covered by clay stones (Feuerletten). The clays are prone to swelling, creep and weathering. Little landslides, shown by several signs of dislocation, fissures and slid masses are common. In the whole area landslides may occur with the head of the slip in sandstone underlain by clay stone.

Striking examples of landslides can be seen around the Altenburg castle. Northwest of the castle a big landslide took place. Directly in front of the castle wall there is a big fissure in the clay/sandstone layers which indicates slipping motions. The preconditions for the occurrence of slides are relief, slope and the properties of the Feuerletten/Rhaetic clays. Particular landslide-prone slopes exist on the northern and eastern side of the mountain. Many landslides are linked to man-made modifications of the slopes. The Remeis villa is a prominent building on a slope consisting of Feuerletten clays. Permanently emerging fissures in the earth and building indicate the movements (swelling, sliding) of the clays.

Western Bypass Road ("Bergverbindungsstraße")

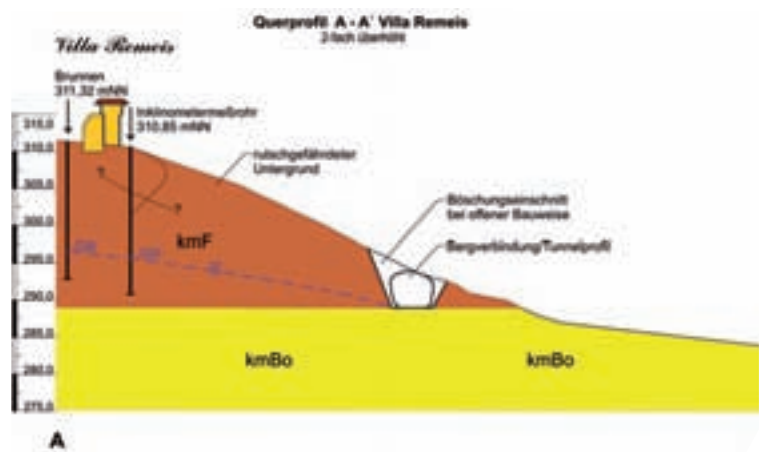
In 1979, an alignment was planned for a bypass road in the western part of Bamberg, crossing several valleys and ridges. It was planned to tunnel through the Remeis hill creating a tunnel lying narrowly below the surface. Because no implementation was carried out, in 2002 the council discussed two new alignments. The first plans for huge tunnels with two arms to the Bergstadt, involving a tympanum near the Remeis hill. The other crosses the landslide-prone slopes of the Altenburg hill.



What all alignments have in common is a situation both in solid sandstones and in unstable areas of slid masses and Feuerletten, the latter having a sensitive water balance. Particularly for the Remeis Villa and the Altenburg heavy building measurements have to be undertaken to avoid grave effects on the stability of the underground and buildings. Movements induced by rearrangements of masses and layers may endanger several buildings that are already damaged.

Construction of the bypass road

Generally, according to the relief, there have to be cuts and tunnels. From a technical point of view, no tunnels are necessary, since surfaces are just about 5 or 10 meters above street level. The demand for such tunnels depends on aesthetic requirements. Tunnels have to be built by cut and cover; the roofing would be added afterwards. Cuts and side-cuts cause pressure reliefs on the slopes which decrease the cohesion of sandstones, clays and slid masses. That has to be prevented by suitable actions, such as retaining walls with deep anchors. Furthermore, mass-movements and possible slides have to be monitored in the whole area. Side-cuts will increase the slope angle to the critical point for landslides. Anchored pile walls must have a suitable length



below ground to prevent slides and movements. Several examples show that only heavy retaining walls will give sufficient security against such mass movements.

Construction of tunnels under buildings requires high-value safeguards including special measures like ground freezing during the execution or implementation of a tube shield. Both measures should prevent mass movements in the building ground. Highly trained employees are required for planning and construction as well as willingness to bear any additional costs.

An ongoing monitoring is necessary during and after all measures and construction activities in the Bergstadt so information would be available about potential harmful movements and slides. A preventive "GeoRisk Management System" is an important element for professional maintenance of that part of the UNESCO World Heritage City of Bamberg.

Case study: Remeis Villa

Here, the alignment would cut a landslide-prone slope. So a proper dimensioned retaining wall would have to be constructed and an ongoing monitoring of the deformations of the building ground would have to be implemented. Furthermore, any implementation of retaining wall will affect the water path. Hence, a drawdown of the ground water table or a raise in the ground water table due to aquiclude must be avoided and a water path around any tunnel or wall has to be ensured permanently.

Case study: Altenburg hill

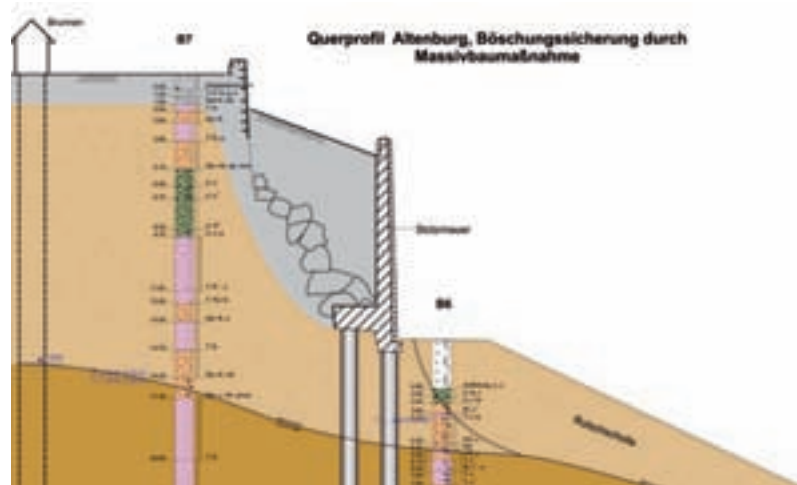
Another planned alignment would pass the Altenburg hill contour line-parallel in the area of landslide-prone clays and clay/sandstone layers.

It would destabilize the base of the slopes and increase the risk of landslides. So, the Altenburg castle could be endangered by inappropriate changes resulting in slopes prone to slip and water paths that abet slips of blocks. At present, ongoing slips already jeopardize the walls of the listed castle. The existing street is constantly in need of renovation. A road in that area has to include measures like retaining walls with foundations on stable layers up to more than 10 meters below the surface and installations to ensure a proper water path. It has to be made certain that there is no release of slip movements due to road work. All necessary measures lead to high costs, huge demands on planning and construction and a permanent monitoring of slopes and the underground.

Heritage City of Bamberg, an evaluation of such risks and counter measures would have to be prerequisites for planning. Only these expensive planning activities and possible preparatory safeguards done before the start of work may make sure that consequential damages can be ruled out with a guarantee that is sufficient for the sensitive situation.

Conclusion

A new road with tunnel cuts and side cuts in the Bergstadt that has complex and unstable layered slopes and hills is a high-risk venture for buildings, agricultural and silvicultural areas and infrastructure. In view of the minimization of GeoRisks in the World



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ZUSAMMENFASSUNG

Thomas Lörner und Ulrich Sieler zeigen am
Beispiel der Bamberger Bergstadt die
Schwierigkeiten einer umweltverträglichen
Verkehrslösung auf.

Dabei gilt es, das Charakteristische der Bergstadt
zu berücksichtigen: Das einstige Machtzentrum
Bamberg ist gekennzeichnet durch
unterschiedliche Bodenschichten, ökologisch
wertvolle Lebensräume, sowie kulturell
bedeutsame Gebäude. Durch die spezielle
Beschaffenheit des Bodens (Tone/Tonsteine und
Sandsteine) ist die Bergstadt jedoch anfällig für
Erdbeben. Da aus ästhetischen Gründen der Bau
von Tunneln geplant wird, stellen die
Belastungen für die teils instabilen Böden eine
Gefährdung für zahlreiche Gebäude dar. Zudem
könnte durch die notwendigen
Stabilisierungsmaßnahmen im Erdreich auch der
Grundwasserspiegel beeinflusst werden. Am
Beispiel zweier Fallstudien gehen Lörner und
Sieler auf die konkreten Anforderungen näher
ein und zeigen einen komplexen
Maßnahmenkatalog zur Verhinderung von
Umweltschäden auf.

*Umgehungsstraße – Tone – Erdbebengefahr –
Grundwasserspiegel – Tunnelbau*



WIND

Weathering and harmful environmental influences – the permanent cathedral building site

HANS WEBER

Stone Bridge and St. Peter's Cathedral are the landmarks of the World Heritage City of Regensburg. Since the secularization at the beginning of the 19th century, St. Peter's Cathedral has been the property of the Free State of Bavaria. Its structural maintenance is handled by the State Building Authority of Regensburg with its stonemason's lodge (otherwise known as mason's guild). Per year, the Free State of Bavaria invests 1,2 million Euro in this responsible task. In recent years, an increased number of aspects related to climatic challenges and suitable preservation concepts were integrated as well.



Picture 1: View from the Stone Bridge to the Cathedral

I would like to deliver insights into the processes of decision making and the technical realization carried out by the stonemason's lodge. In the scope of a subsequent guided tour at the cathedral and the stonemason's lodge, the presented preservation projects can be examined.

Short historical outline

For your understanding it will first be necessary to hear some historic data about the construction history of the cathedral and some information about the historic building materials.

After a fire in the previous building, the construction of the gothic cathedral was started in 1273. The construction phases developed from east to west starting with the choir. Around 1500 the work was stopped. At this time, the cathedral was mainly completed except for the top of the steeples, the transept gables and one crossing tower. From the middle of the 19th century, the design for a structural completion was taken up again. Thus, the helm roofs for the steeples in high-gothic form and the transept gables were completed by 1871. The idea of a crossing tower was no longer pursued. Today, we only find a modest ridge turret there.

In the Middle Ages, limestone and sandstone were used for the construction of the cathedral. The material comes from quarries in the Danube valley west of Regensburg.

For the completion in the 19th century, green sandstone from the regions of Bad Abbach and Kapfelberg was used.

Around the end of the 19th century, massive damage developed primarily in the area of the green sandstone resulting from air contamination by sulphur dioxide. In contact with water, like fog or rain, the sulphur dioxide of the air generates abrasive sulphuric acid which corrodes the lime which acts as a binder in the stone and converts it into water-soluble gypsum.

In addition, carbonic acid which consists of a compound of carbon dioxide and water may cause damage to the stone material as well.

An increase of volume, crust formation and flaking of the surfaces were the results.

At the beginning of the 20th century, the progression of damage came to a point where it could no longer be controlled with single repair projects. In this phase, the stonemason's lodge, as it is still operating today, was set up for permanent building maintenance with the ability to transfer the acquired technical knowledge.



Picture 2: Uncleaned stone surfaces with crust formation

From the 1980's, the shell of the Regensburg Cathedral received comprehensive cleaning. This means that black crusts and impurities were gently removed, except for some parts at the west porch which required special work preparation due to its historic structural and artistic significance.

The lodge cultivates active technical communication with other lodges, like Bamberg, Passau, Vienna or Cologne and is a member of the Dombaumeister e.V., the European association of architects of cathedrals and churches and the responsible members of the stonemason's lodges. At the same time as the OWHC-Conference, this year's congress is taking place in Bern, Switzerland.

Presentation of three selected preservation projects

By means of three selected components, the following different renovation concepts shall be exemplified:

- The problem of preservation of an architectural structure of the 19th century, the north transept gable of Abbach green sandstone, with proceeding decay and structural hazards, and the decision for a stone-appropriate renovation
- Concrete renovation in the area of the two helm roofs of the steeples which were modernized in the 1950's using a concrete cast method
- Conservation of the façade part is the most challenging project with regards to historic preservation, the west porch with its opulent figurine program

What all projects have in common:

- Development of the projects in work meetings alongside the Building Authority each attended by the Chapter, the Bavarian State Office for the Preservation of Historic Monuments, the building research represented by the professors Dr. Achim Hubel, Bamberg, and Dr.Ing. Manfred Schuller, Munich, and further outside experts relating to the topic.
- Realizing the projects by the stonemason's lodge with partial external support.
- Accurate documentation of all projects and work steps in the archive of the stonemason's lodge consisting of historic drawings, a picture collection and a digital data base.

Example of stone replacement – transept gable

At the end of the 1990's, the heavily weathered gable of the construction phase of the 19th century had to be secured with a protective scaffold to prevent stone parts from shaling and coming off. The free-standing structurally slim component increasingly loses stability due to the structurally compromised traceries and threatens to fall due to the suction forces during storms.



Picture 3: Transept gable with safety scaffold

After a discussion process lasting many years, a wide variety of preservation approaches finally had to be rejected due to the special construction type and material. This happened in favour of the decision by the persons in charge for an exchange of the component with enduring limestone material. This decision even deals with the aspects of stress resulting from climatic changes with increased storm events. With the decision, the stonemason's lodge started to manufacture the workpieces.



Picture 4: Storage of the newly crafted workpieces of limestone

According to the patterns of the foreman, the workpieces will be broken from blocks of Auer lime from the Kelheim region.

In the meantime, a main part of the required material was completed and is now ready for installation. Until their installation, the finished parts are stored in the building yard of the lodge.

Example of concrete renovation – helm roofs

The helm roofs, as relics of the 19th century and also made of non-resistant green sandstone, had to be abolished in the 20th century. After World War II, the decay was so advanced that preservation no longer seemed reasonable. In the 1950's, they were repaired with concrete by means of a cast method. 50 years later, a comprehensive renovation of the concrete components was required for which the steeples had to be completely equipped with a scaffold by the stonemason's lodge.

In the concrete renovation project, the consistent, exact development of a renovation concept was ensured. On the one hand, due to the extensive scaffold work, the exposed position of the components requires especially sustainable concepts which disallow later modifications. On the other



Picture 5: View to the north helm roof of the steeple

hand, it is the exposed position which has special requirements to the structure regarding wind erosion, weathering, and lightning strikes. Tests by means of structural calculation and technological analyses of the concrete quality up to the composition of the repair mortar by the Technical University of Munich provide the guarantee that the



Picture 6: Insertion of a new crocket of cast concrete

steeple will cope with the future climatic challenges as well, at least for the next 50 years.

With nesting aids for the peregrine falcon which is entitled to the skies above the cathedral we also took measures in the area of the helm roofs of the steeples to hold down the impact of high pigeon populations which cause contamination and damage to the stone surfaces.

Furthermore, the presence of moss and algae on the stone surfaces is not only an aesthetic issue but, by interfering with fast drying, it is also a hazard for the stone material. Climatic changes will have to be critically watched.

Example of conservation – west porch

As already explained, the surface of the Cathedral has received a comprehensive cleaning since 1985. The west porch which already had to be kept closed for decades was omitted. Now, on the basis of the experience from the renovation and cleaning methods used so far, the appropriate methods for preserving the material should be used here in order to satisfy the most challenging component with the precious sculptures and reliefs from around 1400.

In consideration of the requirements on the schedule regarding the visit of Pope Benedict XVI - the porch should be opened in September 2006 and be in presentable condition, the Building Authority decided to pre-poned the renovation of the porch with the pillar and to perform the final treatment of the surfaces inside the porch in the following years.



Picture 7: Pillar after cleaning and renovation



Picture 8: Cleaning the reliefs by means of the ion-exchanger method



Picture 9: Fabrication of the figurine of Apostle Matthew of limestone

retouchings to support the distinguishability of the cleaned sculpture.

For the colour adjustment, a glaze with thin plaster slurry which also provides protection against weathering will be applied to the pillar exposed to weathering.

Within the porch there are two empty positions. The figurines of the apostles Thaddeus and Matthew were taken off in weathered condition in 1930 and brought to museums. The stonemason's lodge has gypsum models of these figurines that will be shaped so that they fit into the group again with considerations made for the state of preservation and style.

In turn, the shaped gypsum models are patterns for the stone figurines. At the moment, the figurine of Apostle Matthew is crafted in limestone based on the shaped gypsum model. The second empty position is being handled with the same procedure so that the work at the west porch can presumably be finished in approximately one year.

The surfaces had to be cleaned first. The following methods were used for this process:

- Cleaning with steam jets
- Cleaning with micro sandblasters in a wet blasting method in which a compound of the finest granulate, air and water is applied to the stone surface rotating with low pressure
- Cleaning by applying a carbonate-plated ion exchanger by means of compresses or by means of mechanical application. The functionality lies in the conversion of sulphate-bound crusts of calcium sulphate (gypsum) to calcium carbonate (lime)

Stabilizations, additions and cementations will be performed after the cleaning.

Surfaces result from the cleaning which often seem to complicate the visual impression and distinguishability of the figurines. Therefore, the finish of the surface treatment of the reliefs in the protected interior area of the porch is formed by

Summary

Although the range of working fields at the Regensburg Cathedral are comprehensive and the requirements of the individual components and materials are highly varied, in the final analysis, the direction of our activities is always grounded in considerations directly associated with environmental influences.

Although the contamination by sulphur has decreased, climatic changes will bring new challenges.

Even though the Regensburg Cathedral currently presents itself as maintained, there will always be worksites at various locations in and on this impressive building which, with their scaffolding being visible from afar, will bear witness to the constant maintenance of this magnificent landmark and monument.

The Regensburg Cathedral - an eternal construction site.

Picture credits

Photo 1 - 7 and 9: Staatliches Bauamt Regensburg

Photo 8: Company Steinwerkstatt, Regensburg

ZUSAMMENFASSUNG

Hans Weber behandelt in seinem Vortrag die bauliche Unterhaltung des Domes St. Peter von Regensburg. Dabei geht er kurz auf die Historie des Dombaus ein und erklärt die baulichen Besonderheiten der Kathedrale. Durch die Eigenschaft der Bausubstanzen, Schadstoffe aus der Luft zu binden, nahmen die Schäden derart zu, dass zu Beginn des 20. Jahrhunderts die Dombauhütte als dauerhafte Einrichtung geschaffen werden musste.

Diese gehört heute einem Netzwerk aus verschiedenen Dombauhütten an, um technisches Wissen auszutauschen. Anhand ausgewählter Bereiche des Doms erörtert Weber typische Verfahrensabläufe eines Renovierungsprozesses und gibt zusätzlich Auskunft über behördliche und wissenschaftliche Zuständigkeitsbereiche. Zudem erörtert er, weshalb und wo der Einsatz von Baustoffen wie Kalkstein oder Beton bei den Renovierungsarbeiten Verwendung finden. Außerdem erläutert er die modernen Reinigungsmethoden, mit denen die Außenfassaden des Doms gereinigt wurden. Trotz der Abnahme von Schwefelverschmutzungen, schließt Weber weniger friedlich mit einer Prognose für den Dom. Dieser wäre - eingedenk neuer klimatischer Veränderungen - eine ewige Baustelle.

Dom St. Peter – Regensburg – Dombauhütte – Kalksteinrenovierung – Betonrenovierung – Fassadenreinigung – Luftverschmutzung



WATER

Facing the river

TONY CROUCH

My presentation¹ today focuses upon the environmental challenge posed by the River Avon to the World Heritage City of Bath, England. We will look at why the challenge is so important, the previous measures taken to address it and the planned route forward.

Bath is located in SW England and the World Heritage Site boundary covers the entire city of approximately 80,000 inhabitants. The city was inscribed as a World Heritage Site in 1987, principally for its Roman archaeology, its C18 Georgian planning and architecture, and the outstanding landscape setting in which these are situated.

Water is the basis for the City's existence; it is the very essence of Bath and undoubtedly one of its principal characteristics. The hot springs, which constantly pour forth waters at around 45 degrees Celsius and contain 43 minerals, were what lead the Romans to build so extensively here, and in the C18 the Georgians to develop their architecturally ground breaking neo-classical city.

So in terms of environmental factors and challenges, water is the obvious choice for my presentation. It is not however the hot spring waters that I am concentrating on today but the cold brown waters of the River Avon which flows through the centre of the city. This river water has been equally influential in creating the city as it carved out the landscape setting, - the beautiful bowl of hills in which Bath sits. However, as we will hear throughout this conference nature can be both beautiful and cruel.

The environmental threat (is a familiar one) of flooding. The 1572 map shows how in the sixteenth century city, the inhabitants of Bath by necessity

steered clear of the low lying floodplains, and built on the upper slopes and raised ground. They also largely turned their backs on the river, which is the first link to my title today. Yes of course they used it for transport and industry, but it was also an open sewer with refuse and sewage discharging directly into it, so when it did flood it was by no means fresh water which swamped the low lying homes.

We now skip forward 400 years and modern development inevitably has encroached upon the river, and filled almost all available space with the riverside land being largely taken up by nineteenth century industry. Land levels have risen significantly, but despite this flooding in the twentieth century still remained a problem.

In 1963, after a series of particularly severe flooding incidents, a comprehensive Bath Flood Prevention scheme was instigated. This involved demolition of some riverside buildings and two historic bridges, to be replaced by the new Churchill Bridge in 1965. It also involved straightening some of the river bends, lining the banks with steel sheet piling, replacing two historic weirs with a modern balance sluice gate and extensive dredging. The aim was to push water flow through the city by deepening and widening the river.

The solution was drastic, expensive and engineering focussed. It has left a legacy of an inflexible, straightened, rather derelict, unsightly and sterile river corridor carving through the middle of the World Heritage Site, with no low level access to the river anywhere along its path. In fairness to the engineers of the time it was also very effective, and there has been no significant flooding since the schemes completion in March 1974.

So in terms of environmental challenges, where is the challenge? The river is not considered an immediate threat to the Outstanding Universal Values, so has the challenge been met, and the job done?

Well, no, the job isn't done – far from it, and the river remains a major challenge. As we all know, nature doesn't stand still and climatic conditions have altered. What was considered job done 30 years ago no longer meets current requirements.

New national flood plain regulations and planning policies have been developed as a response to climate change, and the predicted risk of flooding has been revised. It is still unlikely under revised risk assessment that much of the Roman and Georgian city is threatened, but the Bath site is city wide and obviously needs to function as a modern city. Constricted within its landscape setting, land for development in the city is scarce. The very few regeneration sites which the city can offer are almost exclusively sites of former nineteenth century manufacturing industry alongside the river. Manufacturing has moved out, and the land is ripe for redevelopment, but at risk of flooding.

The World Heritage site relies on the vibrancy of the local economy to pay for its effective stewardship, and the local economy needs sensitive development to be brought forward here.

So the river poses a major environmental challenge, and is the key to the whole local economic cycle. Without adequate flood control, we cannot realise sensitive redevelopment and without development we cannot easily sustain the local economy and ensure a vibrant living World Heritage city. We cannot afford to turn our backs on the river and must face up to it.

How are we going to take this work forward? The approach from here on must be comprehensive and cross discipline, involving many more professions than just engineering.

The first step has been assessing the risk, and the Strategic Flood Risk Assessment work has been completed this year. We know where to build and where we can't without further measures. We now need to address and control that risk.

So the new approach to flooding needs to be comprehensive. Previous measures, such as the 1960's scheme, took drastic measures at the point of pain, looking at the city itself. There is undoubtedly still much work to do in the city to reduce the flood risk, for example by reducing surface water run off by the wide spread introduction of sustainable urban drainage techniques. These will include measures such as green roofs, porous tarmac road surfaces, rainwater harvesting and using drainage swales instead of concrete culverts. Ultimately though, the far greater impact would be achieved if the shedding of water from the far reaches of the catchments could be better managed.

So instead of concentrating on the pain in the city, we need instead to address the symptoms by looking at the whole river catchment system and working with it. The river system that flows into Bath creates a bottleneck where the tributaries combine. The river must be seen as the whole catchment area – the flood plain and tributaries, not just the thin blue line on the map. The catchment area is predominantly agricultural land, and agricultural practices have changed over the centuries, aimed at creating well drained, productive farmland. Trees and woodlands from these areas have been lost, and areas of upstream flood plain have been built on. The duration of retention of flood waters in the catchment area has significantly reduced in time, whilst the predictions of rainfall have increased, creating an obvious imbalance.

We therefore need to work on a much bigger scale, looking at a bigger picture but also addressing the cumulative small changes in this area that have exacerbated the problem. Planting of broadleaf woodland and hedgerows needs to be encouraged, wetland wildlife areas introduced, meanders put back into streams and we need to avoid building on the sensitive upstream areas. The measures to address this will involve a mixture of changed planning policies, changed land use practices and changed attitudes.

The overall aim is simple – re-discovering the fundamental simplicity of the link between thoughtful countryside management and flood risk and management. The implementation is however complex – relying on the close co-operation and resource input of many independent agencies,

landowners and local councils, who have different political view points and different vested interests in the project, and success relies upon working together with common aims and understandings.

So the solutions are large scale, at one level complex but at another very simple.

Work is underway putting together the framework for this project. Led by the central government Environment Agency, all those who need to be involved are being identified, and preliminary talks are underway. Results will not be forthcoming for many years, but they will be worth working for. By facing up to the river and addressing it's threat in a comprehensive manner, we can achieve an enhanced environment in the World Heritage Site (and beyond) where the river becomes an asset for the city, and where we can unlock the very many recreational, tourism and economic benefits that for so long we have not been able to fully realise. The river is probably the cleanest it has been for 300 years and heaven knows we may even be able to shed our British phobia of health and safety concerns and have people swimming in it again!

We need to face up to the river, we need to work with it, and we need to work together.

ZUSAMMENFASSUNG

Tony Crouch präsentiert in seinem Vortrag die englische Welterbestadt Bath. Durch die Stadt fließt der Fluss Avon, der den Einwohnern früher als Transportweg und Abwasserkanal diente. Nach besonders schwerwiegenden Hochwasservorkommen in den 60er Jahren fanden schließlich zahlreiche Gegenmaßnahmen statt, wie beispielsweise Erdaufschüttung, Begradigung und der Bau eines Balanceschleusegatters. Heute geht von dem Fluss zwar keine direkte Gefahr mehr für das Welterbe von Bath aus. In Gebieten, die für die moderne Stadtentwicklung von großer Bedeutung sind, herrscht jedoch weiterhin Hochwassergefahr. Um wirtschaftliche Einbußen zu vermeiden, bedarf es deshalb umfassender Konzepte, die weniger radikal ausfallen sollen, als die Maßnahmen in den 60er Jahren. Crouch spricht sich deshalb für neue und interdisziplinäre Methoden aus, um alle Möglichkeiten auszuschöpfen. Dies benötige eine veränderte Planungspolitik, Landnutzungsmöglichkeiten und eine Veränderung der Einstellung, wie er an etlichen Beispielen konkretisiert.

Des Öfteren kommt zum Ausdruck, dass Welterbemanagement vor allen Dingen Vermittlung zwischen den vielseitigen Interessen einer modernen Stadt bedeutet.

Bath – Hochwasser – Gefährdung des wirtschaftlichen Aufschwungs – Konzepte integrativer Stadtentwicklung



Discussion forum of the WATER experts



The audience was invited to discuss the presented lectures



WATER

Flood protection for the City of Regensburg – a challenge for hydraulic engineers and architects

THEODOR STROBL
FRANZ ZUNIC

Background of Regensburg's efforts in flood protection

Regensburg is a riverside city. The area map reveals that large parts of the town are surrounded by the rivers Danube and Regen. At the nearby gauging station of Schwabelweis (Fig. 1), the catchment area of the Danube features almost 36,000 km². Because to this, large river basin flood retention upstream of the city is very limited and not feasible for catastrophic floods with a recurrence interval of 50 to 100 years. Therefore the protection of the city is only possible by using levees, walls and, on a small scale, by mobile protection systems. However, permanent structures always interfere with the cityscape near the rivers, which in Regensburg developed uniquely over centuries. Ambitions for flood protection in Regensburg reach back to 1954. In this year the municipality applied for

suitable measures with the Bavarian government. In 1983 the financial and legal prerequisites for planning were fulfilled but after a fierce public discussion and increasing local resistance, the city council decided to cancel the approval of the plans in 1987. This was accepted by the Bavarian government. The local protests culminated in the slogan "Wir wollen nicht 1000 Jahre eingemauert sein, nur um einmal nicht nass zu werden!" ... we do not want to be walled in for a thousand years just to avoid getting wet once!

After several flood events afterwards (see Fig. 2), the municipality requested that the government reopen the flood protection planning. On the basis of the lessons learned by the former failures, the Bavarian government, together with the City of Regensburg, decided to involve the citizens intensively in the ongoing plannings (Fig. 3). Only in this way was it



Fig. 1: City of Regensburg in between the Rivers Danube and Regen

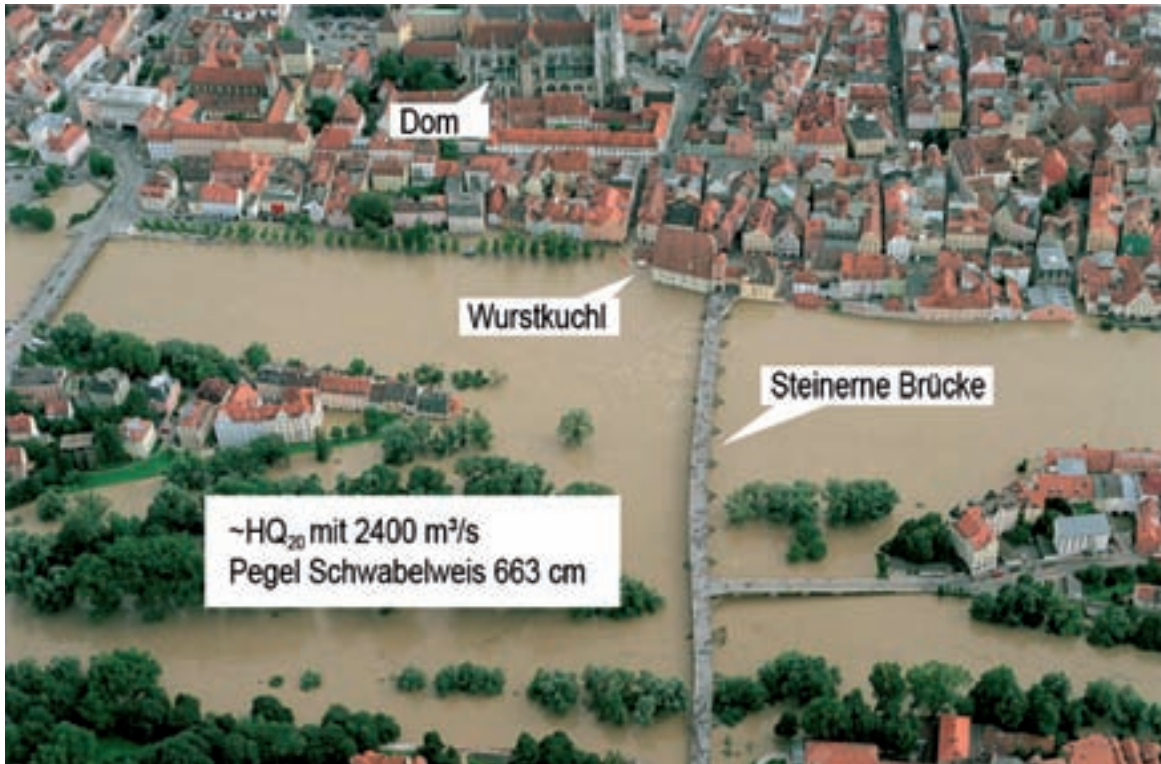


Fig. 2: The City of Regensburg during Flood Event in August 2002

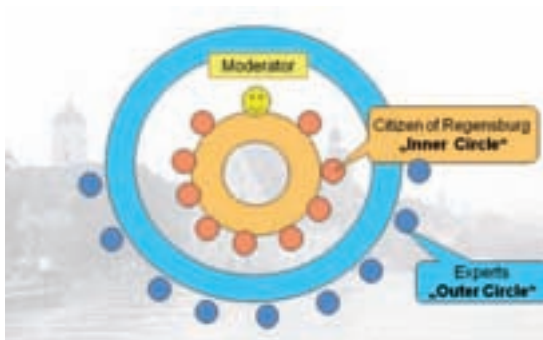


Fig. 3: Process of "Open Planning" for Flood Protection with Citizen and Experts in Regensburg

possible to communicate the complexity of the problems to the citizens and to call attention to the potential hazards of floods. It was important to convince the affected people of the necessity of the intended activities.

Objective

The current flood protection goal in Regensburg is to protect the city against a 100-year-flood using all available technical possibilities like levees, walls and mobile elements. For these purposes, the whole city area with the two rivers Danube and Regen was investigated and divided into several planning sections.

Problem

The high discharges in the City of Regensburg result from the large river basin of the Danube, which is some 36.000 km². The rivers Altmühl, Naab and Regen flow into the Danube from the low mountain range in the north, the rivers Iller and Lech coming from the Alps in the south. Storage reservoirs can be very effective methods for controlling floods in the upper reaches of rivers. In the middle reaches (where Regensburg is situated) however, retention areas along the rivers have been reduced due to the interference of human activities like infrastructure, settlements and industry. Therefore retention of huge discharges resulting from extreme rains in combination with snow melting is currently extremely limited. The only alternative for the City of Regensburg is local flood protection realized by implementing actions directly in the city area. Regarding mobile flood protection schemes, there is always the problem of inaccurate high water prediction. In the past five years, at the Schwabelweis gauging station the relative failure for a 24-hour-prediction was $\pm 15\%$. Considering this possible error, an expected 100-year-flood HQ 100 could easily lead to discharges between HQ 50 to HQ 500. If one overestimates an approaching high water, the mobile elements would be installed for no purpose. On the other hand, an underestimation of

the expected water level can have catastrophic consequences. Therefore a basic protection level of about HQ 20 would help to avoid misapplication of mobile elements. The relative prognosis failure for 12 hours in the recent years varied only from - 9 % to + 4 %. Consequently the focus on flood protection has to be on walls and levees as mobile elements can only be applied in a very limited scale.

But walls and levees are often greeted with a square refusal by public opinion. Twenty years ago, the planned activities could not be realized because of public pressure concerning the high sensitivity of the historic old town and the islands of Oberer Wöhrd, Stadtamhof and Unterer Wöhrd. From the beginning, the discussions with the locals revealed a strong wish to protect the highly appreciated architecture and the unique view of the old town. So the only accepted flood protection was by means of mobile elements. Meanwhile, during the noted process of open discussion, the acceptance of the idea that mobile elements are the only suitable method for a few highly sensitive spots has developed.

Planning competition regarding urban, landscape and technical aspects

Searching for an optimized flood protection concept for the City of Regensburg, a Europe-wide competition was initiated by the municipality and the Bavarian government. The purpose was to find solutions for a kind of flood protection that meet all the needs coming from water management and hydraulic engineering, from urban design and preserving and from nature conservation.

Consideration of the special appearance of the historic townscape of Regensburg was given priority. The competition was open for European consortiums and working groups with special knowledge in hydraulic engineering in cooperation with architects and landscape architects.

Such an interdisciplinary collaboration was necessary to optimize a harmonic coexistence of the mobile and stationary flood protection structures together with the sensitive riverside architecture. The results of the discussions held in various round tables had to be implemented into the catalogue of requirements the applying consortiums had to fulfil.

During the Europe-wide competition up to March 2003 more than 150 tender documents were requested and by August 2003, in a first stage, the proposals from 42 planning teams were presented to a team of jurors. Out of these 42 presentations 15

proposals were selected to be reviewed in detail. For this reviewing process the jury gave some recommendations to the engineers and architects. During a two-days meeting of the jury in May 2004 the final prize winners and acquisitions were announced.

Outcome of the planning competition

The final evaluation of the 15 proposals in the second phase led to a classification in three price categories:

1) First price category: Two proposals with a reward of 35,000 € each

Team 1:

Engineers

Ingenieurbüro Goldbrunner + Grad,
Gaimersheim
Ingenieurbüro Spotka und Partner,
Postbauer-Heng
Geooffice Herrle, Ingolstadt

Architects

Studio di Architettura
Prof. Dipl. Ing. Vittoria Magnago
Lampugnani, Mailand

Landscape Architects

Werksgemeinschaft Freiraum
Landschaftsarchitekten Nürnberg
Prof. Gerd Aufmolk gemeinsam mit
Büro Weinzierl Landschaftsarchitekten,
Ingolstadt

Team 2:

Engineer

Prof. Ludwig Obermeyer, Potsdam

Architects

Dipl. Ing. Peter Robl,
Berlin/Regensburg

Landscape Architect

Dipl. Ing. Rose Fisch, Potsdam

2) Second price category: Two proposals with a reward of 21,000 € each

3) Third price category: Six acquisitions of 10,000 € each

The winning proposals were presented in a public exhibition and also published for distribution in a flyer. With the help of the selection procedure many

ideas were collected to solve the problems of an appropriate realization of the flood protection in Regensburg. Also highly qualified expert groups for the forthcoming planning could be found during the evaluation process. The competition did not result in one singular glorious winner and none of the presented proposals will be realized in their original layout. However all the ideas of the winning groups will lead to a concept, which can be improved step by step in the ongoing planning. For an example figures 4 and 5 show the presented proposals in one

of the most sensitive sections like "Weinlände" and "Werftstraße" (plan view see Fig. 1). Avoiding a permanent change of the preserved appearance of downtown Regensburg limited heightening of ground level, walls and mobile protections structures have been proposed. The proposed design for Weinlände was not recommended by the jury because the mobile elements are too high for installation. At Werftstraße mobile elements were the only solution fulfilling the boundary condition of not touching the discharge area during floods.

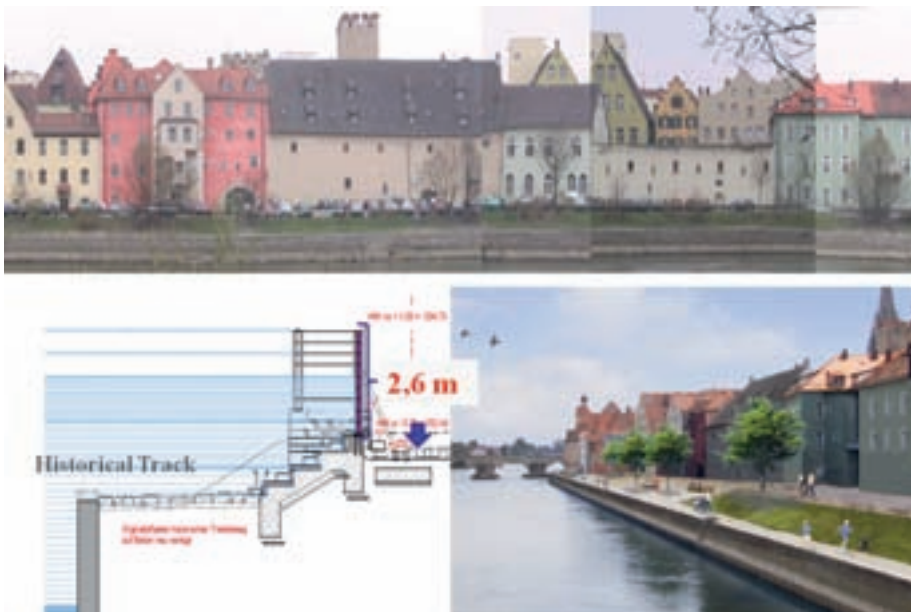


Fig. 4: Result of Competition for Section "Weinlände" (not recommended by the jury)

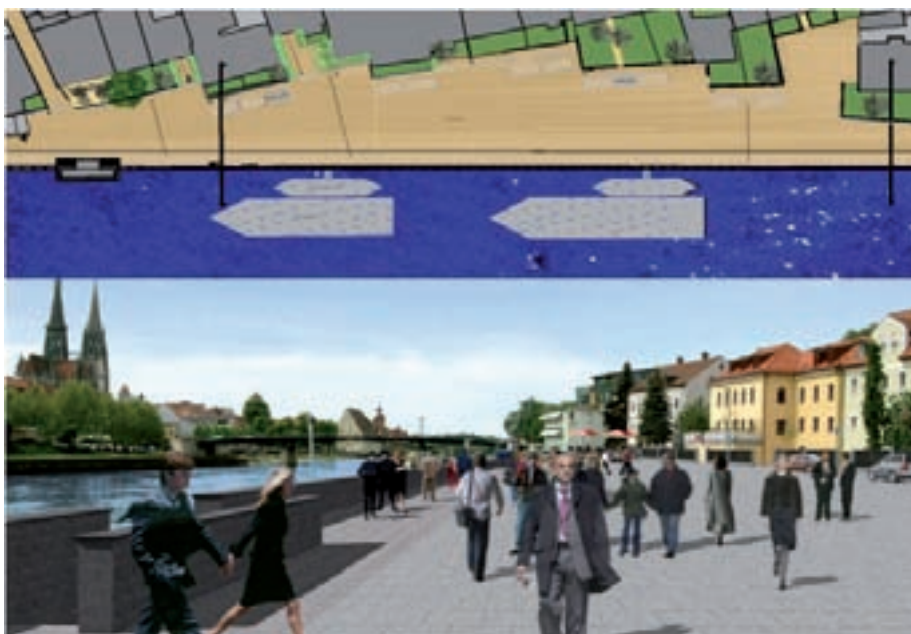


Fig. 5: Result of Competition for Section "Werftstraße" (recommended by the Jury)

Fig. 6 depicted the protection structure of a non sensitive area in "Schwabelweis" - where only permanent structures like levees will serve as protection from floods.

Findings and Conclusions

Reviewing the process of the competition the criticism might be made that 42 planning groups had to invest large efforts and an immense amount of work to qualify for the competition. And in return for all this work they did not get a financial reimbursement. In the sense of an economically optimized investment of capacities, it may have been more effective to invite only some working groups at the end of a limited process.

Flood protection means, first of all, activities related to hydraulic engineering. Of course, urban planning aspects have to be included to get public acceptance. Drainage, which works towards keeping the ground water level inside the protected area will also be a major part of the final design. As this part depends on the boundary conditions of geology and foundations of the houses there should have been more required documentation towards this end. So the competition priority shifted strongly into urban and landscape aspects. Therefore, during the planning phase, some expectations emerged, which from hydraulic engineering and also financial point of view most probably will not be realized.

Present stage of the proceedings

According the measures for an appropriate flood protection in the City of Regensburg, the following state of realization is reached:

- **Section S/IRL:**
The requirements of water law are approved. Currently the tender documents are being prepared; in Sept/Oct 2008 work shall start.
- **Section A/SCHWABELWEIS:**
The documents for the official approval of plans are being completed. The application for the proceedings will be made in autumn 2008.
- **Section D/REINHAUSEN and Q/WESTHAFEN:**
According to a decision of the municipality of Regensburg, on the basis of a governmental priority list, the next step is to apply for specific plannings at the Bavarian Ministry of Environment.



Fig. 6: Result of Competition in Section "Schwabelweis"

Literature

- Hochwasserschutz Regensburg – Ergebnisse der Optimierungsphase
Stadt Regensburg und Wasserwirtschaftsamt Regensburg
- Infoblatt 1 bis 4 zum Hochwasserschutz Regensburg
Stadt Regensburg und Wasserwirtschaftsamt Regensburg
- Lecture on "Hochwasserschutz Regensburg – Vom Bürgerwunsch zur Umsetzungsphase"
held by Ltd. BD Günther Schobert und MR Erich Eichenseer at the Technische Universität München (18. January 2006)

Copyright of all Figures: Regierung der Oberpfalz und Wasserwirtschaftsamt Regensburg

ZUSAMMENFASSUNG

Theodor Strobl und Franz Zunic gehen in ihrem Vortrag auf die Hochwassersituation in Regensburg ein. Dabei beleuchten sie aus technischer Sicht die notwendigen Sicherungsmaßnahmen, die im Kampf gegen Überflutungsschäden erforderlich sind. Die Vergangenheit machte deutlich, dass jedes Vorgehen auch der Akzeptanz der Bevölkerung bedarf, um langwierige politische Auseinandersetzungen zu vermeiden. Aufgrund der spezifischen Situation in Regensburg und Umgebung kommen nur direkte Schutzmaßnahmen im Stadtkern zum Tragen. Dabei hat jede ihre eigenen Schwächen: Mobile Wälle bedürften genauer Flutvorhersagen, diese sind jedoch nicht immer zuverlässig.

Feste Schutzdämme werden hingegen von der Bevölkerung abgelehnt. Ein europaweit ausgeschriebener Wettbewerb sollte deshalb die unterschiedlichen Interessen von Denkmalschutz, Stadtbild, Wassermanagement und -bau berücksichtigen. Im Zuge dessen konnten auch neben den Gewinnerentwürfen viele nützliche Ideen und Vorschläge gesammelt werden, um dem Hochwasserproblem in Regensburg beizukommen.

Aufgrund vieler komplexer Faktoren, können aber nicht alle Erwartungen erfüllt werden.

*Hochwasser – Donau – Regensburg –
Widerstand und Einbindung der Bevölkerung
– Wettbewerb – Vorstellung der Ergebnisse –
Weinlande – Werftstraße – Schwabelweis*



FIRE

Preservation of historic buildings and monuments versus fire protection: The Herzogin-Anna-Amalia-Library in Weimar



GERD GEBURTIG

On the evening of September the 2nd in 2004 in the first attic of the 'Herzogin Anna Amalia-Library' in Weimar the greatest fire in a German library since World War II broke out. Not only did it destroy fundamental parts of the historical roof structure but also valuable cultural possessions including 50.000 volumes, manuscripts, paintings and a collection of musical supplies of the duchess Anna Amalia¹.

Cause of fire and extent of loss

The probable causes of fire have by now been thoroughly researched². Arson can be summarily rejected³. The analytical inquest was carried out by the Federal Criminal Police Office of Wiesbaden and the prosecution from Erfurt was in charge of the investigation and supported by the author as an expert-consultant. In its 'statement to the cause of fire'⁴ the administration assumed that there was a longer smouldering fire in the area of the wooden raftered ceiling between the 2nd upper floor and the 1st attic.

Furthermore, the author dealt with the fire within a dissertation project at the Bauhaus University of Weimar. His evaluation of the fire damage and reconstruction of the course of the fire resulted in clues leading to electric cables under wood facing which might have been connected with the outbreak of the fire. While the opinion of the administration supposed that electric cables ran in the area of the floor joist, where the breakthrough of the fire in the 1st attic occurred, this cable course was not confirmed by the further investigations into the structure on

site. Therefore the origin of the smouldering fire as being directly in this floor zone can be rejected.

Current investigations by the author localize the origin at a different place in the building: They assume that there was a smouldering fire in an electric cable which was laid at a still undetermined time under a wooden encasement in the 2nd upper floor⁵. This cable, which was lost when the encasement was torn off in order to put out the pocket of embers on the night of the fire, most likely supplied a power-outlet which was used during the investigation of the substance on the morning of the fire.

Given that such cabling was damaged – caused by squeezing the cable while inserting or extracting it from the encasement or by an improper connection (such ones were found by the Federal Criminal Police Office several times in the building⁶) – most probably the hidden smouldering fire developed below the wooden encasement when on the day of the fire the cable, after having not been used in a long while was subject to an electrical load of 1000 watts to supply a blow drill which was used for the building investigation. The fire tracks in the wooden components point to the fact that the smouldering fire spread out slowly at first along the intersection between the affected wooden pillar and the floor joist described above. There it hit on old, dry fungal decay of dry rot which led to another, disastrous expansion of the fire.

¹ the lecture was presented as a power point lecture, the pictures could not be printed however (note of the editorship).

² Office of Public Prosecutor/Erfurt, file number 902 UJs 106458/04q, a) to the detriment of the Foundation of Weimar Classics because of arson, testimony of G. Geburtig 2/16/2006.

³ File number 902 UJs 106458/04q, a) to the detriment of the Foundation of Weimar Classics because of arson, Official certificate according to § 256 stop (German Code of Criminal Procedure) of the Federal Criminal Police Office 2/25/2005.

⁴ Ibid.

⁵ Office of Public Prosecutor/Erfurt (vide gloss 1).

⁶ Office of Public Prosecutor/Erfurt (vide gloss 2).

Fire prevention

Initial situation and protection target

If one looks from north to the south the historical library consists of the Coudray outbuilding, the Green Castle, the Gentz outbuilding and the library tower, all of them multi-story. Two flights of stairs in stairwells grant access. The existing construction makes the parts of the building mentioned above form appropriate fire sections whose separation had to be partially supported.

The usage of the historical library building as an assembly and working room required the fulfilment of architectural, technical and organizational regulations which ensure employees or visitors cannot receive physical injury. The building houses original books, globes and maps as well as paintings and sculptures and again, the task is to protect them permanently.

Constructional fire prevention

Fire prevention requires for an effective fire-preventing separation between the Coudray outbuilding, the Green Castle and the Gentz outbuilding. The library tower has been separated efficiently as well. After in depth examination, the existing stairwell in the Coudray outbuilding was able to receive certification as an emergency stairwell without structural changes. The projected lift in the separation wall between the Coudray-outbuilding and the Green Castle has been completed in a way that the function of the fire wall remains completely guaranteed. The rococo hall forms a fire segment between the 1st upper floor up to the 1st attic, because a horizontal separation through the enclosed ceilings has not been carried out. The fire resistance of the existing wooden raftered ceilings amounts to roughly 90 minutes. Smoke extraction is accomplishable by a sufficient number of openable windows at all levels. The separation of the ground floor and the 1st upper floor in the Green Castle was built as a fire resisting ceiling F90-A. This demand has been largely satisfied by the existing material. The demands on the supporting and buttressing constructions and on the ceilings of the Gentz outbuilding are determined according to the Thuringian building law for the building class 4 as at least F 60–high fire retardant. The existing material remained therefore essentially unchanged. The construction of the library tower remained unmodified but in order to ensure the

possibility of self-rescue and a possible intervention by the fire brigade the installation of a natural fume outlet was necessary. In all areas of the house that are subject to the regulations for places of public assembly (Green Castle, Coudray outbuilding) two constructional escape routes have been provided. One is in the library tower and, in the Gentz outbuilding, the second escape route is now provided by the rescue equipment of the fire brigade.

Necessary fire prevention doors have been added in only a few cases so historical doors could generally be preserved. They have been reconditioned by upgrading the seals and lock mechanisms.

Fire prevention of the complex

For effective fire prevention of the library building and its equipment, automated early fire detection is indispensable. Therefore, the building has been provided with an automatic fire detection system (as a full safety device) with an alarm redirection to the fire brigade. For fire detection conventional smoke detectors (optical smoke detector) are used for the office area, the working and plant rooms, the public rooms in the Coudray outbuilding, for the sub-level, basement and ground-floor of the Green Castle as well as for the Gentz outbuilding. In the rococo hall, in the book tower and in the extra reading room smoke removal systems are used. The fire alarm system controls the extinguishing system. In order to protect the valuable equipment of the rococo hall and of the library tower an automatic extinguishing system was requested and installed.

Thorough analysis resulted in the choice of a high pressure water vapour extinguishing system with a maximum drop size of 100 µm and an glass container activation temperature of 59°C (332.15K) in the rococo hall and 68°C (314.15K) in the library tower and the remaining areas. This state-of-the-art installation was constructed as pre-controlled and dry. Under normal conditions there is no water in the water pipes which might cause damage to the historical building fabric in case of a pipeline rupture. Only the activation of the fire alarm floods the otherwise dry water pipes up to the closed clearing nozzles and only the incidence of temperatures $\geq 59^{\circ}\text{C}$ or $\geq 68^{\circ}\text{C}$ opens the nozzles so that the extinguishing process can start. In doing so the water support and the vapour generation is carried out by a gas driven pump unit so that the function of the

extinguishing system does not depend on a complex emergency power supply. The maximum extinguishing time amounts to 40 minutes. The installation of the construction in the rococo hall and in the library tower required a covered passing of pipe lines (approximately 12-16 mm in diameter) and only the necessary extinguishing nozzles had to be installed visibly.

Smoke outlets were built in the emergency stairwells in the Coudray outbuilding and in the Gentz outbuilding. For these installations smoke outlet systems that work with opening windows and providing for a manual release key as well as an activator for the fire alarm system were used. In the library tower the smoke outlet functions by means of a natural fume outlet.

Organizational fire prevention

For the library building, fire safety regulations that regulate behaviour for fire prevention, in the case of fire and for fighting fire have been posted. All employees are to be informed about these at least once a year.

ZUSAMMENFASSUNG

Am Beispiel des verheerenden Brandes der Anna-Amalia-Bibliothek in Weimar klärt Gerd Geburtig über die Ursachen des Feuers auf und erläutert die Neuerungen seit dem Wiederaufbau. Geburtig war selbst in die Untersuchungen zum Brandhergang eingebunden. Ihm zufolge lässt sich der Brandherd auf defekte Stromkabel zurückführen, die in der hölzernen Umgebung Feuer zünden konnten. Um zukünftige Feuerbrände zu verhindern, wurde zunächst der Gebäudekomplex analysiert und Schutzziele definiert. Dabei galt es unter anderem, die einzelnen Nebengebäude durch feuerfeste Mauern abzutrennen, um eine rasche Verbreitung des Feuers einzudämmen. Außerdem wurden zusätzliche Standards verbaut.

Ein neues Brandmeldesystem ist überdies direkt mit der Feuerwehr verbunden. Neu ist auch die eingebaute Löschanlage: Damit die wertvollen Bücher vor Wasserschäden geschützt sind, wird nur im Brandfall Wasser durch die Leitungen gepumpt. Die Angestellten dort werden nun jährlich für den Ernstfall unterrichtet, um Routine für richtiges Verhalten zu erlangen.

Anna-Amalia-Bibliothek – Brandursache – Brandverlauf – Feuerprävention – Analyse des Gebäudekomplexes – Raumseparation – Löschanlage



The firefighters Johannes Feyrer and Johannes Buchhauser (clockwise) sharing their expert knowledge



The conference audience in the historic salt barn



CLOSING SESSION

Facing the challenges – changing parameters for World Heritage sites:
The European-funded project HerO

MATTHIAS RIPP



URBACT II

The European bodies are strongly encouraging European cities to formalise their exchange and network activities in combination with local activities through URBACT II Projects.

The predecessor, URBACT I, was started as early as 2002 and linked 217 cities in 38 different projects. URBACT is a European Programme which aims to foster the exchange of experience among European cities and to capitalise on and disseminate knowledge about all issues related to sustainable urban development. The URBACT II (second cycle) challenge is to improve the effectiveness of sustainable integrated urban development policies in Europe with a view to implementing **the European Lisbon-Gothenburg Strategy** (Priority to Competitiveness, Growth and Jobs).

The main objectives of URBACT are to:

- Provide an exchange and learning tool for policy decision-makers, practitioners and other actors involved in developing urban policies
- Learn from the exchanges between URBACT partners that share experiences and good practices
- Disseminate good practices and lessons learned from exchanges to all European cities
- Assist city policy-makers, practitioners and managers of operational programmes to define action plans (cf. <http://urbact.eu/> accessed on 1.12.2008)

HerO – Heritage as Opportunity

The City of Regensburg determined the structure and methodology of the project in cooperation with its partner cities. Within the HerO Network all partners

are to develop integrated management strategies for the use and safeguarding of their historic urban landscape. Innovative good practice methods, instruments and policies will be exchanged and documented in a best-practice compilation. On a local level each partner city will set up a Local Action Group where all relevant stakeholders are included in the process. This Local Action Group works out Local Action Plans where objectives, strategies and actions are defined. The overall goal is to facilitate the right balance between preserving the cultural heritage of historic urban landscapes as elements of identity and integral parts of European history and enabling sustainable, future-ready urban development to maintain and to strengthen the attractiveness and competitiveness of the historic urban landscapes. The basic idea behind this is balancing the different demands of "users" and cultural heritage protection – including stakeholders like local businesspeople, citizens, tourists, property owners, UNESCO, conservators, and the like.

Partnership Composition

The HerO Project is made up of 10 European Heritage Cities with important historic urban landscapes. During the application phase more than 50 cities of various size from all over Europe asked to be included in the network. This shows how great the interest in the topics addressed within the project was, even at the outset. After a careful selection process under consideration of the requirements of a 50/50 balance between competitiveness and convergence, broad geographical coverage and commitment of the partners final decision a network of 10 European cities (together with their associated Managing Authorities) was created. To support the HerO network especially in connection with the objectives of capitalising on and communicating knowledge the EHTR (European Association of Historic Towns and Regions), a strong existing

network with a broad experience in related fields, was additionally involved.



Fig. 1: The HerO-Network: Balanced Partnership throughout Europe

- | | |
|-----------------|----------------|
| Regensburg (DE) | Liverpool (UK) |
| Graz (AT) | Poitiers (FR) |
| Naples (IT) | Lublin (PL) |
| Vilnius (LT) | Valletta (MAL) |
| Sighisoara (RO) | Valencia (ES) |

Starting situation, challenges, objectives and outputs

"The historic urban landscape acquires its exceptional and universal significance from a gradual evolutionary, as well as planned territorial

development over a relevant period of time through a process of urbanization, incorporating environmental and topographic conditions and expressing economic and socio-cultural values pertaining to societies."¹

This quote from the Vienna Memorandum shows that change has always been a relevant factor among historic cities. Providing opportunities for appropriate development while safeguarding the cultural heritage assets is the key challenge for most historic urban landscapes. A large variety of stakeholders with different needs must be integrated into the process. While most cities still organize their administration through mainly mono-sectoral policies urban cultural heritage touches upon many fields of urban life and should be dealt with using an interdisciplinary and integrated approach.

(cf. Leipzig Charta on Sustainable European Cities; http://www.bmvbs.de/Anlage/original_998680/Leipzig-Charter-on-Sustainable-European-Cities-agreed-on-24-May-2007.pdf accessed on 2.12.2008)

Therefore the main objectives within the HerO Project are:

- Development of integrated and innovative management strategies and urban policies
- Strengthening the attractiveness and competitiveness of the old town areas and historic city centres

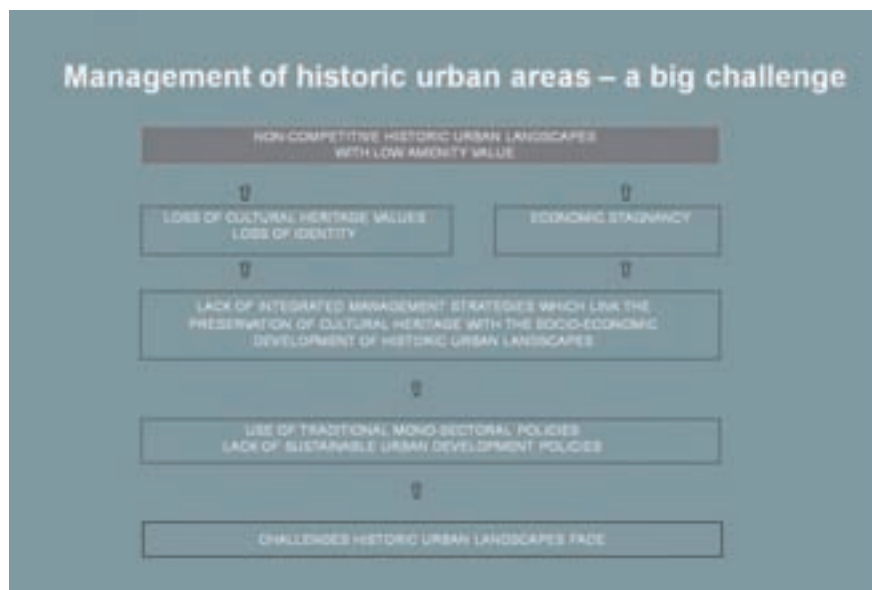


Fig. 2: Challenges for Historic Urban Landscapes

¹ The Vienna Memorandum on "World Heritage and Contemporary Architecture - Managing the Historic Urban Landscape" (UNESCO World Heritage Centre, 2005).



Fig. 3: Sectoral Approach in Historic Urban Landscapes

- Upgrading the urban environment by integrating cultural and natural heritage into sustainable urban development policies

To achieve these objectives innovative methodologies, management strategies and urban development policies will be developed. Each partner city will develop Local Action Plans with the help of Local Support Groups. Proven management strategies will be adopted and capacity building encouraged (see Fig. 2 and 3).

Environmental Challenges

The OWHC Conference on "Environmental Challenges for Urban World Heritage" showed a large variety of environmental threats to Urban World Heritage that should be addressed and thought about within an Integrated Cultural Heritage Management System:

During the session on "Earth" the World Heritage City of Bamberg presented problems in connection with parts of the historic urban landscape that are situated on the slopes of some of the seven hills in Bamberg, where a specific geological pattern of soil causes the earth to slip. In Quedlinburg two hills with important monuments on them, the Münzenberg and Schlossberg, are facing stability problems. Wind-related problems are causing serious weathering and harmful environmental influences on St. Peter's Cathedral in Regensburg.

Water is the most common threat to urban World Heritage. In Beemster the strategy of "poldering"

correctly is important, while in Karlskrona the waterfront and problems related to the rise of the seawater-level are being discussed. Flood prevention systems for river-caused floods have been installed in Regensburg and Prague. To improve preventive flood management measures by spatial planning the INTERREG IIb project ELLA was set up.

Fire prevention is crucial for Urban World Heritage Sites and individual monuments within them. Røros has developed special strategies towards town fires, Edinburgh had to deal with a severe fire which destroyed parts of the World Heritage fabric and the Cologne Cathedral and the Herzogin-Anna-Amalia-Library in Weimar have installed elaborate protection concepts.

Summary

Climate change and natural hazards are increasingly affecting urban cultural heritage often with serious damage to the historic urban fabric. These changing parameters demand an innovative approach on how to face environmental challenges and improve protection strategies. The main task is to improve the basic starting conditions that urban heritage sites need to prepare for and react to environmental threats. Within the HerO Project management structures, management plans including proper objectives, strategies and actions will be set up for each partner city through a participatory and integrated process. The prevention and reaction to environmental threats is an important topic that will be addressed within this project at the local level.

But cities are often affected by a single event in a long cause- and- effect chain. Therefore necessary actions must be taken not only at the local, but also at regional, national and international levels. The final document of the OWHC-Conference on "Environmental Challenges to Urban World Heritage", the "Regensburg Recommendation", shows ideas for actions that should be focused on within the different levels of government.

Literature

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ZUSAMMENFASSUNG

Matthias Ripp stellt das von der EU geförderte Netzwerk „HerO - Heritage as Opportunity“ vor, das von Regensburg aus koordiniert wird. Dieses ist Teil des URBACT Programms, das dem Wissensaustausch zur nachhaltigen Stadtentwicklung dient. Wettbewerbsfähigkeit, Wachstum und die Schaffung von Arbeitsplätzen sind dabei die maßgeblichen Ziele. HerO verbindet diese Ziele mit dem Schutz der Welterbestätte. Die teilnehmenden europäischen Städte werden diesbezüglich angeleitet, Managementpläne zu erarbeiten und ihre Erfahrungen mit den anderen Teilnehmern zu teilen. Es gilt, eine Balance zwischen den verschiedenen Interessensgruppen einer Stadt zu finden, also beispielsweise den Schutz des Welterbes mit einer prosperierenden wirtschaftlichen Entwicklung zu vereinen. Von den Projektteilnehmern wird deshalb erwartet, dass sie integrative Ansätze wählen, um diesen Spagat meistern zu können.

In diesem Netzwerk müssen auch die zunehmenden Umweltgefahren Berücksichtigung finden. HerO hilft dabei, auch das Krisen-Management in die richtigen Wege zu leiten und diese kooperativ zu beschreiten.

URBACT – EU-Netzwerke – HerO – integrativer Ansatz – nachhaltige Stadtentwicklung – Balance zwischen unterschiedlichen Interessensgruppen – Local Action Group

REGENSBURG RECOMMENDATION

"Earth, Wind, Water, Fire – Environmental Challenges to Urban World Heritage"

Organization of World Heritage Cities Northwest-European Regional Conference
September 16-18, 2008 in Regensburg, Germany

We, the participants of the conference, representatives of the Organization of World Heritage Cities in Northwest Europe,

emphasize the importance of safeguarding the world's cultural heritage for present and future generations,

highlight that climate change and environmental challenges like storms, flooding, fire, earthquakes, weathering, erosion and landslides pose one of the most important threats to World Heritage cities, especially given the more frequent extreme weather situations,

emphasize that the loss and deterioration of the built cultural heritage due to natural disasters and climate change affects all people,

recall that the safeguarding of the urban cultural heritage is the shared responsibility of citizens, local and regional authorities, national governments and international organisations,

take into account the following documents:

- UNESCO's Convention Concerning the Protection of the World Cultural and Natural Heritage of 1972 and the corresponding Operational Guidelines for the Implementation of the World Heritage Convention of 2008,
- the Council of Europe's Recommendation No. R (93)9 of the Committee of Ministers to Member States on the Protection of the Architectural Heritage against Natural Disasters of 1993,
- the International Committee of the Blue Shields Radenci Declaration on the Protection of Cultural Heritage in Emergencies and Exceptional Situations of 1998,
- the Puebla Declaration regarding Prevention and Protection Measures for World Heritage Cities in Case of Disaster adopted by the Organization of World Heritage Cities General Assembly in Puebla, Mexico in 2001,
- ICOMOS Kyoto Declaration on Protection of Cultural Properties, Historic Areas and their Settings from Loss in Disasters of 2005,
- UNESCO's Strategy for Reducing Risks from Disasters at World Heritage Properties of 2006,
- New Delhi Resolution on Impact of Climate Change on Cultural Heritage, adopted at the ICOMOS International Workshop on Impact of Climate Change on Cultural Heritage of May 2007,
- ICOMOS Recommendations from the Scientific Council Symposium Cultural Heritage and Global Climate Change of March 2008,
- the publication of the World Heritage Centre "Policy Document on the Impacts of Climate Change on World Heritage Properties" of 2008,

point out that in most cases the issue of natural hazards and urban heritage is not yet being approached in an interdisciplinary way. We recommend that the integrated research and interdisciplinary dialogue in geo-scientific as well as in cultural and social sciences is fostered in the sense that different knowledge is brought together,

Underscore that traditional preservation techniques and local knowledge are invaluable in the protection

of urban heritage sites from environmental challenges.

We, the participants of this conference call on:

- 1. the UNESCO World Heritage Committee,**
 - a. to encourage and increase dialogue on natural risks to cultural heritage and to develop proper strategies for risk prevention and management,
 - b. to address the potential danger of natural disasters which confront urban World Heritage sites in the Operational Guidelines for the Implementation of the World Heritage Convention,
 - c. to foster funding programmes for prevention, preparedness, response and recovery measures in urban World Heritage sites,
 - d. to capitalise on existing initiatives and projects and to disseminate the results and information gained,
 - e. to encourage interdisciplinary research on environmental challenges to urban cultural heritage by establishing UNESCO chairs and UNESCO networks in that field,
 - f. to support international conferences dealing with climate change and natural hazards in relation to urban World Heritage sites,
 - g. to establish awareness-raising programmes and to bring the topic into focus through UNESCO publications and other sources of information,
- 2. the official Bodies of the European Union,**
 - a. to develop coherent policies on historic urban landscapes together with international expert bodies,
 - b. to support scientific research on environmental challenges to urban World Heritage,
 - c. to strengthen the role of urban World Heritage and its protection from natural risks through European Regional Development funding (ERDF),
- 3. States Parties to the World Heritage Convention,**
 - a. to assure proper funding and staff for scientific research and preventive measures in the field of natural risks to urban World Heritage on a national level and to make risk prevention a topic for national funding programmes,
 - b. to foster training and education for people concerned with the protection of urban World Heritage sites with regard to natural risks and preventive measures,
 - c. to develop applicable instruments and provide resources that allow a fast reaction to natural hazards threatening World Heritage cities, considering that the complexity of cause and effect is not only limited to the World Heritage cities themselves,
- 4. the World Heritage cities,**
 - a. to make risk preparedness and the impacts of climate change an integral part of the cities' management of the World Heritage area and to develop proper emergency plans,
 - b. to pursue an integrated management approach that brings together different disciplines and institutions concerned with the protection of urban cultural heritage,
 - c. not to decide to interfere in the surrounding of their World Heritage, before there is absolutely no doubt about the future effects of such actions on nature,
 - d. to participate in research on risk preparedness and the protection of urban heritage from environmental challenges,
 - e. to share information on best practices, knowledge and experience relating to environmental challenges with other World Heritage cities,
- 5. the Organization of World Heritage Cities,**
 - a. to disseminate relevant information on natural risks to World Heritage cities, including case studies, recommendations and conference papers online via URBO – the Organization of World Heritage Cities research hub,

- b. to establish a thematic pool on the Organization of World Heritage Cities website as a place where experts in the field of environmental hazards will be listed as contacts,
- c. to make the issue of natural risks to World Heritage cities a topic of the next OWHC World Congress,
- d. to actively encourage the exchange of knowledge and information and the establishment of appropriate networks and partnership programmes,
- e. to disseminate the present recommendation adopted by the participants of the conference in Regensburg online.

We, the participants of this conference, submit this recommendation to the General Secretariat of the OWHC to be brought to the attention of:

- a. the authorities, departments, or bodies responsible for matters relating to urban World Heritage,
- b. various organisations or institutions concerned with natural risks and environmental challenges,
- c. their contacts within appropriate international organisations dealing with the protection of World Heritage cities.



Dr. Siri Myrvoll hands over the Regensburg Recommendation to Lee Minaidis



Ute Hick-Weber, Head of the Planning Department, thanks all of the conference participants for their attendance

IMPRESSIONS FROM EXCURSIONS



The attendees visit Walhalla, a monument where famous historical figures are commemorated



Between the two towers of the St. Peter's Cathedral a group photo of the experts was taken



Material for the roof of the St. Peter's Cathedral was transported by using the so called hamster wheel



Hans Weber refers to the challenges of St. Peter in situ



In the stonemason's lodge the attendees got to know the old craft of the stone cutter

IMPRESSIONS FROM THE CONFERENCE



The conference took place in the rooms of the historic salt barn



President of ICOMOS Germany Michael Petzet, World Heritage Coordinator of Regensburg Matthias Ripp, Chief of the Europe and North America Section at the UNESCO World Heritage Centre Mechtild Rössler (clockwise)



Informal exchange of ideas during coffee breaks



Huge amounts of salt used to be stored where the attendees were sitting

Being at Risk? - Monuments on the Slopes of Bamberg

Construction of a New Street through the Districts on the Hills

Introduction

Bamberg has a road network that has grown radially. Partially, it is overstrained with today's traffic. Thus, there were several attempts to build a capable ring of bypass roads around the city. Within the hilly western part of the historic town ("Bergstadt") this road is missing. The following contribution discusses the consequences of a road building under use of tunnelling, exit-and-entry structures and cuts in the Bergstadt with regard to geological risks.



Landscape

A composition of historic buildings and openspaces forms a complex and unique town-cultural landscape.



Geology

Following the steep climb from the Regnitz valley there is a flat area on the surface of the sandstone and clay stone layers of the middle Keuper – with particular Rhaetic-Lias-mountains poking out. Approaching these mountains, the layers of the Burgsandstein are increasingly covered by clay stones (Feuerletten). The clays are prone to swelling, creep and weathering. Landslides are common.



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Being at Risk? - Monuments on the Slopes of Bamberg

Construction of a New Street through the Districts on the Hills

Western Bypass Road ("Bergverbindungsstraße")

In 1979, an alignment was planned for a bypass road in the western part of Bamberg, cross-ing several valleys and ridges. It was planned to tunnel the Remeis hill using a tunnel lying narrow below the surface.

Because no implementation was carried out, in 2002 the council discussed about two new alignments. The first plans huge tunnels, with two arms to the Bergstadt, involving a tym-panum near the Remeis hill. The other crosses the landslide-prone slopes of the Altenburg hill.

Case study: Remeis Villa

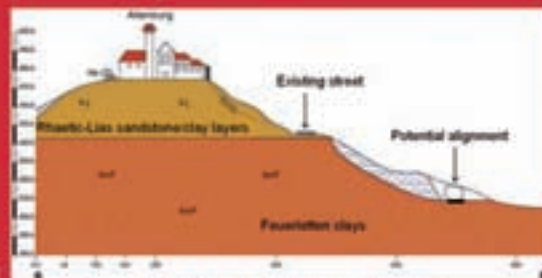
Here, the alignment would cut a landslide-prone slope. So a proper dimensioned retaining wall has to be constructed and an ongoing monitoring of the deformations of the building ground has to be implemented. Furthermore, a proper water path around any tunnel or wall has to be ensured permanently.



Case Study: Altenburg hill

Another planned alignment would pass the Altenburg in the area of landslide-prone clays and clay/sandstone layers. It would destabilise the basis of the slopes and increase the risk of landslides.

A new road has to implicate measures like retaining walls and installations to ensure a proper water path. It has to be made certain that there is no release of slip movements due to road works.



Conclusion

A new road with tunnels, cuts and side cuts in the Bergstadt that has complex and instable layered slopes and hills is an high-risk venture for buildings, agricultural and silvicultural ar-eas and infrastructure. In view of a minimisation of GeoRisks in the World Heritage City of Bamberg an evaluation of such risks and counter measures have to be prerequisites for planning. Only those expensive planning activities and possible preparatory safeguards al-ready done before the start of work may make sure that consequential damages can be ruled out with a guarantee that is adequate to the sensitive situation.

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POSTER SESSION

NEKANDA TREPKA – Warsaw's Vistula Bank versus UNESCO site



Introduction. The Significance of the Site

The establishment of Warsaw's old town dates back to around 1300. It was completely destroyed by the Nazi invaders after the fall of the Warsaw Uprising in 1944.

The Old Town, inscribed onto UNESCO's World Heritage constitutes a world-scale area of planned and completed reconstruction of unique monumental building development. The only original fragments of the historical old town can be found in the basements, underneath its tenement houses. Basements, which are in poor technical condition, neglected and mainly unused, are subject to continuous degradation.

The project

The project of **Renovation and adaptation of the Warsaw's Old Town basements for cultural purposes in the area of entry to the UNESCO World Heritage List** was prepared by the City of Warsaw Heritage Protection Department in cooperation with the Norwegian partner city of Bergen. The project is to be implemented within the framework of the Priority 3 of the Financial Mechanism of the European Economic Area (EEA) – Protection of European cultural heritage, including public transport and restoration cities.

The project has the following objectives:

- Renovation of the selected old town basements - total area of basements, subject to renovation and adaptation is **2856.27 m²**
- Adaptation of the restructured premises for cultural purposes;
- Development of the Heritage Interpretation Center with the permanent exhibition of the old town's reconstruction history at the tourist information point

Renovation and adaptation assumes coherent combination of monumental and modern elements, resulting from new functions assigned to the renovated premises.

Alongside the advantages resulting from enrichment of the cultural and tourist offerings of the city, the implementation of the project will also contribute to improvement of the technical condition of buildings.

The final beneficiaries of the project shall be the residents of the Capital – namely adults, youth and children as well as domestic and foreign tourists who will make use of the infrastructure in the city. The number of visitors to the facilities on route to the old town's cultural basements is estimated to reach over one million people per year.

Implementation & Costs

The project is implemented within the framework of Priority 3 of the Financial Mechanism of the European Economic Area – Protection of European cultural heritage, including public transport and restoration of cities.

The cost of the project is: 8 821 960 € (34 725 000 zł) – the sum reserved in the City of Warsaw budget 2008-2011. The amount to be reimbursed by Norwegian financial Mechanism and Cultural Exchange Fund (Norway grants) is 4 471 318 € (17 600 000 zł).

The building renovation works to be conducted within the project

- Execution of vertical and horizontal insulations
- Forging plasters on walls and ceilings
- Drying and replacement of floors and brickworks
- Application of fungicide to basement walls and ceilings
- Internal renovation of plasterworks
- Inserting of electrical and telecommunication installations
- Clearing of obstructions in ventilation ducts
Inserting of gravitational and mechanical ventilation and air-conditioning
- Partial replacement of timber fenestration
- Relocation of the thermal unit and installation to a different place
- Replacement of water supply and sewage installation

Adaptation of individual facilities for cultural purposes

The Heritage Interpretation Center will feature an exhibition presenting among others: the history of the development of the medieval city, the image of the old town before World War II, the extent of post-war destructions, post-war reconstruction of the old town and the subject-matter of the entry of the old town onto the World Heritage List. The visitors will also have the opportunity to learn the idea of heritage interpretation as an element of wider heritage protection and its implementation within the framework of basement renovation.

ZUSAMMENFASSUNG

Die Gründung der Altstadt von Warschau lässt sich bis auf 1300 zurückdatieren. Die Stadt wurde von den Nazis im Jahre 1944 komplett zerstört. Nach dem Krieg wurde Warschau in einer fünfjährigen Rekonstruktionsarbeit fast wieder komplett aufgebaut. Die Fundamente dieser Welterbestätte sind jedoch in einem sehr renovierungsbedürftigen Zustand. Ein Projekt soll nun die Finanzierung und Restauration der Fundamente sichern. Als Partner des Projekts nimmt die norwegische Stadt Bergen teil. Ziel ist es, neben der Renovierung auch ein Zentrum kultureller Nutzung zu schaffen, in dem Geschichte thematisiert wird und das sowohl für Einwohner als auch Besucher attraktiv ist.

Warschau – UNESCO Welterbe – Rekonstruktion der Altstadt – Renovierung der Fundamente – Besucherzentrum



Poster Session: Visualisation of specific challenges of the participating members



The Poster Session was also used as a platform for an informal exchange of experiences between the panels

ASCEND Network about the reuse of military heritage

UN RÉSEAU D'ÉCHANGE AUTOUR DE LA VALORISATION DU PATRIMOINE MILITAIRE

Faciliter la reconversion socio-économique du patrimoine militaire

De nombreux sites militaires ont été laissés à l'abandon pour leur rôle défensif, d'une manière décevante. Des expériences, continues à l'ensemble de l'Europe, depuis la fin du dernier conflit mondial et plus encore depuis la fin de la guerre froide, montrent d'énormes possibilités et opportunités.

En 2002, à l'initiative de « **Medway Council** » (Royaume-Uni), sur le territoire occupé au traité de Chatham, une première rencontre a réuni des responsables de sites militaires abandonnés pour leur rôle de structures multiples.

Cette première collaboration a été menée dans le cadre du programme d'initiative communautaire **INTERREG IIC** sous le nom « **ASCEND** » avec pour chef de file **Medway Council** et sous patronage:

- l'Espagne de Chatham au Royaume-Uni;
- l'Espagne de Venise et ses fortifications au Italie;
- l'Espagne de Carthagène en Espagne;
- la zone militaire de Barcelone en Espagne;
- l'Espagne de fortifications autour d'Alcazar aux Pays-Bas;
- l'Espagne et les fortifications littorales de l'Espagne littorale en France;
- les fortifications de Thessalonique en Grèce.

Cette initiative **ASCEND** est de fournir aux participants, dans les domaines de la programmation, de l'analyse et de la gestion urbaine, un plan stratégique de développement et la connaissance des sites militaires/fortifications abandonnées militaires/les patrimoines militaires. Il s'agit de compléter la gestion de sites militaires abandonnés de nouvelles conceptions architecturales de développement et de programmation d'un territoire.

Achieving the socio-economic re-use of former military land and heritage

Many military locations were closed down and abandoned before being to the last part completely redeveloped. Such reuse development projects have been implemented throughout Europe (especially since 2000) and even exist across the rest of the world and all of them in the shared and common.

Initiative started a collaboration and was supported under the European **INTERREG IIC** project (supported by the program **ASCEND** and led by **Medway Council**) with the following partners:

- the Chatham Dockyard in the United Kingdom;
- the Venice Arsenal and Fortifications in Italy;
- the Carthagena Dockyard in Spain;
- the Alcazar Harbor of Alcazar in Germany;
- the New Dutch Waterline in the Netherlands;
- the Alcazar Arsenal and Coastal Fortifications in France;
- the Thessaloniki Fortifications in Greece.

The objective of the **ASCEND** project is to provide participants with technical assistance in urban planning and development, a strategic development plan and the knowledge of the urban management of military heritage. The objective is to complement the management of military heritage with new architectural designs and programming of development and programming of a territory.




SUÈDE 



Karlskrona

Comté de Blekinge - Suède 

Fondée en 1680 par le roi Karl XI sur 33 petites îles, pour contrôler le mer Baltique, la ville de Karlskrona est un véritable lieu d'histoire.

Basé de la merne suédoise, solide, facile à défendre, l'île de Karlskrona est devenue un véritable lieu d'histoire. Fondée en 1680 par le roi Karl XI sur 33 petites îles, elle est devenue un véritable lieu d'histoire. Fondée en 1680 par le roi Karl XI sur 33 petites îles, elle est devenue un véritable lieu d'histoire.

Cette adresse

Adresse

Coordonnées

Services

Informations



Karlskrona : les grandes dates

- 1680** - La région de Blekinge devient partie intégrante de la Suède.
- 1680** - Le roi Karl XI fonde Karlskrona.
- 1680** - La ville de Karlskrona devient la 2^e ville de Suède en termes de population.
- 1680** - Plus importante base navale et port de guerre de Suède.
- 1680** - Fondation du projet de réhabilitation de la ville.
- 1680** - Programme de réhabilitation de la ville.
- 1680** - Clonement du patrimoine matériel de l'Université.





BIOGRAPHICAL NOTES



CROUCH, TONY

Tony Crouch trained as a Town Planner and worked first in the private sector for construction companies and then as a planning officer for several local authorities. He joined Bath Council as a planner in 1995, before moving into building conservation. Whilst at Bath he completed a Masters Degree in historic conservation. He progressed within Bath Council to become a Senior Conservation officer and then to the post of Heritage and Environment Manager. This post managed the Conservation and Environmental teams, which were responsible for the environmental stewardship of Bath and the wider area. In August 2008 he became the World Heritage Manager for the City of Bath. He lives in a village close to the city with his partner and two young children, where he also acts as an elected councillor and is a keen runner and enjoys a variety of other sports. He is a member of the Royal Town Planning Institute and Institute of Historic Building Conservation.



ELLGER, CRISTOF

Christof Ellger was born in the City of Stuttgart. He studied Geography and English in the City of Tübingen and in the City of Durham, England. He did his doctorate in Tübingen in 1988. Ellger has worked as a lecturer in Human Geography at Freie Universität Berlin. Since 2001 he has been the General Secretary of the Geographical Society of Berlin. Since 2007 he has also been the Secretary of GeoUnion Alfred-Wegener-Stiftung.



FÜRHAUPTER, RAINER

Rainer Fürhaupter, 51, has been a member of the board of management of the Versicherungskammer Bayern since June 2005, with responsibility for the department for non-life insurance for non-private customers.

After his diploma in mathematics and insurance sciences in 1985 at Ludwig-Maximilian-University, Munich, he worked in various functions at Allianz Versicherung AG, Munich.

From 1996 to 2005 Fürhaupter was a member of the board of management at Deutsche Krankenversicherung AG, Cologne, from 2004 to 2005 and at the same time in the same capacity at Victoria Krankenversicherung AG, Düsseldorf.

Fürhaupter graduated as an actuary of the DAV (Deutsche Aktuarvereinigung (German Actuarial Association)) in 1991, and has been a member of the board of directors of the Deutsche Aktuarvereinigung since 1997 and is now chairman of the DAV-Committee for Non-Life-Insurance.

Fürhaupter is also involved in several Committees of the VöV (Verband öffentlicher Versicherer (Association of Public Insurers)) and the GDV (Gesamtverband der Deutschen Versicherungswirtschaft (German Insurance Association)), chairing the Technical Committee of the GDV.



GEBURTIG, GERD

Dr.-Ing. (doctor engineer) architect Gerd Geburtig works as an expert for fire prevention. He guest lectures for the faculty of structural design at the Bauhaus University in Weimar. Furthermore he is the 1st chairman of the regional group of the scientific-technical consortium for the preservation of monuments and historic buildings incorporated societies in Germany (WTA-D) as well as a member of the German national committee of ICOMOS.



GARRET, WILLIAM

Will Garrett is a town planner who has worked in Edinburgh for 18 years for the City of Edinburgh Council and has responsibility for Built and Natural Heritage issues in the city. Before that he worked in Glasgow for 5 years and has also worked in London and in Devon. His focus has been on the conservation of the built heritage within dynamic urban environments.



GUTIÉRREZ-CORTINES, CRISTINA

Cristina Gutiérrez-Cortines started her academic career as a high school teacher. Starting in 1970 she worked as an associate professor at the University of Murcia for 5 years. Since 1996 she has been working there as a full professor with a special focus on heritage preservation and sustainability, renaissance art, regional art and town planning.

From July 1995 until May 1999 Cristina Gutiérrez-Cortines was the Regional Counsellor for Education and Culture from the Region de Marcia. She became a member of the European Parliament in June 1999 and was the author of the European Parliament resolution on universities and higher education in the European learning area.

Besides her engagement for research and University Education she is also a reporter of the Cooperation of the Seventh Framework Program for research and technological development (FP7). She is also a reporter of the Directive on the Protection of Soils in the Environment committee of the European Parliament.

As a Member of the European Parliament she belongs to the Environment, Consumers policy and Public Health Committee; Research, Industry and Energy Committee, Temporary Committee on climate Change, Budget Control committee, Petitions Committee. Cristina Gutiérrez-Cortines is a member of the STOA Panel and of the inter-parliamentary delegations of Israel, Turkey and Republic of China.



KINDLUND, CLAES-ÅKE

Claes-Åke Kindlund worked as an architect for the City of Karlskrona from 1989 to 2006. He also was Head of the Department for Planning, Building and Environmental Control. He lectured at the Section for Spatial Planning at the Institute of Technology in Blekinge. From 2006 on he has been the Senior Advisor to the Municipality of Karlskrona. Additionally he works as a consultant on architecture and planning.



LÖRNER, THOMAS

Thomas Lörner was born on January 25th 1980. He studied Geography, Archaeology and Business Administration at the University of Bamberg from 2001 to 2008. Since 2005 he has been employed at the Bamberg World Heritage Centre. He is responsible for the monitoring and the management planning of the World Heritage property.



MINAIDIS, LEE

Lee Minaidis holds a BA degree in International Relations from Sweet Briar College, Virginia, USA. For many years Mrs. Minaidis participated actively in numerous community, regional and national organizations, many associated with youth support and the arts.

In 1999 she was elected City Councilor of Rhodes and was then appointed Deputy Mayor responsible for International and Public Relations. From 2003 until the present she is Director of the Department of International and Public Relations and Protocol.

From 1996 until 2006 Mrs. Minaidis was a member of the Board of Trustees of the International Writers and Translators' Center of Rhodes and from 1999 served as Vice-President. From 1999-2002 she also served as Vice President of the Municipal Environmental Organization and as a Board Member of the Rhodes Museum of Modern Greek Art. From 1999 until 2004 she was the President of the Municipal Enterprise, Rodon S.A. and from 2004 to 2006 Vice-President of the company. Mrs. Minaidis was the Chairman of the Organizing Committee of the 7th World Congress of the Organization of World Heritage Cities (OWHC), which took place in Rhodes in September 2003. In 2004 she was appointed Coordinator for Development and European Projects of the OWHC. She also served on the Advisory Committee of the 8th World Congress of the OWHC held in Cusco, Peru in September 2005 as well as on the Advisory Committee of the 9th World Congress of the OWHC which took place in Kazan, Tatarstan, Russian Federation in June 2007.

Mrs. Minaidis served as Chairman of the Organizing Committee of the 2007 NatWest Island Games which took place in Rhodes in July 2007.

In March 2007 Mrs. Minaidis was chosen to serve as Interim Secretary General of the OWHC until 2009 and is a member of the Advisory Committee of the 10th World Congress of the OWHC to be held in Quito, Ecuador in September 2009.



PETZET, MICHAEL

Prof. Dr. Michael Petzet, born in 1933, was President of ICOMOS International from 1999 until 2008 and now holds the position in an honorary capacity. He has been President of the German National Committee of ICOMOS since 1989 as well. He studied art history and archaeology in Munich and Paris. After many years with the Bavarian State Conservation Office and the Bavarian Administration of Historic Palaces, he became Vice Director of the Central Institute for the History of Art and organized the exhibition of the Bavarian State and the City of Munich on the occasion of the 1972 Olympic Summer Games. From 1972 to 1974 he was director of the Lenbachhaus, the Art Museum of the City of Munich. For 25 years (1974-1999), in his position as Conservator General, Professor Petzet directed the Bavarian State Conservation Office, the central authority for the protection and conservation of monuments and sites in Bavaria. He is the author of numerous books and articles on French architecture of the 17th and 18th centuries, on monuments and sites in Bavaria and on general problems of monument conservation. He is the editor of several series of publications on conservation (Heritage at Risk, Monuments and Sites).



RIPP, MATTHIAS

Matthias Ripp graduated in historical geography with additional qualifications in heritage conservation, building history, urbanism, social planning and primary school teaching. From July 2004 until June 2005 he was the head of the marketing/press department of the City of Bamberg working as an expert on cultural tourism and public relations. From July 2005 until September 2007 he was responsible for the "World Heritage Management" of the City of Bamberg. Since October 2007 Matthias Ripp has managed the UNESCO World Heritage Site 'Old Town of Regensburg with Stadtamhof'. His main working fields include networking with local, national and international institutions, public relations, monitoring challenges for the World Heritage Site and planning strategies for urban sustainable development.



RÖSSLER, MECHTILD

Dr. Mechtild Rössler has a MA (1984) in cultural geography from Freiburg University (Germany) and a Ph.D. (1988) from the Faculty for Earth Sciences, University of Hamburg. She joined the Research Centre of the "Cité des Sciences et de L'Industrie" (Paris, France) in 1989 on a CNRS post and worked in 1990/91 as visiting professor at the University of California at Berkeley/USA (Department of Geography). In 1991 she joined UNESCO Headquarters in Paris, first the Division for Ecological Sciences, and since 1992 the UNESCO World Heritage Centre as program specialist and responsible officer for natural heritage and cultural landscapes. In July 2001 she became Chief of Europe and North America in charge of half of all World Heritage sites and 50 States Parties. Since June 2008 she is overseeing all regions of the world as Chief of Regional Units Section (ad interim). She has published 7 books, more than 60 articles, and contributed to the editorial board of three international journals.



SIELER, ULRICH

Ulrich Sieler is a civil engineer dedicated to the questions of tunnelling and pipe jacking for over 20 years. As a member of the Institute of Foundation Engineering of the LGA in Nuremberg, Franconia, he has gained large amounts of experience in the field of sand- and claystones of the Trias in Central Germany. He is an expert on tunnelling for the German railroads and the lead geotechnical engineer for the subway lines in Nuremberg. In this project he has overseen about 15 km of tunnelling works using various tunnelling techniques.



STROBL, THEODOR

Theodor Strobl was born 1941 in Germany. He studied civil engineering at the University of Technology in the City of Darmstadt. His research activity about cut off in earth fill dams led to the conferral of a doctorate in 1982. He also worked for the construction company HOCHTIEF and was the head of the Consultant Office for Dams prior to becoming a full professor at the Technische Universität München (University of Technology in Munich) in 1989.

Since 1989 he has been the director of the Institute for Hydraulic and Water Resources Engineering and has delivered numerous expert opinions as supervisor for various dams and hydropower stations in Germany. In addition he has worked as a consultant in design, construction and operation of hydraulic engineering projects in Germany, Austria, Switzerland, Nigeria, Kenya, Turkey, China, UAE, Jordan, Egypt, Nepal and Oman.

Since 2007 Theodor Strobl has been an Emeritus of Excellence of Technische Universität München. He is the Chairman of the German Committee "Dam Engineering" and member in the ICOLD- -Committee on Dam Foundation, German Water Resources Association and German Society of Soil Mechanics and Foundation Engineering.



WEBER, HANS

Hans Weber was born in the City of Regensburg in 1952. After graduating school he studied architectural studies at the Technische Universität München until 1972. Then he joined the State Building Authority. In 1981 he passed his 2nd State Examination.

During his time in the City of Bamberg Weber gained 15-years of experience with a focus on historic preservation in structural tasks for the University of Bamberg and the Seehof Castle.

In 1997 he went back to Regensburg, working as a consultant for the Administration of the Upper Palatinate in the architectural section with focus on allowance measures.

In 2000 Weber took over the direction of the State Building Authority Regensburg. Since then he has been responsible for the structural maintenance and renovation of the Regensburg Cathedral. Since 2006 Weber has been the manager of the entire State Building Authority encompassing different areas of responsibility like architecture, university construction and road construction.

LIST OF PARTICIPANTS

Name	Institution/Country
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