Holcim Forum for Sustainable Construction

Shanghai, April 18 –21, 2007

Hosted by Tongji University, China
"The battle for a sustainable society will be won or lost in cities." Klaus Töpfer
For the first time in history, more people live in cities than in rural settlements. Worldwide, the urban population is currently growing by approximately one million people per week. Cities today are not only economic and political centers, but laboratories for democracy, social innovation, and ecological development.

How can cities fulfill their diverse functions as sustainably as possible – today, and also in the future? What are the challenges they face with respect to urban transformation?

This was the topic of discussion at the second Holcim Forum, which took place at Tongji University in Shanghai, and was attended by more than 250 professionals from over 40 countries – architects, engineers, city planners, scientists, and representatives from business and government.

Participants collaborated in working groups, panel discussions, and technical presentations – together seeking solutions for urbanization in the 21st century.

The Forum also promoted intensive personal exchange among specialists: The challenge of urbanization requires particularly close interdisciplinary collaboration.
Shanghai was the ideal venue for the Holcim Forum on Urban_Trans_Formation. The Chinese city is a unique laboratory for urban development. In no other city in the world is the speed of development so dizzying – and the urban forms so diverse.

The Holcim Foundation collaborates closely with leading technical universities around the world. The partner in Asia is Tongji University, whose main campus in Shanghai was the venue for the Forum (see page 7). This relationship was not the only reason for choosing Shanghai as the location for the Forum. Shanghai – the name means “city on the sea” – is a vibrant megalopolis in which the challenges of urban transformation are brought into focus.

Nearly 19 million citizens

Shanghai exerts enormous pull. Today 9.5 million people live in the city itself. The entire metropolitan area of Shanghai is home to nearly 19 million people. Over four million people are considered temporary citizens belonging to the so-called floating population, who hold limited working and residency permits. Another three million live unregistered in the city, which is under the direct authority of the Chinese central government. Precise population figures are difficult to ascertain due to the city’s dynamic growth and the vast area that falls under its administration. Measuring 6,340 square kilometers, Shanghai is eight times bigger than Berlin. Here one finds cutting edge urban fabric with skyscrapers, urban freeways, and a population density that exceeds that of New York City by 70 percent, as well as anonymous suburbs and thinly-populated rural areas – for instance the enormous island Chongming (see page 54).
Modernization versus identity?

The rate of population growth in Shanghai has dramatically increased in recent years. Vacant residential space is extremely scarce, even though net residential space is just nine square meters per person; in Switzerland, the density is five times lower. The influx of people from across China has led to booming construction activity in Shanghai. Entire neighborhoods are being redeveloped simultaneously to make room for higher-density housing, offices and infrastructure.

Growth is also an agent of social change: community networks and urban city identity evolve in the context of large-scale urban transition. Especially noteworthy is the development of Pudong, a district that today presents an extensive shimmering evening skyline. In the 1980s, the Chinese government decided to establish a special business zone here. Not long ago, this was a semi-rural neighborhood; today some of the world’s tallest buildings stand in Pudong (see page 56).

Better city, better life

Shanghai faces challenges of population density, labor and capital engagement, accumulation and environmental degradation. These issues have been recognized and are currently being tackled with the rapidity that is normal for Shanghai – under the motto “Better City, Better Life,” created for World Expo 2010. The Expo will take place on expansive grounds in Shanghai, and has triggered enormous investment in the urban infrastructure; environmental protection is a tenet that the Chinese government earnestly respects. Holcim Ltd is participating as a main sponsor of the Swiss Pavilion for the Expo.
Messages on large banners welcomed the visitors from around the globe to Tongji University and the Holcim Forum: Tongji is celebrating the 100th anniversary of its foundation. The university, among the oldest and most prestigious in China, was established in 1907 by German physicist Erich Paulun. A surprising number of faculty members and students speak excellent German, because Tongji still maintains fruitful relations with German universities and the ETH Zurich. Hence, international and interdisciplinary collaboration is a special strength of the university, which lives up to its name – “Tongji” means “cooperating by riding in the same boat.” Today, roughly 41,000 people study at the university and 530 professors teach in more than a dozen schools with numerous departments.
Welcome
For the opening ceremony of the Forum one could hardly imagine a more fitting venue than the Shanghai Urban Planning Exhibition Center on People’s Square. In this impressive building is a huge, three-dimensional model that shows how Shanghai might develop.

Welcome ceremony at the Shanghai Urban Planning Exhibition Center with the huge model showing Shanghai in 2020 (top right): Xiong Yang, Vice Mayor, Municipal Government of Shanghai (opposite page); Zhiqiang Wu, Dean of the College of Architecture and Urban Planning at Tongji University, Chief Planner of World Expo 2010 and Member of the Technical Competence Center of the Holcim Foundation (top left); Rolf Soiron, Chairman of the Advisory Board of the Holcim Foundation and of Holcim Ltd (above left); and Dante Martinelli, Swiss Ambassador to China (above right).
Today in the virtual world, experts can exchange information anytime and anyplace. Why then should international meetings such as the Holcim Forum be held?

Exchanging knowledge and experience without personal contact is simply not enough. I see also in my own work that the use of video conferences is declining; direct face-to-face exchange remains irreplaceable.

Interview with Hans-Rudolf Schalcher, member of the Management Board, head of the Technical Competence Center (TCC) of the Holcim Foundation, and Professor for Planning and Construction Management at ETH Zurich, who moderated the 2007 Holcim Forum.
Why was Shanghai chosen as the Forum location?

First, of course, because of the close connection to Tongji University, which is a partner university of the Holcim Foundation and contributes to the TCC. In addition, Shanghai is a unique laboratory for urban development. I believe that the rate of change here is matched by no other city in the world. In Shanghai, we are witnessing urban transformation in fast forward, so to speak. And finally, it seems to me that the awareness of the issue of megacities is greater here than elsewhere Shanghai is earnestly tackling the problems that massive population growth entails.

What were your expectations before the Forum?

Primarily, we wanted to strengthen the network of academics and practitioners. Regarding urban development, it is really important that all stakeholders contribute to the exchange. The second Holcim Forum was also intended to strengthen the bonds that formed among the group that attended the Forum in Zurich in 2004. We must expand this network still further – and activate it even more.

How practice-related is such a Forum? Urban development is subject to countless contextual conditions. Can theoretical discussion lead to anything useful at all?

Urban transformation is not unplanned, rampant development. We are not powerless in the face of change! Urban development is shaped by building codes, zoning ordinances, communal needs, investors and governments. Everywhere there are great opportunities to exert influence.

You have spent several months in Shanghai.

What is it about this megacity that interests you?

The will of the people to change things – and at the same time their friendliness. For someone from Switzerland, where the wheels usually turn at slower pace, it is fascinating to see here how much movement can be achieved. In record time, skyscrapers are raised, bridges built, plans realized. That is, in spite of the downside that such development of course can have, simply fascinating.
Hierarchical, or tree-like urban patterns are an indication that cities are losing their openness, observed Kees Christiaanse. He fears that the typical city is becoming a patchwork of disjointed, sterile, and partially inaccessible sectors, and argued for an understanding of the city as an open system.
In medieval times, most European towns and cities were closed entities. Ruling authorities determined who was allowed to enter, and merchants were forced to pay at the toll gate and customs house. In the early modern period, with the advent of industrialization, the situation fundamentally changed. Factories required more workers than cities could provide, forcing urban entities to become more open. This shift was often symbolically expressed by tearing down the old fortified city walls. But in practice, it enabled citizens as well as outsiders to move about freely in an ever-expanding network of public streets and squares.

**Gated enclaves are becoming the norm**

Christiaanse is convinced that we are once again on the brink of such a fundamental shift: The openness of the modern city has peaked, and the tide is turning. “Someday our grandchildren may tell their grandchildren that between 1820 and 2080, there was a period when cities were open.” In particular, a heightened demand for security has promoted restricted access to increasingly larger urban spaces, which are open only to certain people or during certain times of the day or night. “This is the modern global city – campus, gated communities, shopping malls, and business parks exist as islands linked together by major transportation arteries. Circulation within the city increasingly means traveling along a main transportation axis, and turning off only for the purpose of entering gated or enclosed sectors.”

**The city has become a tree**

In 1965, architect and urban theorist Christopher Alexander wrote a classic essay called “A City is not a Tree,” expressing his fear that cities
would become increasingly sterile and less inviting if this tendency prevailed. Christiaanse believes that Alexander’s fears have in the meantime become reality: “The city has become a tree!” Instead of an open grid, the network of city streets increasingly resembles a thick “trunk” with “branches” that are only tangentially connected to one another. “This development pattern can be seen everywhere in the world. It is a common denominator, regardless of the wealth of the country.”

No genuine interaction in public space

The consequences of this development for the social structure of a city are fatal, according to Christiaanse. “In the old European cities, public spaces and the network of streets were places for the exchange of information and goods until the 19th century. Historic centers might still look the same today, but their social role has radically changed. People on the streets are almost exclusively of one type: consumers.” There is no genuine social interaction in public space, and thus the city is becoming a patchwork of sterile and disjointed sectors with limited accessibility.

Other opportunities exist

“If we cannot establish good pedestrian networks, we are lost,” Christiaanse asserted. He believes the basic trends are driven by the forces of government and economics. “We can’t plan completely new cities,” he acknowledges, but other opportunities exist: “We can create public spaces and circulation networks that dissolve the borders between open and closed parts.”
Considering this to be one of the most urgent challenges for city planners today, Christiaanse presented two successful examples: A formerly fenced-off part of the port district of Hamburg, Germany, which was opened to the city and designated as the site of the new HafenCity University (HCU), now features a carefully structured network of circulation paths. Similarly, in Istanbul, the new Santral campus of Bilgi University has been designed on an open plan to include a multi-functional park for the general public, as well as Turkey’s first contemporary art museum, which will be housed in a historic power station.

**Urban design as simultaneous chess**

There is hope that, in the future, we will not have to live in gated enclaves, connected to each other by choked highways, but rather open and vital urban patterns will persist. However, open cities require an open approach by city planners, as Christiaanse pointed out. Urban development projects have traditionally been realized in phases that follow a prescribed plan. In the future, he suggests, we must approach urban planning like simultaneous chess: “Analyze, communicate, design, and develop concepts – all at the same time!”

For the new HafenCity University (HCU) in Hamburg, Germany, Holcim sponsored one of the main auditoriums as a contribution focused on sustainable development.

Kees Christiaanse is Chair of Architecture and Urbanism at the Institute for Urban Design at the Swiss Federal Institute of Technology (ETH Zurich). He is an architect, lecturer, and researcher, and was previously Professor of Architecture and Urbanism at the Berlin University of Technology (TU). His work focuses on the interface of architecture and urbanism. Between 1980 and 1989, Christiaanse worked for the Office for Metropolitan Architecture (OMA) in Rotterdam, becoming a partner in 1983. In 1989, he started his own firm in Rotterdam, renamed KCAP Architects & Planners in 2002. In 1990 he founded ASTOC Architects & Planners in Cologne.
Upgrading the city, grafting the existing Tabula non rasa as a radical strategy

With their PLUS project, Jean-Philippe Vassal and Anne Lacaton, in collaboration with Frédéric Druot, are transforming drab apartment buildings into liveable structures that enable interaction and improve quality of life. They believe every building has its own unique history, and advocate a strategy of adding chapters instead of starting a new book.
French architect Jean-Philippe Vassal speaks deliberately, with long pauses between statements, describing the work of Lacaton & Vassal using words like “graceful,” “delicate,” and “generous.” What does this mean in terms of architecture and the city?

**Continuity – not conservatism**

When Vassal was commissioned to propose an architectural intervention in for plain-looking neighborhood square at the periphery of Bordeaux, he conducted careful research and reported to the municipality: “We have a project. The project is to do nothing, to leave everything as it is. We find that everything is there, the place has charm, people like to play soccer there with their children, and there are good benches. We recommend simply cleaning the square more often.” Vassal believes that any intervention must be well considered and carried out with great care and precision. That he shuns the *tabula rasa* approach is not to be misconstrued as conservatism: it has more to do with maintaining continuity in the urban realm. “We accept history and continue it,” Vassal commented. “We should not always begin anew.”

**PLUS creates value with an economy of means**

How this conviction can be put into practice is revealed by Lacaton & Vassal’s projects in the suburbs of several major cities in France which are full of apartment buildings – the *grands ensembles* erected in the 1950s and 1960s. Though they originally offered a good living standard, with 50 years of neglect, they gradually fell into miserable condition. “Living in these buildings is difficult,” admits Vassal. “Not long ago we saw serious social disturbances in the French suburbs, which led to
extensive public debate. Some claimed that these apartment buildings must be demolished because they are inhumane.”

Vassal points to the unique paradox that in France, where 1.5 million social housing units are lacking and funding is severely limited, buildings are being torn down instead of being reused. Lacaton & Vassal have proposed a way out of this paradox with PLUS, their concept for revitalizing and expanding existing buildings. “It gives you more building for your money,” Vassal concludes.

**Rethink housing from within**

Vassal believes that the call for *tabula rasa* stems from a wrong way of looking at things. “If you look at these buildings from far away, you think they are ugly – and you think they create social problems, the origins of which we don’t want to study.” But one must go inside these buildings to assess them. “We want to create new histories of these buildings from the inside. These new histories originate from each bedroom, each kitchen, each living room. We use what we have, improve it, develop it.” Vassal proposes that it is possible to transform every apartment into a luxury villa in a certain sense. “Luxury is not gilded materials – luxury is pleasure, happiness, comfort, and a good rapport with the outside world.”

**Identity destroyed at the push of a button**

To create this “luxury,” Lacaton & Vassal first meet with residents to find out what was important to them and what they were lacking. “All the people who live in these buildings are sad when their building gets
torn down. Even when living conditions are poor, their apartment is part of their identity – and it is lost at the push of a button when the building is demolished.”

For a project in Paris, Lacaton & Vassal began by talking with all 100 resident families. Then they went to work. They let light into the apartments, created new outdoor spaces, added additional rooms and even entire apartments. Where 30 families once lived, 60 live now – in brighter, larger apartments, with more social spaces and opportunities for interaction. After undergoing a “gentle” renovation by Lacaton & Vassal, the buildings are hardly recognizable from the outside. But the people who live inside still recognize their apartments, which have been revitalized without any loss of identity.

**Legal constraints as a force for positive change**

Why does this concept work so well? And why is the doctrine behind it not common currency? Housing in France is strictly regulated by law. If a social housing block is demolished, the same number of units must be built in its place. Residents must be relocated temporarily, and given the current housing shortage, it can easily happen that they must be put up in a hotel. Although it is by far cheaper to renovate buildings than to replace them, it takes an architect like Jean-Philippe Vassal and a novel concept like PLUS to ensure the best results. Lacaton & Vassal see themselves as stewards of the architecture designed by their predecessors, and their goal is to gracefully develop the built environment for the next generation of architects.

Jean-Philippe Vassal graduated from the School of Architecture, Bordeaux in 1980, and spent the following five years in Niger as an architect and town planner. He lectured at the School of Architecture, Bordeaux (1992–1999) and at the School of Architecture, Versailles in 2002. In 1987, he founded the architectural practice Lacaton & Vassal in Bordeaux with Anne Lacaton. They renovation of the Palais de Tokyo contemporary art gallery in Paris was completed in 2001. Openly declaring their commitment to architectural economy, the work undertaken by Lacaton and Vassal focuses on low-budget renovation and construction, promoting dialogue with the building industry.
Saskia Sassen argues that the consolidation of knowledge in urban centers has the potential to spur the political action that will be required to attain a more sustainable world.
“Architects and engineers today know a great deal about sustainable construction,” asserts sociologist and economist Saskia Sassen, “in any case, they know much more than can be discerned from the material evidence of cities. The day when this potential is realized and new building patterns become widespread could come soon. If we look back in history, for example to the Middle Ages in Europe, we see that epochal transformations were never the result of political majorities. Decisive change never occurred just because it was wished by over 50 percent of the people. Rather, the convergence of various factors has always led to change and shaped history. And today, we are in a situation in which the various driving forces could amplify one another. On one hand, we know that about 60 percent of the building fabric worldwide must be renewed in the next decades, and on the other, we have climate change. This creates great conflict. I would not be surprised if it causes the whole body of knowledge about sustainability – an unexploited resource – to become activated.”

The power of cities

“Today the way forward is not being led by the computer or the factory, but by the city. Urban settlements bring everything together. There is hardly anything that is not present in cities or connected with them.” Sassen coined the operative term in her book The Global City (1991). She proposed that

Satellite image of the world showing the predominance of global urbanization.
the more global the economy becomes, the more crucial functions will become concentrated in relatively few places. Global economic patterns and economic policies are being determined by a handful of urban centers today. In effect, nation states are losing importance to powerful global cities. This can also be seen in the worldwide tendency to strengthen the powers of the municipality. The greater the power of a city, the greater its responsibility, and the greater its significance in terms of global developments.

“I love the image conjured up by Rolf Soiron in his introduction, of Rome not being built in a day. Shanghai was. The example of this city shows us what central planning can do. Within a few years, 5,000 high-rise buildings were built here, as well as first-class infrastructure. But Shanghai is also an example of how potential can be squandered. If so much is built in such a short time without incorporating new technologies, it results in a serious waste of opportunity.” Shanghai has also come to stand for a learning curve, “because in the meantime, the city leaders have decided that ‘things cannot continue like this; we must strive for zero emissions.’ Shanghai may have missed certain opportunities, but it has learned from its own experience. That’s better than always claiming that everything is just fine – as is done so willingly in the United States.”

**Power and knowledge**

Climate change makes it clear that we are all sitting in a sinking boat. We must make changes now – and we must make them as fast as possible, Sassen asserted. For a recent UNESCO project on sustainable human settlement, she assembled a network of researchers and activists in over 50 countries to gather information from people who could neither read
nor write. “The project involved bringing together knowledge about building and farming, and it turned out to be a great challenge to collate this unusual, widely dispersed information.” Given the billions of households and small businesses represented by their findings, it wasn’t possible to negotiate with each one about the future: “We don’t have enough time for that,” Sassen acknowledges, suggesting that it is more efficient to negotiate with key strategic players. The concentration of power we are witnessing today is ironically an advantage at a time when dramatic change is needed. In many industries that have great impact on sustainability, a handful of global companies are dominant. “There are perhaps six major mining companies, a handful of super-large construction companies. Here politics comes into play.”

“We must interact with these players and gain their commitment.” Ten years ago it was virtually impossible “to talk with these people. Today, it’s a bit different – change has been significant and rapid.” Holcim, a global player in the construction materials industry, for example, established its Foundation for Sustainable Construction just a few years ago. Sassen concluded that “these global companies don’t just leave things up to the market. They are always looking for ways to meet the needs of over 150 countries, which, for instance, all have their own environmental standards. And then there is international law, which is continually gaining importance and can also be invoked.” The headquarters of the powerful companies that have the capacity to instigate change are located in cities. Thus, connections between industry and policy makers will also be established in urban centers. “In cities, we can implement all the things that we already know – not to mention the things we have yet to discover!”

Saskia Sassen is the Ralph Lewis Professor of Sociology at the University of Chicago, and Centennial Visiting Professor at the London School of Economics (LSE). She is an internationally renowned sociologist and economist, noted for her analyses of globalization and international human migration. Her books, which include The Global City, have been translated into 16 languages. She is a member of the Council on Foreign Relations, the Club of Rome, and the National Academy of Sciences Panel on Cities, and chairs the Information Technology and International Cooperation Committee of the Social Science Research Council (USA).
As mayor of Bogotá, Enrique Peñalosa demonstrated that it is possible to make cities livable for everyone. Pedestrians and cyclists must be given priority over cars, he believes. “Good public spaces also help to reduce crime and enhance the quality of life.”
“I don’t hate cars!” exclaims Enrique Peñalosa, a man who travels around the world lobbying for better cities. Still, Peñalosa considers the car largely responsible for the fact that “the 20th century will be remembered as a disastrous one in urban history.” We seem to have forgotten that cities should serve people, not cars.

Cities must fulfill three needs
What kind of cities do we need? Peñalosa’s answer is as simple as it is inspiring: “A city in which children, old people and handicapped people can feel comfortable is what most people would probably call a good city. Today automobiles are to children what wolves were in the Middle Ages. Is this really all we have to offer after 5,000 years of urbanization?” asks Peñalosa rhetorically. “Cities today must fulfill three needs in order to offer citizens genuine quality of life: the need to move about by foot, the need for interaction with other people, and the need to feel equal to others.”

In a good city, nobody wants to go home
The most vital urban spaces are those that are free from cars – pedestrian zones. “The things that most strongly influence the quality of life in cities are usually related to the car,” claims Peñalosa. “And the part of the city that offers the most enjoyment is the pedestrian zone.” People love to stroll from store to store, sit down and enjoy a cup of coffee somewhere, and watch other people walking by. “A good city is one in which people want to be outside of their homes,” to quote Danish urban planner Jan Geh. “In a good city, nobody wants to go home. For centuries, streets have been the meeting place, the platform for social exchange. Even today, no
tourist thinks of driving through a historic city center in a car. People want to feel the atmosphere."

The potential of Asian cities

The automobile is what forced people to the side of the street – or indoors. Peñalosa sees shopping malls as symptomatic of “a sick city in which people have been driven out of the public domain.” Cities must respect human dignity, which was threatened when public space became choked with cars and people were forced to walk along the walls of buildings. “Imagine how wonderful it would be to have at your front door a pedestrian zone with a network of over a hundred kilometers!” In the booming Asian cities, where whole districts spring up virtually overnight, we have the chance to develop completely new concepts. “In the next 50 years, Asian cities will double in developed area,” notes Peñalosa. “The question remains: Will we simply see more of the same? If new cities were to be built from scratch, they would certainly be different than our cities today.”

More roads create more traffic

While the crucial issue in affluent countries is how to reduce automobile use, “in developing countries and cities, people are seeking ways to facilitate automobile use,” and building more and more urban freeways. “That’s no solution,” Enrique Peñalosa is convinced. “More roads create more traffic.” In spite of building giant highways, Atlanta has more traffic jams than ever. Montréal has been continuously expanding its highway infrastructure, yet the drive into the city center now takes longer than ever. “It is a flat-out lie that more streets ease traffic,” concludes
Peñalosa. Building more and more streets is merely a service to the affluent: “They hardly use the city, driving from their private garages to work and then to the parking lot of their country club. The only wish of the rich is: no crime and no traffic jams!”

It pays to invest in quality of life

During his tenure as mayor of Bogotá, Peñalosa invested in creating more space for pedestrians and cyclists. “We should always build two parallel street systems: one for pedestrians and one for cars,” he believes. Peñalosa is convinced that this investment pays off in every regard: “Cities that give less room to cars are the winners in international location marketing. Highly qualified people no longer move to where the companies are; the companies must go where the people want to live, where the quality of life is especially high.” No one has promoted building highways through cities such as Paris, London, New York, or Zurich. “People in these cities use public transportation, not for environmental reasons, but because it’s the only way to move efficiently through the city. If there were more streets in Paris, there would also be more traffic. But at some point these cities decided not to build more streets – fortunately!”

Mayor of Bogotá, Columbia, from 1998 to 2001, Enrique Peñalosa led massive efforts related to transportation, land use, housing for the poor, pollution abatement, and the creation of more public space. He implemented improvements to Bogotá’s marginal neighborhoods through citizen participation; planted more than 100,000 trees; created a new, highly successful bus-based transit system; and turned a deteriorated downtown avenue into a dynamic public space for pedestrians. Peñalosa is currently researching and writing a book on a new urban-development model for the Third World.
For Peter Head, cities are “large and complicated entities full of conflict and contradiction.” In order to negotiate differences, urban design requires collaboration among professionals, balancing the needs and interests of both the public domain and the private sector.
“Urban design no longer exists!” claims Peter Head – but in the same breath, he tones down this provocative statement: “Today we speak of integrated urbanism that goes far beyond design.” By we he means the people of Arup. Founded in 1946, Arup has long been a leader in the industry. From the start, the firm made integrated thinking central to its extremely diverse activities in the fields of engineering, design, planning, project management, and construction consulting. Among the most famous projects on which Arup has collaborated are the Sydney Opera House, the Pompidou Center in Paris, the Millennium Bridge in London, and the Allianz Arena in Munich. Today, Arup is involved in about 10,000 projects on all continents. The focus of the firm’s activities is Asia, with a quarter of their 9,000 employees working in Hong Kong and China. Arup is currently playing a leading role in the development of Dongtan City on Shanghai’s eco-island, Chongming (see page 54), for example.

In cities, everything is linked to everything else

Peter Head is responsible for Arup’s activities in Dongtan. “On my project team of 400 people, we have transportation engineers, economists, urban planners, master planners, cost experts, and others. This diversity poses great challenges regarding communication. Engineers must talk with analysts and jointly develop solutions. One can scarcely imagine how hard it is sometimes to find a common language.” Arup considers exchange among people from different cultural and professional backgrounds to be a prerequisite for successfully advancing sustainable development. According to Peter Head, a fundamental tenet of the firm is that “systems are linked even if we don’t yet see all the link-
ages.” In cities, everything is linked to everything else. A great many factors must be studied in the planning process: human and environmental health, economic vitality and individual prosperity, energy, housing, nutrition, urban-rural connections, mobility and access, communication, education, culture, governance, civic engagement, water, materials, waste, and of course a city’s ecological footprint.

**Sustainable solutions can be found if we accept the givens**

“If one of these aspects is ignored, then quality of life is at risk,” according to Head, who uses the example of Chongming to illustrate the interplay among various factors. “Because there are large nature preserves there, we must minimize air pollution. Cars with heavy exhaust emissions have no place on the island, only electric vehicles. They are not only cleaner, but fortunately also quieter, so residents can leave their windows open, which reduces energy loads for air conditioning.” Fuel-guzzling, noisy, and foul-smelling cars cause windows to remain closed and air conditioning to be installed – and thus more energy to be consumed. It’s a vicious circle. Because Arup encourages holistic thinking, they avoid simply imposing a ban on cars. “People want to drive cars,” Head realizes. “Mobility is part of lifestyle. Sustainable solutions can be found only when we accept such givens.” The green city Arup is designing on Chongming is laid out for people on foot, and everywhere there are car clubs and kiosks where one can rent sleek electric vehicles for a quick trip to Pudong.
Informed leadership

According to Head, establishing functional and sustainable systems requires above all leadership: “Leadership is fundamental. The highest authorities must be involved and support the concept.” The Chinese government is convinced that the country is undergoing “a transformation directly from the industrial age into the environmental age.” Such an attitude gives projects like Chongming the backing it requires to succeed. Leadership is not only the obligation of the small minority of powerful forces in government and industry, says Head: “In a certain way, we should all become leaders; everyone must feel empowered to assume responsibility in this matter.”

Success is a collective idea

One of Arup’s basic principles is that success is a collective idea. “Above all, we must not forget that many people must first develop respect for others and for the environment in order for leadership to work. We cannot assume that this respect already exists.” Sustainability is an extremely complex proposition, requiring that conflicting forces be held in balance. Peter Head cautions that “the interplay between research and practice must be intensified,” and believes that politicians, scientists, architects, property owners, and the public all belong at the table in debates about urban development.

Peter Head is Director of Planning and Sustainability, Arup (UK), a leading global firm providing design, engineering, planning and business services, and the creative force behind many of the world’s most innovative and sustainable buildings and transport and civil engineering projects. Head graduated in civil engineering from Imperial College, London, in 1969, and has become a recognized world leader in bridge construction (he received an OBE for successfully delivering the Second Severn Crossing as Government Agent), advanced composite technology, consulting engineering management, and now sustainable development of cities. In 2002, he was appointed Independent Commissioner on the London Sustainable Development Commission.
“Direct face-to-face exchange remains irreplaceable,” acknowledged moderator Hans-Rudolf Schalcher in the interview on page 10. Rich opportunity for intensive interchange across all national and professional borders was offered by the working groups, breaks and mobile workshops of the Forum.
Over 250 participants from more than 40 countries

Marcos Liberman, Costa Rica;
Martha Fajardo and Luz Stella Perdomo, Colombia.

A
Adam Hubertus, Switzerland
Aguilar Carolyn, Mexico
Aispuro Arturo, Mexico
Akmal Imelda, Indonesia
Albisser Philipp, Switzerland
Alcazaren Paulo, Philippines
Aldana Miguel, Mexico
Allard Pablo, Chile
Almaraz Miguel, Mexico
Andrag Bettina, South Africa
Angéilil Marc, Switzerland
Annecke Eve, South Africa
Atalay Franck Oya, Switzerland
Aulicino Patricia, Brazil

B
Balibrea Mari Paz, UK
Banchini Silvia, Spain
Barbosa de Moraes Odair, Brazil
Barth Lawrence, China
Bates Donald, Australia
Benmokhtar Rachid, Morocco
Bidault Mónica, Mexico
Bieri Urs, Switzerland
Biner Alexander, Switzerland
Bordás András, Hungary
Braendstrup Ida, Switzerland
Bratton Denise, USA
Büchi Alex, Indonesia
Bührer Stephan, Switzerland
Burbidge Tom, UK

C
Cabane Philippe, Switzerland
Cai Yongjie, China
Campos Cándido M., Brazil
Capozzi Simone, Brazil
Castello Lineu, Brazil
Castillo Oléa José, Mexico
Cattan Elias, Mexico
Centola Luigi, Italy
Chandrangsu Karoon, Thailand
Chang Qing, China
Chang Yung Ho, USA
Chen Hao, China
Cheung Teresa, UK
Cho Minsuk, South Korea
Christiaanse Kees, Switzerland
Chungu Gerald, South Africa
Clough Tom, Switzerland
Colla Cristina, Italy
Cordero Jorge A., Mexico
Cortés José Luis, Mexico
Cortesi Marco, Italy
Cruz Teddy, USA
Cuperus Brigitte, Switzerland
Cymbalista Renato, Brazil

D
Dalkmann Holger, Germany
de Barros Cibele, Brazil
de Leo Carlos, Mexico
de Schiller Silvia, Argentina
de Villafranca Luis, Mexico
de Villafranca Raúl, Mexico
Deplazes Andrea, Switzerland
Derungs Claudio, Switzerland
Dias Priyan, Sri Lanka
Diez Fernando, Argentina
Ding Wowo, China
Dominguez Mercedes, Mexico
Du Juan, Hong Kong
Dukui Li, China
Duong Hong Hien, Vietnam

E
Eisinger Angelus, Liechtenstein
Elsheshawy Yasser, UAE
Epp Eduard, Canada
Evans John Martin, Argentina

F
Fajardo Martha, Colombia
Farajzade Nazim, Azerbaijan
Fegyverney Sándor, Hungary
Fióri Jorge, China
Frei William, China
Friedrich Jan, Germany
Funk McKenzie, USA
Fussler Claude, France

Xiangning Li, China; Albert S. Wei, USA.
Edna Shaviv, Mattithiahu Kones and Giora Shaviv, Israel.
Paulo Alcazaren and Doreen Yu, Philippines.
Fernando Diez, Eleonora Kreimer and Silvina Povarchik, Argentina.

Hansjürg Leibundgut and Roland Walker, Switzerland.

Mark Swilling and Eve Annecke, South Africa; Lei Pang, China.

Ganchala Ximena, Ecuador
Ganz Louise, Brazil
González Amélie, Brazil
González Isaura, Mexico
Goven Gita, South Africa
Graham James D., USA
Gysin Bob, Switzerland

Han Feng, China
Hannurkar Snehal, India
Havelka Nils E., Switzerland
Head Peter, UK
Hebel Dirk, Switzerland
Hertig Hans-Peter, China
Herz Manuel, Germany
Hingsley Hugo, China
Hoffman Andy, USA
Hu Chenchen, China
Hu Huiqin, China
Hua Ying, USA
Huang Zhengli, China
Hubacher Simon, Germany
Hvistendahl Mara, China

Iacobelli Andrés, Chile
Irurah Daniel, South Africa

Janviroj Pana, Thailand
Jayasundera Hemantha, Sri Lanka
Jia He, China
John Vanderley M., Brazil
Johnson Cassidy, UK
Jones Kevin, Australia
Jovanovic Weiss Srdjan, Serbia
Jusczyk Thaddeus, USA

Karakat Pushkaraj, India
Kawakita Cristina, Brazil
Kelsey Jennifer, South Africa
Kim Min, UK
Klauser Tobias, Switzerland
Knechtli Mia, Switzerland
Koko Klevis, Albania
Kones Mattithiah, Israel
Krank Sabrina, Switzerland
Krolloff Reed, USA

Thomas Wagner and Sacha Menz, Switzerland.

Deane Simpson, Switzerland; Angelus Eisinger, Liechtenstein; Stephan Bührer, Switzerland.

Ronald Wall, Netherlands; Mark Robbins, USA.
Marcondes Fábia, Brazil
Mehrotra Rahul, India
Mendoza Carla, Mexico
Menz Sacha, Switzerland
Milton Konrad, Switzerland
Moellers Christoph, China
Montaner Josep M., Spain
Montiel Rozana, Mexico
Mouline Saïd, Morocco
Moustafa Amer, United Arab Emirates
Murillo Fernando, Argentina
Muxí Zaida, Spain

Navarro Fernando, Spain
Nguyen Chi Vinh, Vietnam
Nguyen Thanh Nghi, Vietnam
Nguyen Trong Hoa, Vietnam
Nimityongskul Pichai, Thailand
Nxumalo S’phelele, South Africa

O’Meara Sheehan Molly, USA
Omenya Alfred, Kenya
Ortiz Arturo, Mexico

Radu Alina, Romania
Repici Luciana, Argentina
Riedi Janine, Switzerland
Roachanakanan Thongchai, Thailand
Robbins Mark, USA
Robinson Darren, Switzerland
Rosas José, Chile
Ruby Andreas, Germany
Ruby Ilka, Germany

Qu Cuisong, China
Quinn David, USA

Feng Han, China; Noboru Kawashima, Colombia.

Jaime A. Lares and Jorge A. Cordero, Mexico.

Denise Bratton, USA; Ines Weizman, UK; Manuel Herz, Germany; Alex Büchi, Indonesia.

Hien Hong Duong, Vinh Chi Nguyen and Nghi Thanh Nguyen, Vietnam.

Holger Dalkmann, Germany; Holger Wallbaum, Switzerland.

Sage Sebastian, Germany
Saiv Valeria, Italy
Salmon Guy, New Zealand
Sassen Saskia, USA
Schalcher Hans-Rudolf, Switzerland
Schifferes Steve, UK
Schwartzman Karina, Mexico
Schwarz Edward, Switzerland
Scott Andrew, USA
Serapião Fernando, Brazil
Sevtsuk Andres, USA
Shaviv Edna, Israel
Shaviv Giora, Israel
Shinzato Paula, Brazil
Simon Roberto, Brazil
Simpson Deane, Switzerland
Soiron Rolf, Switzerland
Somol Bob, USA
Soriano Manuel A., Spain
Sorkin Michael, USA
Spangenberg Jörg, Brazil
Spier Steven, Germany
Spiess Basil, Switzerland
Staub Peter, UK
Stollmann Jörg, Switzerland
Swilling Mark, South Africa.

Jaime A. Lares and Jorge A. Cordero, Mexico.

Bob Gysin and Janine Riedi, Switzerland.
Ximena Ganchala, Ecuador; Mark Walker, USA.

Daniel Iruarah, Gerald Chungu and Marguerite Le Roux, South Africa.

Imelda Akmal, Indonesia; Cristina Turalba, Philippines.

T
Taipale Kaarin, Finland
Tato Belinda, Spain
Tehrani Nader, USA
Töpfer Klaus, Germany
Torréns Marta, Spain
Torres Gustavo, Mexico
Turalba Cristina, Philippines

W
van Damme Henri, France
van der Knaap Bert, Netherlands
Vandeyar Preshanta, South Africa
Vassal Jean-Philippe, France
Villaseca Andrés, Chile

X
Xiao Jianli, China

Y
Yang Yan, China
Yu Doreen, Philippines
Yuguo Wang, China

Z
Zapata Juan Alfonso, Dominican Republic
Zhang Meng, China
Zhang Xiaochun, China
Zhi Wenjun, China
Zhou Jianjia, China
Zhou Xiangqin, China
Zhu Xiaucn, China
Zhu Xiaoling, China
Zhu Ye, China
Zimmermann Nicolas, Switzerland
Zöch Peter, Germany
Zumstein Philip, Switzerland

Roman Wittmer, Germany; Peter Staub, UK.

Simon Hubacher, Germany; Saskia Sassen, USA.

Vanderley M. John, Brazil; Hans-Rudolf Schalcher, Switzerland; José Luis Cortés, Mexico.
Urban transformation: Narrowing the field

In the context of a three-day conference, the broad theme of urban transformation had to be narrowed so as not to become lost in generalities. The focus of the program was the five working groups in which contemporary urban challenges were handled in depth over a two-day period. Professionals from a number of fields presented and discussed their papers with colleagues from around the world. Each group was led by two moderators who addressed the entire forum at the outset to introduce the session theme, and at the end, to summarize the findings of the participants.
- Normative urbanism
- Informal urbanism
- Green urbanism
- Touristic urbanism
- Temporary urbanism
Architect Mark Lee introduced this session with a focus on the hidden potential of norms. The papers presented covered topics ranging from “Towards a Sustainable World City System” to “Sustainable Difference” and “Urban Metamorphosis” in residential development. “Architects hate norms because norms limit their expressive possibilities,” summarized architecture critic Andreas Ruby. “But they also love norms, because norms present challenges.” City planners and architects of the early modern movement advocated a new norm for cities, but already by the second half of the 20th century, the limitations of this concept...
had become apparent. Social and cultural diversity defied this approach and led to the rise of postmodernism, which not only valorized difference, but also tended to advocate individualism. In response, architecture cultivated uniqueness, according to Ruby, and this has produced a situation in which there are “a zillion prototypes and not enough compatibility.” The Normative working group postulated a return to emphasis on standards, on the grounds that compatibility can be an antidote to divergent design practices which seem unable to engender urban systems.
Both bottom up and top down
Architect and urban theorist Rahul Mehrotra moderated the Informal working group, which dealt with all imaginable forms of urban transformation that occur in the absence of regulation, from sprawling slums in Kenya, to illegally occupied houses in Switzerland and micro-urbanism in Japan. “We can learn from informal urbanism,” concluded architect Yung Ho Chang in his summary of the workshop. Chang touched on some of the traits that characterize informal urbanism: “It is innovative and integrative because it must always relate to other systems. And it involves extremely interesting information flows.” But above all, informal urbanism reacts with inspiration and vitality to conditions in which resources are limited. “One uses what one has, and looks for simple solutions. In many cases we can learn a great deal about sustainable construction by looking at informal urbanism.”
The spectrum of presentations on Green urbanism was introduced by architect and theorist Fernando Diez, who reminded that green urbanism has long been considered more than just ecology. “We had speakers from London, Santiago de Chile, Cape Town, New Delhi, New York, Vienna, Quito, Lausanne, Barcelona, and Wokingham,” summarized Kaarin Taipale, whose work focuses on urban sustainability and the globalization of cities. “When you hear the names of these cities, you can imagine the diversity of perspectives and concerns brought
together in our workshop.” There was an acknowledgment of the basic fact that all cities face the same challenges: “They must all provide citizens with energy, residential space, water supply, and access to education.” The discussion among participants ran from infrastructure solutions to energy, mobility, computer models of cities to study various problems, public space, and transparency of political decisions.” Taipale concluded that “green urbanism is for us perhaps a starting point – but today urban development includes every color of the rainbow!”
The tourism industry is currently considered the fastest-growing global business sector. Rachid Benmokhtar Benabdellah, who currently heads a university in Morocco, expressed the agenda for this working group argued in his opening statement that the potential influence of tourism on urban transformation is enormous. As architect and urbanist Amer Moustafa noted in his summary, “tourism has changed completely. Earlier, travelers wanted to discover unknown places; today they want to visit the famous places. People go where there are no big surprises.” This has also changed the nature of destinations, “because tourism forces us more and more to meet the expectations of tourists. In many places, citizens assume the identity that is expected of them.” This can lead to a loss of authenticity. On the other hand, tourism valorizes authenticity, as various papers demonstrated, insofar as it provides a good argument for maintaining social structures, historic buildings, and received traditions. Moustafa concluded that “tourism can strengthen movements from the middle segment of the population.”
build identity

Touristic urbanism working group.

Donald Bates, Australia.

Luciana Repiso, Argentina; Lineu Castello, Brazil; Philipp Albisser, Switzerland; Roberto Simon, Brazil.

Marco Cortesi, Italy; Carolyn Aguilar, Mexico.

Apichoke Lekagul, Thailand.

Carlos de Leo, Mexico; Cristina Turalba, Philippines; Carolyn Aguilar, Mexico.
Tent cities are also cities

Architect and theorist Eyal Weizman, and architect and critic Reed Kroloff collaborated on introducing the Temporary urbanism working group. They framed the agenda by observing that a few thousand years ago, people stayed put, but today, nomadic behavior is on the rise: larger and larger temporary cities are being created increasingly often. Today, the United Nations and a large number of non-governmental organizations are the world’s largest providers of shelter, operating giant tent cities in areas stricken by disaster. Kroloff and Weizman stressed in their summary how important it is to accept such temporary settlements as genuine urban forms. “Even
if the city is there just for one day, it is a city, and the citizens have the same needs as citizens of permanent cities,” Weizman asserted. They also observed that many temporary cities become permanent, or at least long-term – for example the settlements in Gaza. Temporary urbanism also arises in more stable conditions in response to lifestyle choices. In the United States, seniors increasingly choose to live in mobile homes. Sometimes up to ten thousand of them gather, creating overnight whole camper cities with built-in infrastructure. “Those are also cities,” Kroloff concludes: “They are an example of an urban form created by modern nomads.”
How to make our world more sustainable?
A panel of four experts discussed the potential of politics to shape the fate of cities. Acknowledging the enormity of the task of making cities around the world more sustainable, they unanimously called for action, not only on the part politicians, but also on the part of industry and private individuals.

The final panel discussion moderated by Rolf Soiron, Chair of the Advisory Board of the Holcim Foundation, situated urban design and planning in the context of sustainable development. The panelists included Molly O’Meara Sheehan of the Worldwatch Institute; former director of the United Nations Environment Program, Klaus Töpfer; Elmar Ledergerber, current Mayor of Zurich; and urban planner and theorist, Michael Sorkin. The group acknowledged the need for drastic measures to implement the United Nation’s millennium agenda. “But people today are impatient,” cautioned Klaus Töpfer. “I can understand that. I used to live in Nairobi. I told the people there: ‘It will take a generation
before life improves here.’ They answered: ‘But we have only this life!’ The consequence is often that people leave instead of working to improve things.”

“Change is possible already today.”

Can politicians change things?

Who has the power to effect positive change? In discussions about the development of the planet, politicians often become scapegoats when they are accused of failing to live up to their responsibilities. “Politicians mirror the voice of the people; at least that’s how it is in Switzerland,” Elmar Ledergerber commented. “If politicians represent positions that the population does not support, they will not be re-elected.”

This means that ultimately, we have the politicians – and thus also the

Molly O’Meara Sheehan, USA

Every year, the Worldwatch Institute publishes a new volume in the series State of the World. The 2007 volume investigates the topic Our Urban Future. Molly O’Meara Sheehan was project director for the 2007 volume, which investigates the topic Our Urban Future. “Politics can be both a driver and a barrier,” she noted during the panel discussion. She told the story of a woman in the South Bronx of New York who had four children. One child died of asthma because the air was so bad. “You can’t find fresh vegetables and it’s not safe to travel by bicycle.” The woman received money from the government and founded a community garden in her neighborhood. “That’s the right idea. Money must be made available to the neighborhoods, and they should be able to decide how it will be used. Change comes from the bottom up.”
politics – that we want. Confidence in the ability of government to bring change is generally waning, Klaus Töpfer is convinced: “In Germany, voter turnout is well below 50 percent. Maybe people think they are powerless to influence the forces that drive development. Everything becomes privatized, and suddenly people ask: Why do we need government anyway?”

Politics creates markets
The economy governs with increasing force. “Many people are convinced that it’s good this way, because the market will regulate everything,” Klaus Töpfer suggests. But he himself remains skeptical: “As an economist I must say that the market has sway only when there is a demand for goods in limited supply. The right to emit CO₂ is for example not such a limited good, and hence there is no market here. But as soon as we have a political decision to limit CO₂ emissions, a market forms, and perhaps we can indeed leave this market to itself. Political decisions can create markets, and sometimes they have to!”

“We have the technologies to solve the problems; now we need the will to apply them.” Elmar Ledergerber

“We must all take more responsibility.” Michael Sorkin

Elmar Ledergerber, Switzerland
Six times in a row the international Mercer Study named Zurich the city with the highest quality of life in the world. Mayor Elmar Ledergerber is convinced that this achievement has much to do with dialogue. “In Zurich, all stakeholders stay in constant contact with each other. We have a system of direct democracy. Every large project must be approved by parliament and in certain cases also by the general public. Every year we have at least six popular voting rounds. Our politics, our strategies, our projects are continually assessed by the people.” Zurich’s success is also due to close collaboration among politicians, planners, and universities. “I won’t say that politicians can’t think,” says Ledergerber, “but they do need the support of experts who deal with certain problems every day.”

Michael Sorkin, USA
“Regarding energy consumption, New York is the most sustainable city in the United States,” argued Michael Sorkin, an architect, author, and urban planner who has received many awards. “Per capita energy consumption is far below the national average.” The reason is relatively simple, he says: “We use public transportation much more than other cities do. Dense cities are energy efficient. And households in New York are considerably smaller than in other American cities.” Architecture is extremely important if we want a more sustainable world, but architectural answers to the challenges of our time are not enough. “It is imperative that we change our behavior patterns; they are simply not sustainable. We must shape our environment to make do with less. And we can do it!”
It's up to each individual

Michael Sorkin expressed his conviction that making the world more sustainable is not just the job of decision-makers in government and business. “We must all take more responsibility. We are the ones who are ultimately responsible to change our lifestyle. If people all over the world lived like Americans, we would need two additional planets to produce everything they consumed.” Is humankind as a whole perhaps not yet ready for such a change? Elmar Ledergerber believes that it is in fact urgently necessary to look beyond one’s own borders: “Our political and economic system poorly anticipates future development. We must learn to make the right decisions for tomorrow today, for example concerning energy prices and consumption.”

“Political decisions can create markets.” Klaus Töpfer

Making changes now

In spite of the complexity of the problem, Molly O’Meara Sheehan is convinced that we could take many measures already today that would lead to a more sustainable world. “Millions in Africa and Asia have no access to clean water and sanitation. Millions of people die because of polluted water. I am convinced that we can solve this problem during this generation.” The other panelists – and the majority of audience, animated to discussion – agreed with Molly O’Meara Sheehan. Even though there is no instant recipe for a sustainable world, change is possible, step by step. “But we need more research,” insisted Klaus Töpfer. Elmar Ledergerber added that “we have the technologies it takes to solve the problems; now we need the will to apply them!”

Klaus Töpfer, Germany

“When I was born, 2.6 billion people lived on the earth,” remarked Klaus Töpfer, former Director of the United Nations Environment Programme (UNEP) and founding member of the Advisory Board of the Holcim Foundation. “Today there are 6.6 billion.” The world is changing dramatically; everything happens at increasing speed. It’s taking barely 30 years in China for development that took 150 years in today’s developed countries. This has enormous consequences for urban planning: “We need flexible structures in order to react quickly to the fast pace of change.” Cities and buildings must be designed to be reused in the future under other conditions. “In Berlin, we recycled the Reichstag,” Töpfer recalled. “And the Parliament is also in a renovated old building. Recycling buildings is not nostalgic – it’s a step into the future!”
Measuring over 1000 square kilometers, Chongming is the largest alluvial island in the world and one of the largest islands in China. It is also one of Shanghai’s five municipal districts. With Dongping National Forest Park occupying almost 100 square meters at the center of the island, it is the last relatively untouched part of the greater Shanghai municipality. The island was formed of silt from the Yangtze River, and its fertile soil encouraged agricultural development. Thus, Chongming has remained relatively unaffected by contemporary ecological problems.

The soil, air, and water are clean, and should remain that way: The government of Shanghai has developed a comprehensive master plan to transform the island into be an ecologically-oriented recreational zone and laboratory for sustainable urban, agricultural, and ecological technologies by the year 2020.

The master plan addresses five distinct zones: Dongtan wetlands to the east will be preserved in their entirety as a sanctuary for migrating birds. Dongping National Forest Park will be expanded and developed as Shanghai’s largest recreational area. In the northern part of the island, there will be stadiums and theme parks, with some land reserved for
ecological agriculture. To the south (today the most densely populated part of the island), residential districts will be developed and clean industries established. Dongtan, the island’s economic center, will be developed as a green city that depends on renewable energy, rainwater, and fuel generated from kitchen waste. To the west, a large lake and an international exhibition and convention center are in development.

By 2008, the 25.5-kilometer Shanghai-Chongming expressway will be completed, including a 9-kilometer tunnel and a 10-kilometer bridge. When these are in place, it will take only 45 minutes to drive from Shanghai city center to Chongming. There is no plan for an environmentally-sound transportation system, and this has been the subject of criticism.

Nevertheless, the strategy for Chongming is progressive for China, a country with 20 of the world’s 30 most polluted cities. The project is distinguished not only by the wide range of ecological measures, but by its global partners. The master plan was developed by the American firm of Skidmore Owings & Merrill (SOM), and universities throughout the world are working on its various aspects. The green city Dongtan is being designed by Arup UK (see page 28).
Many of the older buildings of Shanghai have vanished as a result of the recent construction boom. In the old city center, some of the small row houses that once typified the city have been left standing, but only here and there. Most of them will be replaced by new construction sooner or later. Shanghai is thus threatened with the loss of a crucial aspect of its historic identity.

However, it is possible to understand the character of old Shanghai by visiting neighboring Zhujiajiao, the best preserved of Shanghai’s ancient water towns. As an example of sustainable preservation of cultural and urban heritage, Zhujiajiao exemplifies effective handling of the historic architectural and urban fabric.

Over 1,700 years old, the fan-shaped town of Zhujiajiao is criss-crossed by canals which are spanned by over 30 old bridges of stone, marble, and wood. Thanks to the well-planned water transportation network, a textile industry grew up here. During the Ming dynasty (1368–1644), Zhujiajiao already numbered 1,000 households, reaching its zenith about 200 years ago, when the flourishing rice trade fueled the economy, and banks and factories sprang up in great numbers.
In 1993, the Qingpu district was completely replanned. With new hotels, cultural and convention centers, and a golf course, the old and the new have been integrated to create a multi-functional recreational zone. In spite of its modernization of Qingpu, Zhujiajiao’s gardens, canals, bridges, and houses from the Ming and Qing periods remain tranquil. In this sense, the town stands as an example of how modern urban development can successfully incorporate a significant historic quarter.

The main commercial street, Beidajie, is 300 meters long and only two to four meters wide. Once the business center of the Yangtze River Delta, today it is the best preserved street in the Qingpu district. Seated comfortably at the A-Po Teahouse, one can watch boats go by carrying farmers from their homes to nearby rice paddies, and women washing laundry in the river.

Since water has played such an important role in Zhujiajiao’s history, the workshop included a visit to an exhibition on the theme of water.
China’s rapid economic development is witnessed most impressively in Shanghai’s Pudong district. Twenty years ago, this was a poor neighborhood in the east end of the city. In 1990, the rebuilding of Pudong began, and since then, the gross domestic product (GDP) here has grown by a factor of 12. Today, Pudong is counted among the places in the world with the greatest number of skyscrapers. Soon, over 1,000 office and residential towers will stand in this district, among them the Shanghai World Finance Center – at almost 500 meters the second highest building in the world.

The development of Pudong has become an international effort. Foreign companies have invested over 40 billion dollars in the district over time. Pudong fascinates city planners because here urban development can be observed in fast forward, so to speak. The development of infrastructure must keep up with China’s economic boom, so Shanghai invests enormous sums in public transportation and sewer systems.

Partly because of the boom in Pudong, the port of Shanghai – one of the largest in the world – has displayed explosive growth rates in recent years. Within the last decade, the
volume of goods moving in and out has risen by nearly 30 percent per year. The harbor has now reached the limit of its capacity, and as container ships grow increasingly larger, many can enter only at high tide. To address these issues, the Chinese government decided to build one of the world’s largest deepwater ports, with up to 50 docks.

The new Yangshan deepwater port is located on a tiny rocky outcrop of Qiqu Island in the Bay of Hangzhou, at the mouth of the Yangtze River, about 30 kilometers off the coast. Here, the water is deep enough for the largest freighters in the world to dock. The port project, which has been broken into four phases, is expected to be finished by 2020. The first phase is currently under construction.

An integral part of the project is the 32-kilometer-long six-lane Donghai Bridge, which connects the island terminal to the mainland. Recently completed, this is the first true ocean bridge to be built in China. On the mainland near Luchaogang a new port city is also under construction, with a port terminal to augment the deepwater terminal on Qiqu Island.
Brave visions for a more sustainable world

Although the student poster competition was a theme mainly during the breaks in the Holcim Forum, it was anything but a sideshow. The students presented a number of extremely forward-looking and exciting ideas.

“Ladies and gentlemen – this is the future of sustainable construction,” announced moderator Hans-Rudolf Schalcher, as he called the participants of the student poster competition to the front of the main auditorium. The scholars kept the Forum participants busy because during the coffee breaks they could present their projects – and gain the votes of the Forum participants, all of whom were asked to choose their favorite projects.

**30 projects from 6 universities**

Invitations to the competition were sent by the Holcim Foundation together with its six closely allied universities: the Swiss Federal Institute of Technology (ETH Zurich), Switzerland; Massachusetts Institute of Technology (MIT), Cambridge, USA; Tongji University, Shanghai, China; Universidad Iberoamericana (UIA), Mexico City, Mexico; University of the Witwatersrand, Johannesburg, South Africa; and Universidade de São Paulo (USP), Brazil. Scholars at these universities were Gretchen Wilkins, USA; Sisel Lan, Mexico; Cibele de Barros, Brazil; Nazim Farajzade, Azerbaijan.
asked to develop sustainable construction projects and present them as posters. Each university selected its five best projects. The creators of these projects were invited to the Forum in Shanghai, where they could directly explain their work to the interested viewers.

**Ideas instead of finished concepts**

It required full concentration of the Forum participants to absorb the projects during the breaks. This was not found to be a burden, but a pleasure, chiefly because of the high quality of the projects. Most of the students did not present finished concepts but intelligent food for thought, stimulating designs that can be fully developed and realized. The intensive discussions between the students and the renowned architects and urban planners again and again proved highly fruitful. Visions and utopias crossed with experience and farsightedness; the conceivable confronted the feasible. The future of sustainable construction is colorful, multifaceted – and full of ideas!
First prize: Every step is energy

The competition was won by James Graham and Tad Jusczyk from Massachusetts Institute of Technology (MIT) in Cambridge, USA. Their project “Crowd Farm” presents an original response to energy shortage: a tectonic floor system that absorbs the forces of footsteps and transforms them into useable energy. The system can be compared to a dynamo. Of course a single human footstep delivers a negligible amount of energy. But the idea here is to capture the kinetic energy of a large mass of people, for example commuters at a train station.
Second prize: Eco-Oasis in Egypt

Konrad Milton from the ETH Zurich won second prize with his project “Creating Egypt’s Seventh Oasis”. In contrast to other topographic depressions in Egypt – the oases – the depression at Qattara is dry and vacant. Konrad Milton proposes pumping water in an ecological way into this inhospitable valley to create a new oasis. It would be surrounded by a network of small, densely laid-out villages. All houses would be equipped with sustainable green infrastructure. Water from the Mediterranean could also be used for cooling the buildings.

Rolf Soiron and Konrad Milton, Switzerland.
Third prize: Water concept for Mexico City

Gustavo Torres from the Universidad Iberoamericana (UIA), Mexico City, won third prize for his project “Towards a New Rainwater Capture System”. Climate change is extending the rainy season in Mexico City. Torres proposes ways to prevent the potential flooding of whole districts and to use the water. New lakes and reservoirs improve the public water supply; photovoltaic cells can be installed on the bottom of the reservoirs to produce electricity. The artificial lakes also enhance the microclimate.

Gustavo Torres, Mexico.
Recognition prize for canister housing

The Chair of the Advisory Board of the Holcim Foundation, Rolf Soiron, also announced two highly commended projects. The first is the “Living-House Sustainability Concept” by Nils Havelka and Nicolas Zimmermann of the ETH Zurich. The two architecture students designed a flexible building, the core of which can be adapted to suit the changing needs of the residents. The core is enclosed within an envelope of plastic canisters. The canisters are filled with algae and are used for air purification, drinking water treatment and energy recovery.

Nils Havelka and Nicolas Zimmermann, Switzerland.

Recognition prize for “micro-urbanism”

Dukui Li, Jia He and Yuguo Wang from Tongji University, Shanghai won a recognition prize for their project “Micro-urbanism”. The project responds to a widespread problem in Shanghai. When districts are completely rebuilt, the residents must evacuate and move into temporary housing until the work is completed. The project team proposes building “migrate megas” – residential units that can be expanded as needed, and integrated into the urban fabric after the temporary users move out.

Jianjia Zhon, China, on behalf of the highly commended team.
Contributions for a more sustainable future
The subject of sustainability always involves tomorrow. What we do today should not compromise the opportunities of future generations. For the Holcim Foundation it is therefore natural to include in its activities the forthcoming generation of architects, urban planners and engineers. Several scholars were invited to present their projects at the Forum (see page 60). For the first time, the Foundation also provided funding for Ph.D. research projects involving sustainable construction. At the Forum five such grants were presented – totaling USD 200,000. The grants went to:

Odair Barbosa de Moraes, Universidade de São Paulo, Brazil: “Environmental quality evaluation in informal urban settlements using fuzzy logics”.

Lei Pang, Tongji University, Shanghai, China: “Integrated computer-aided technology for ecological evaluation in urban design for historic areas”.

Rozana Montiel and Arturo Ortiz, Universidad Iberoamericana, Mexico City: “Sustainability in poverty areas”.

Deane Simpson, ETH Zurich, Switzerland: “Gerontological urbanism: emerging forms of urbanism for the elderly demographic”.

Jörg Spangenberg, Universidade de São Paulo, Brazil: “Sustainable and climatically adapted urban transformation”.

Each project will also be supported by the corresponding university. The introduction of the projects at the Forum in Shanghai gave a sort of preview of the next Holcim Forum, when the results of these five research projects will be presented.

Rolf Soiron, Chairman of the Advisory Board of the Holcim Foundation, presented the Research Grants. One of the recipients was Odair Barbosa de Moraes, Brazil (left).
Interview with Marc Angélil, architect and Professor of Architecture and Design at the Swiss Federal Institute of Technology (ETH Zurich), and member of the Management Board of the Holcim Foundation. As head of the Academic Committee for the 2007 Forum, he conceptualized and choreographed the conference themes.

What was involved in the planning of the conference at Tongji University in Shanghai?
It was actually a long and winding road that led to Shanghai. It all began immediately after the 2004 Forum in Zurich, which focused on the subject of basic needs. At that time, an academic committee proposed the theme of urban transformation to the Foundation’s Advisory Board. When we got the green light, I met for lunch with a colleague in Los Angeles over a period of several months to hash out potential subtopics. We had a list of over 30 of them, which were ultimately narrowed down to five: normative, informal, green, touristic, and temporary urbanisms. Key to the operation was a doubling of the five themes to allow for oppositions to be expressed and debated. Thus, for example, the workshop on green urbanism addressed conflicts between ecological and economic issues. We sought to involve participants from different cultural and professional backgrounds, who occupy a wide range
of ideological positions, in order to fuel the dialogue – considering that a forum is convened in the spirit of debate.

**So the planning and development was extensive and involve multiple players. Has the 2007 Forum lived up to your expectations?**

Regarding the level of discourse, the event was absolutely a success. It brought people from around the world together to discuss the vital challenges posed by contemporary urban settlements. Rather than exclusively focusing on the formal characteristics of the city as physical artifact, emphasis was given to an understanding of the city as process. It was in this respect that the need for action was recognized, and participants from academia and the professional world took up the political and economic ramifications of urban transformations we are witnessing today. But as we can never rest on our laurels, allow me to point out where there would be room for improvement. I would have liked to see more time devoted to questions of method. Specifically, there was not sufficient discussion of techniques and instruments for achieving a more sustainable environment. Put simply, the question is how can we translate our theoretical ideas into livable cities?

**What do you consider the highlights of the conference?**

Above all, the fact that we were in Shanghai. We were uprooted from our everyday routines and
thrust into an entirely different world – that of an Asian megacity which is being transformed at breathtaking speed, even as we speak. Every presentation had exceptional moments, but I was particularly impressed by the many intersections among the arguments and projects presented: speakers quoted other speakers, one proposition led to the next, contradictions multiplied as events unfolded. When a conference manages to achieve such concentration and interrelatedness, then it is outstanding. But here again, I would inject one comment: While in principle I like the idea of the mobile workshops, it would be worth giving more careful consideration to their orchestration with respect to the conference themes. In effect, because we never had the chance to critically discuss the implications of the places we visited, the workshops remained in the realm of the touristic.

How would you characterize the differences between the first Forum on basic needs and this one, on urban transformation?

While the first conference was quite broad and inclusive, the second one was more focused vis à vis the disciplines of architecture, engineering, infrastructural planning, as well as urban and landscape design. This allowed us to engage and interrogate their basic premises, which is a precondition of advancing the state of knowledge within these fields. Furthermore is the mere fact that the 2007 Forum did not take place in the first world, or Switzerland, of all places, but rather immersed the
participants in a maelstrom of conflicting realities. This is already a step toward genuinely engaging the urban problems of the world. The conference allowed us to consider Shanghai as a relevant case study from which we could all learn. I would also suggest that the bridge between theory and practice was much stronger, and interdisciplinary connections among scholars and professionals were much better choreographed. On leaving Shanghai, I sensed that finally, architects and urbanists had understood that their disciplines are highly political. They had heard the call to action.

What about the next Forum, scheduled for 2010?
With the next one, we would like to get even closer to the question of sustainability in the field of construction. There is an urgent need to rethink and reinvent construction technology, in terms of the deployment of materials, logistics, and resources. I could imagine that the next forum will deal with the processes involved in the making of buildings, considering that their global ecological footprint is tremendous and has been insufficiently studied. Simply stated, construction must be realigned with the principles of sustainability, and should this goal be achieved, we might see an impetus towards a new architecture, or, as Le Corbusier would say, an esprit nouveau for change. And as for the location of the conference, it should be a global city that exemplifies and exposes the very conflicts that arise between the building industries and the international demand for sustainable development.
Joint media conference

Architecture axis

China-Switzerland
“China and Switzerland have cooperated on urban development and environmental protection in the past – and we look forward to more extensive exchanges in the future,” Dante Martinelli, Swiss Ambassador to China, told Chinese reporters. “As Shanghai prepares to host World Expo 2010 under the theme ‘Better City, Better Life,’ we hope for more opportunities to discuss ideas and exchange best practices on these critically important topics.”

Concerning architecture and city planning, the exchange between China and Switzerland is already vigorous, tells Zhenyu Li, Vice Dean of the College of Architecture and Urban Planning at Tongji University: “Switzerland has nurtured a lot of outstanding talents in the field of architecture. Tongji University has enjoyed a long-term partnership with the Swiss architectural community, which we celebrate during the centennial year of Tongji University.”

The architecture axis China-Switzerland has been reinforced by a new book, published under the editorship of Zhiqiang Wu, Dean of the College of Architecture and Planning at Tongji University, Chief Planner for World Expo 2010 in Shanghai, and member of the Technical Competence Center of the Holcim Foundation. The technical publication presents all 46 projects that received regional or global recognition in the first Holcim Awards competition. It was presented at the media conference and received with the same great interest as the English “original version” (ISBN 978-3-7266-0076-1 English and ISBN 978-7-112-09153-9 Chinese).
The Holcim Foundation for Sustainable Construction promotes innovative approaches to sustainable construction. The objective of the Holcim Foundation is to encourage sustainable responses to the technological, environmental, socioeconomic and cultural issues affecting building and construction, regionally as well as globally – through a range of initiatives, including Holcim Awards, Holcim Forum, and Holcim Projects. The partner universities of the Holcim Foundation are the Swiss Federal Institute of Technology (ETH Zurich), Switzerland; Massachusetts Institute of Technology (MIT), Cambridge, USA; Tongji University, Shanghai, China; Universidad Iberoamericana (UIA), Mexico City, Mexico; and University of the Witwatersrand, Johannesburg, South Africa. The Universidade de São Paulo (USP), Brazil, is an associated university of the Holcim Foundation.

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The Holcim Awards competition is an initiative of the Holcim Foundation for Sustainable Construction. Based in Switzerland, the foundation is supported by Holcim Ltd and its Group companies and affiliates in more than 70 countries. Holcim is one of the world’s leading suppliers of cement and aggregates as well as further activities such as ready-mix concrete and asphalt including services.
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