



UN-HABITAT

March 2006 • Vol. 12, No. 1

Habitat Debate

In this issue:

Overview..... 4

London's congestion
charging system 11

Innovative urban
energy and transport 12

Energy in crisis
situations – a report
from the Pakistan
quake zone..... 14

A world of
expensive oil 17

Bogota's bus
network..... 19



Towards sustainable energy in cities

A Message from the Executive Director

LONG BEFORE THE MODERN MEDIA AGE, long before the advent of electricity and radio, indeed since recorded history, towns and cities connected the world as the source of new ideas, of trade, and every trend, both good and bad, that has had an impact on humanity. Cities in turn, are driven by energy, and it is fair to say that civilisation has been shaped by energy.

The magnitude of energy consumed per capita has become one of the key indicators of modernisation and progress in any given country. And it is in the human settlements, in our towns and cities, where most of the energy is consumed.

Let us be under no illusion: In 1950, one-third of the world's people lived in cities. Just 50 years later, this proportion has risen to one-half and will continue to grow to two-thirds, or 6 billion people, by 2050.

Thus cities will be consuming more energy, and more quickly, than at any time in history. It is periodically forecast that fossil fuel sources will soon be depleted. If our cities of the future are to be sustainable, we need alternative energy sources. This is why we chose for our cover photo a picture of a water wheel in Syria – a system that has helped grow and green cities in the desert, and which has been in use for over a thousand years and in many, many countries.

However, the benefits of modern energy supplies and services are unevenly distributed and have yet to reach approximately one third of the global population. People living in poverty have benefited very little from conventional energy policies and their implementation. More than 2 billion people continue to cook using traditional fuels, while 1.5-2 billion people lack electricity or proper water and sanitation services.

The urban poor, slum-dwellers especially, are particularly hard hit by a lack of access to modern energy services. Not only do they suffer direct physical harm by the use of inappropriate energy sources (lung diseases and frequent slum fires), but also they generally pay more for their cooking gas, water and electricity than richer people connected to the service networks. UN-HABITAT is in constant quest of affordable ways of integrating technologies that facilitate renewable energy use into slum areas.

Make no mistake here too – it has been projected that the number of urban slum



President George Bush, citing America's "addiction" to oil, pledged to find alternative energy sources in a country that is by far the world's biggest consumer.

dwellers will double from 1 billion today in the next 30 years if no concrete action is taken to reduce urban poverty. And that means getting them affordable, clean and healthy services.

The upcoming 14th session of the UN Commission on Sustainable Development will meet at UN Headquarters in New York from 1-12 May 2006 to review progress in Energy for Sustainable Development, Industrial Development, Air Pollution, and Climate Change.

The complex challenge of energy and sustainable development was highlighted at the United Nations Conference on Environment and Development, in Rio de Janeiro in 1992. Energy was also one of the major themes of the Ninth Session of the Commission on Sustainable Development held in 2001. Countries agreed at CSD-9 that stronger emphasis should be placed on the development, implementation, and transfer of cleaner, more efficient technologies. They agreed that urgent action is re-

quired to further develop and expand the role of alternative energy sources. Agenda 21 highlights the fact that current levels of energy consumption and production are simply not sustainable, especially if demand continues to increase. It stresses the importance of using energy resources in a way that is consistent with the aims of protecting human health, the atmosphere, and the natural environment. This was reaffirmed by world leaders in the Johannesburg Plan of Action at the World Summit on Sustainable Development in 2002.

In his recent State of the Union Address, President George Bush, citing America's "addiction" to oil, also pledged to find alternative energy sources in a country that is by far the world's biggest consumer.

Whether we leave the lights on or a tap running, we need to be aware of the consequences for future generations. Officials meeting at CSD-14 will therefore need to recognize that rapid urban growth, especially in developing countries, will be a major contributor to growing energy consumption. Energy policies are very closely linked with other aspects of urban development, in particular, land use and zoning, transport policy and energy performance of buildings.

As part of UN-HABITAT's activities in sustainable human settlements development, the overall goal of the agency is to help develop energy and transport standards and management norms for governments and municipalities.

Our cities, mirror in their burgeoning slums and dilapidated neighbourhoods the huge chasm between rich and poor, free and fettered, privileged and humiliated – between those who benefit from globalisation, and those who are marginalised. This gulf is an affront to human dignity. It leaves all our societies vulnerable, and each of us insecure. We need to mend this great divide with a new fabric of solidarity – and the means to power it sustainably.



Anna Kajumulo Tibaijuka
Executive Director



Cover Photo

This water wheel in the ancient Syrian city of Hamah symbolises ages-old clean, renewable energy for water delivery to homes and gardens. Photo: © V.Kitio/UN-HABITAT

Editor

Roman Rollnick

Editorial Assistance

Stellamaris Muthoka
Anne Musotsi

Design & Layout

Information Services Section, UN-HABITAT

Editorial Board

Farouk Tebbal
Lucia Kiwala
Anantha Krishnan
Dinesh Mehta
Eduardo López Moreno
Jane Nyakairu
Mariam Yunusa
Nicholas You

Published by

UN-HABITAT
P.O. Box 30030, GPO
Nairobi 00100, KENYA;
Tel: (254-20) 762 1234
Fax: (254-20) 762 4266/7, 762 3477, 762 4264
Telex: 22996 UNHABKE
E-mail:
infohabitat.debate@unhabitat.org
Website: <http://www.unhabitat.org/>

ISSN 1020-3613

Opinions expressed in signed articles are those of the authors and do not necessarily reflect the official views and policies of the United Nations Human Settlements Programme (UN-HABITAT). All material in this publication may be freely quoted or reprinted, provided the authors and Habitat Debate are credited.

Contents

A MESSAGE FROM THE EXECUTIVE DIRECTOR	2
OVERVIEW	
Energy and transport in human settlements	4, 5
FORUM	
The case for better energy planning in growing cities	6
Rapid growth in air conditioning presents new problems for buildings and utilities.....	7
Getting reliable energy to the urban poor	8
Electricity for informal settlements	9
Tackling traffic jams - win-win transportation solutions	15
Better kitchens make for better energy use and healthier homes	16
INNOVATIONS	
Innovative urban energy and transport	12, 13
REGIONAL	
The energy dilemma in East Africa	10
London shows how congestion charging works in a big city.....	11
Energy in crisis situations – a report from the Pakistan quake zone	14
Learning from Bogota’s bus transport system	18
OPINION	
Preparing cities for a world of expensive oil	17
Better bus networks are the best option	19
BEST PRACTICES	20
PUBLICATIONS	21
EVENTS	22
A NOTE OF THANKS	23
THIRD SESSION WORLD URBAN FORUM.....	24

Energy and transport in human settlements

BRIAN WILLIAMS, UN-HABITAT'S FOCAL POINT FOR ENERGY AND TRANSPORT, GIVES AN OVERVIEW OF THE CRISIS FACING PEOPLE IN THE DEVELOPING WORLD WHERE MILLIONS STILL USE TRADITIONAL FUEL LIKE FIREWOOD BECAUSE THEY HAVE NO ELECTRICITY OR COOKING GAS. BETTER ENERGY POLICY AND USE WILL HELP REDUCE POVERTY, CUT POLLUTION, MAKE CITIES AROUND THE WORLD MORE SUSTAINABLE, AND INDEED HELP ACHIEVE THE MILLENNIUM DEVELOPMENT GOALS (MDGs).

HIGHER POPULATION DENSITIES MAKE it easier to provide basic services. Urban areas should thus have the potential to offer better health, education, sanitation and electricity services than rural areas. However, while these benefits of economies of scale in urban agglomerations do accrue to residents of the more developed countries, this is by no means the case in developing countries – especially when it comes to providing energy services.

Cities in developing countries require a rapid increase in energy production and consumption to accelerate economic development, alleviate poverty and meet the basic needs of their populations. However, energy-related pollution is already negatively affecting human health and living environments, particularly within informal urban settlements. For sustainable energy development and use in human settlements, the primary challenge is to provide equitable and affordable access to energy services for all urban residents in an economically efficient and environmentally sound manner.

There are approximately 2 billion people in the world who lack access to electricity. A further 2 billion depend on traditional fuels, such as wood, crop waste, and animal dung for cooking and heating. For one-third of the world's population, dependence on traditional fuels results in

a significant number of hours being spent each day gathering wood, primarily by girls and women, even in urban areas.

“The magnitude and scale of energy needs facing the world today in relation to sustainable development can be gauged by the fact that nearly one third of the global population of six billion, mostly living in developing countries, continue to lack access to energy and transportation services,” said the report of the Commission on Sustainable Development in its ninth session in April 2001.

“Wide disparities in the levels of energy consumption within and between developed and developing countries exist. Current patterns of energy production, distribution and utilization are unsustainable,” it said. The Commission will hold a five-year review of the meeting at its 14th session in New York, during the first two weeks of May this year.

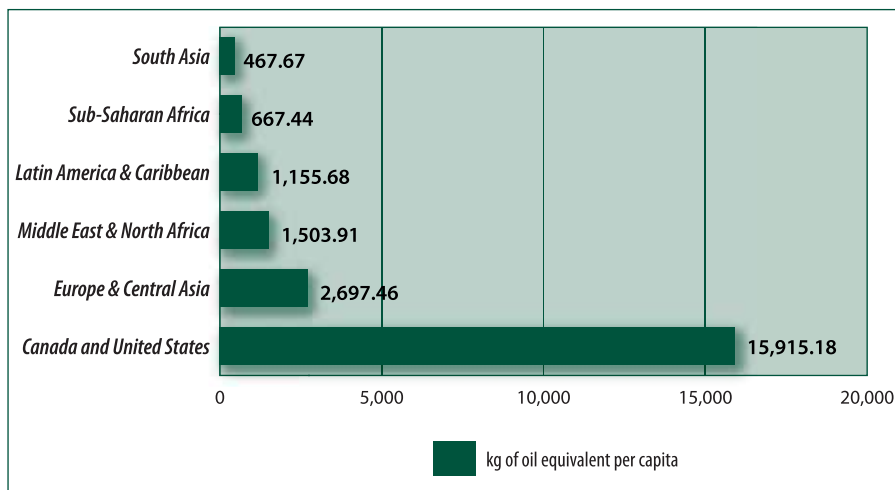
The Commission is keenly aware that the poor often face much higher energy costs than wealthier people. This is compounded by limited access to appropriate financing schemes that can allow the poor to overcome the high-up front costs of cleaner energy devices and appliances. Their incomes are often so low that they cannot pay for energy services to meet basic needs of cooking, transport, pumps for drinking water, and heating for their homes.

Access to affordable, modern energy services is a pre-requisite for sustainable development and poverty reduction, and for achieving each of the MDGs. Lack of access to reliable, safe and mostly environmentally friendly energy is a strong constraint on human development. Energy services can play a variety of direct and indirect roles to help achieve the goals:

- **Access to energy facilitates economic development** and means that value-adding income generating activities are enhanced. Micro-enterprise and livelihood activities can be extended beyond daylight hours, creating additional employment opportunities. Access to energy helps bridge the digital divide.
- **Access to energy reduces hunger and improves access to safe drinking water** through pumping facilities.
- **Access to energy reduces disease and child mortality** and is crucial to a functioning health system, through refrigeration for homes and clinics, sterilizing equipment and transport to clinics.
- **To achieve universal primary education and the empowerment of women** energy reduces time spent fetching water, firewood, and other daily drudgery. Light at home enables children to study after dark.
- **More efficient use of energy promotes environmental sustainability**, sustainable use of natural resources and reduces harmful emissions, particularly indoor air pollution.

In China, for example, there is much use of community-based biogas, and Sweden has found biogas plants set up alongside dairies to be a good alternative to fossil fuel. In India, banks provide loans for setting up family-based biogas plants. Although grid-based systems are the best solution, small renewable energy systems

2002 Energy use (kg of oil equivalent per capita)



Source: World Development Indicators, World Bank. UN-HABITAT Graphic by Stellamarris Muthoka

located in a neighbourhood have also evoked interest in many countries.

Many cities with flourishing informal economies depend on hand carts and cycle rickshaws, and animal carts. The World Bank has a number of urban transport initiatives based on non-motorized solutions. One of the most modern systems in the world is London's Docklands Light Rail system, a computer operated elevated railway for commuters. Another example is in Hong Kong, where electric escalators and moving walkways in the Central District enable many thousands of people every day to take journeys they used to do by taxi or minivan.

In all the alternatives to fossil fuel, costs are a major factor, as are the sometimes cumbersome nature of alternative technology, especially solar technology.

As part of its normative and operational work in energy, the overall goal of UN-HABITAT is to develop standards and management norms for cities in developing countries with informal settlements. The key thematic areas of the programme are, urban household energy, environment and health, access to urban energy services, and sustainable urban transport.

UN-HABITAT also seeks to create an environment in which ideas and information are shared and cooperation and action are encouraged to promote access to urban energy services.

The greatest pollution hazard, especially in sub-Saharan Africa and in South Asia, is indoor air pollution from the burning of traditional biomass for cooking, heating and even lighting. It causes high levels of respiratory infections and mortality among woman and children, particularly in informal settlements.

Traditional stoves used for cooking, often in unventilated cooking spaces, use fuel very inefficiently and give off large quantities of smoke, carbon monoxide and other harmful pollutants.

UN-HABITAT efforts to tackle this include the promotion of cleaner fuels such as Liquefied Petroleum Gas (LPG) through market-based incentives for small-scale operators. It also promotes the idea of affordable biomass stoves that conserve fuel and reduce air pollution.

Stand-alone renewable energy systems such as photo-voltaic solar panels with storage batteries can require as much energy to produce as they generate in their lifetime – primarily due to the batteries – making such systems less sustainable as well as substantially more expensive than conventional grid electricity.

In his State of the Union address on 31 January, President George Bush spoke frankly of how America, the world's biggest per capita energy consumer, will start new research and a new drive for affordable, alternative and sustainable energy resources.

"Keeping America competitive requires affordable energy. And here we have a serious problem: America is addicted to oil, which is often imported from unstable parts of the world. The best way to break this addiction is through technology. Since 2001, we have spent nearly 10 billion dollars to develop cleaner, cheaper and more reliable alternative energy sources. And we are on the threshold of incredible advances.

"So tonight I announce the Advanced Energy Initiative – a 22 percent increase in clean-energy research at the Department of Energy to push for breakthroughs in two vital areas: To change how we power our homes and offices, we will invest more in zero-emission coal-fired plants; revolutionary solar and wind technologies; and clean, safe nuclear energy.

"We must also change how we power our automobiles. We will increase our research in better batteries for hybrid and electric cars and in pollution-free cars that run on hydrogen. We will also fund additional research in cutting-edge methods of producing ethanol, not just from corn but from wood chips and stalks or switch grass. Our goal is to make this new kind of ethanol practical and competitive within six years."

Investment in renewable energy in areas served by a grid is therefore economic and sustainable only if the consumer can buy energy from a grid when required and sell surplus consumer-generated energy to the grid.

UN-HABITAT also promotes the increased access of renewable and grid-based energy sources in human settlements and collects, collates and analyzes urban energy options, particularly those most affordable to low-income communities.

It also develops strategies for the speedy commercialization of alternative energy technologies as well as conventional grid-based applications within informal urban settlements in cities of the developing world.

In today's cities, sustainable transportation systems are crucial to fostering economic activity and raising standards of urban living. Finding a transport model that meets society's need to move freely, communicate, and gain access to jobs, education, hospitals, and other facilities – all without sacrificing essential human or ecological values – is thus a primary challenge of sustainable development.

Transportation systems define the quality of life for millions of city-dwellers worldwide. Unfortunately, the negative impacts of urban transport, including hazardous levels of air pollution, congestion, noise, sprawl, and threats to public safety, restrict the potential for greater economic growth and happiness. The rise of mega cities with more than 10 million people, has only amplified these problems.

Growth rates of private vehicle ownership in the developing world continue to soar, despite the fact that automobiles consume non-renewable energy and cause considerable pollution. In response, UN-HABITAT promotes sustainable solutions to urban transport dilemmas, integrated energy and environmental planning, and better income generation for the urban poor by linking energy and transport service provision with livelihood creation.

While rapid urbanization is associated with an attendant rise in energy demand and its problems, many of the negative effects of urbanization can be, at least, partially mitigated by innovative energy policies.

The case for better energy planning in growing cities

AS CITIES IN DEVELOPING COUNTRIES GROW FAST, THEY DEMAND MORE ENERGY. BUT UNPLANNED URBAN GROWTH USING TRADITIONAL SOLUTIONS LIKE CHARCOAL BURNING ARE ILL-FITTED TO A MODERN URBAN ENVIRONMENT, WRITES *MAX AHMAN*, AN INDEPENDENT NAIROBI-BASED CONSULTANT FROM LUND UNIVERSITY IN SWEDEN WHO WORKS ON ENERGY AND TRANSPORT. FAST GROWING CITIES IN THE DEVELOPING WORLD THEREFORE FIND THEMSELVES WITH INEFFICIENT ENERGY SYSTEMS THAT HAVE ENVIRONMENTAL RAMIFICATIONS AT THE LOCAL, REGIONAL AND GLOBAL LEVEL DUE TO INADEQUATE ENERGY PLANNING.

IT IS GENERALLY ACCEPTED THAT INCREASING urbanisation leads to increasing energy use as people start climbing the income ladder. Although half the global population today lives in urban areas, according to UN-HABITAT, town and city dwellers use two-thirds of global energy resources. Indeed, urban populations consume 80 percent of all commercial energy produced.

However, high population densities enable cities to offer many opportunities for more efficient energy use, sharing of resources and investment costs.

The most efficient supply option for heating, for example, is the combined production of heat and electricity distributed through the district-heating grid. High densities enable the cost-effective use of waste as an energy resource.

Waste heat from industrial facilities can effectively be used for heating at low cost. Here, a district-heating system is useful for taking advantages of industrial waste heat in a cost-effective manner. One of the

most under-used energy resources in cities today is household waste for the production of heat or biogas. This has a double dividend, as it requires a reliable waste collection system that will help to improve sanitation.

The Swedish city of Vaxjo is a good example of this strategy. Vaxjo promotes itself as a “renewable city” because it uses only renewable biomass in the municipal plant which provides the city’s heat and a major part of its electricity.

Electrification is usually implemented quickly in urban areas. Extending electricity access to people in informal settlements has major benefits in terms of health, safety, education and other possibilities for a better quality of life.

The structure of a city is also pivotal for energy efficiency. A densely populated city can be more energy efficient than a sprawling city. As an example, the daily residential energy need for Hong Kong, one of the densest cities in the world, is 20 mega

joules per capita compared to the OECD country average of 70 MJ/capita.

The energy needed for transport in a sprawling city like Houston is 75 MJ/capita as compared to Hong Kong that uses 8 MJ/capita for its transport. Curitiba in Brazil is a well-known example of how a well-planned city can create a very energy efficient transport system.

In The Netherlands, the ABC-planning system for increased mobility without a private car is an example of how a planning tool can be implemented in an established city structure.

Urbanisation causes energy growth but at the same time offers the possibilities to use and supply energy efficiently. There is also ample of evidence that a dense city can offer greater energy efficiency compared to a sprawling city.

Both these aspects can increase energy efficiency if appropriately included in planning.

Looking forward, the energy priorities that need be better addressed in city planning are threefold:

- Using waste as an energy feedstock. This goes hand in hand with other municipal services such as waste collection and sanitation.
- Electricity access for the urban poor needs more urgent focus.
- A well functioning transport system that does not solely rely on private car ownership, but also on public transport and non-motorised transport is imperative.

Good examples of urban energy planning exist. How to translate the experiences of over 100 years of urbanisation in the developed world to the currently fast growing cities in developing countries is still unresolved and by no means straightforward.

Too many poor people around the world still rely on charcoal and other biomass for their daily energy needs. Photo © B. Williams/UN-HABITAT



Rapid growth in air conditioning presents new problems for buildings and utilities

THE DEMAND FOR MORE AIR CONDITIONING IN BUILDINGS HAS GROWN CONSIDERABLY IN RECENT YEARS, PRESENTING A NEW SET OF PROBLEMS FOR BUILDINGS AND UTILITY COMPANIES, SAY *PAUL WAIDE* AND *ALAN MEIER* OF THE INTERNATIONAL ENERGY AGENCY IN PARIS.

EUROPE'S HEAT WAVE IN THE SUMMER OF 2003 led to more than 20,000 deaths and greatly accelerated the demand for cooling equipment in European buildings. But Europe's response to the heat wave is only part of a global trend towards air conditioning, which is driven by higher demands for personal comfort, higher internal loads in buildings, growth of urban heat islands and heat waves.

Within OECD countries, about 41 percent of the occupied building floor area was air conditioned in 2001 and this has risen by 7 percent per year. In Japan, air-conditioned space in the service sector is estimated to be near 100 percent, followed by 63 percent in the US, and 27 percent in Europe. The residential sector has experienced a strong rate of growth in the ownership of room air conditioners in Japan, the United States and Europe. Sales of room air conditioners are thought to have increased by up to 50 percent following the European heat waves in the summer of 2003. Likewise, over three-quarters of new cars sold in Europe are equipped with air conditioners. This feature may be introducing Europeans to air conditioning along with the expectation that their homes should have similar climate control features.

This trend has profound implications for the design of buildings but also threatens the reliability of electricity supply systems. The growth in air conditioning has emerged as the single largest factor challenging the ability of electricity utilities to meet future demand. In some countries, utilities have become summer peaking (Canada, the United States, Italy) and in many cases the growth of AC is placing a considerable strain on the ability of electricity networks to meet peak power demands. In newly industrialising countries like China and India, the growth in demand for AC is a major contributory factor causing electricity peak power demand to outstrip supply. The problem is compounded because electricity supply is often constrained during summer heat waves (e.g. lower hydro output or reduced levels of cooling water for generating plants).



Air conditioning is already responsible for over half of peak power demand in many Asian cities such as Beijing. Photo © J. Shen/UN-HABITAT.

Around the world AC and consumer electronics, are the fastest growing energy-using applications. However, because AC power demand is so much greater in summer than at other times of the year, it has a disproportionate influence on the overall peak power demand of electricity systems. Consequently, AC is already responsible for over half of peak power demand in many regions of Japan, the United States, and Australia.

Growth in AC demand is not just because it is more affordable and widely accepted. It is also the result of a tendency towards universal building styles poorly adapted to the local climate and an increase in internal heat due to electrical appliances and lighting equipment.

Another factor is the increase in peak ambient temperatures in many locations. Part of this increase is associated with the urban heat island effect: a phenomenon whereby urban centres have markedly higher average temperatures than surrounding regions. Large cities, like Los Angeles, Tokyo, and Shanghai frequently

experience temperature elevations as high as 5°C above the surrounding rural areas. A temperature increase of only a few degrees may be sufficient to render ineffective cooling from natural ventilation and stimulate a sharp increase in cooling needs. Higher urban temperatures also accelerate the transformation hydrocarbon emissions into ozone. Deteriorating air quality may stimulate further demands for air conditioning.

In response to these developments the International Energy Agency staged a two day conference *Cooling Buildings in a Warming Climate* in Sophia Antipolis, France, 21-22 June 2004. The conference addressed the remarkable growth in AC, the factors driving this growth and the means by which energy consumption and peak power demand associated with it could be curbed. An upcoming conference on counter measures to urban heat islands is scheduled in Tokyo on 3-4 August 2006. Both conferences reflect the continuing global interest in reducing air conditioning energy use.

Getting reliable energy to the urban poor

PROVIDING PEOPLE IN SLUMS WITH A RELIABLE ELECTRICITY SUPPLY IS NOT AS GREAT A PROBLEM FOR GOVERNMENTS AND LOCAL AUTHORITIES AS IT WOULD SEEM, ARGUES *VIJAY MODI*, PROFESSOR AND CHAIR OF THE DEPARTMENT OF MECHANICAL ENGINEERING AT COLUMBIA UNIVERSITY IN NEW YORK. HE ALSO SERVES ON THE MILLENNIUM PROJECT HEADED BY JEFFREY SACHS.

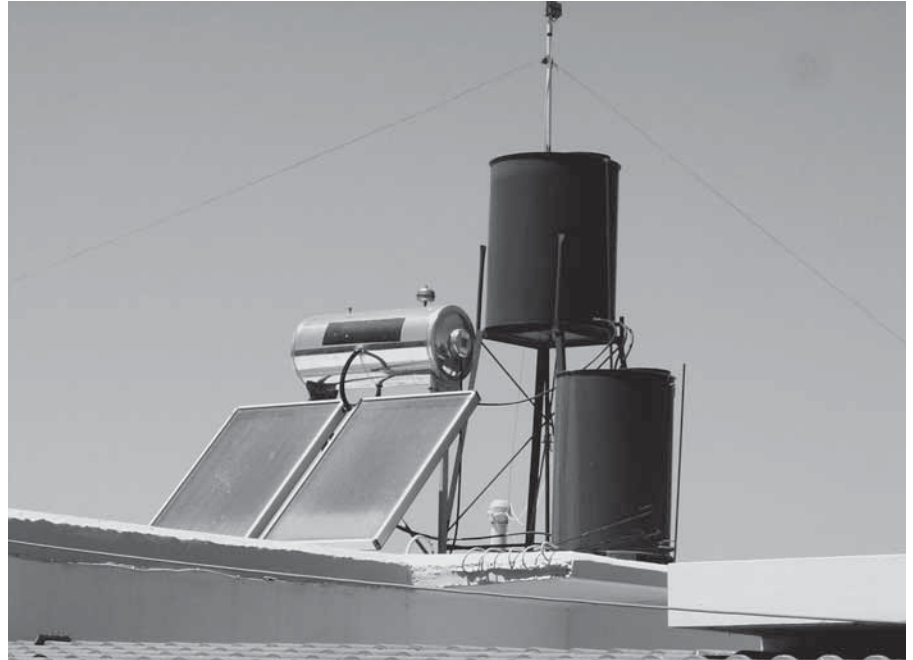
PEOPLE LIVING IN INFORMAL SETTLEMENTS often get their electricity from private intermediaries who have acquired a utility connection and then resell it to their neighbors, generally at fixed monthly costs based on the number and type of appliances that are used.

These intermediaries cater to a real need and understand their clients – who often cannot afford the upfront cost of a legal connection to the grid and can only afford to pay in small sums, sometimes erratically. This leads to a situation where the urban poor frequently end up paying far more per unit of electricity in the process, with a provider-client relationship that is essentially monopolistic but not regulated.

They cannot avail themselves of lifeline rates either, a mechanism that allows the poor to obtain a basic initial block of service at a low cost, a service provision that governments frequently use to meet the needs of the poor.

Utilities services, however, have much to learn from the intermediaries in informal settlements. First, there is a real demand for the service and an ability to pay for it, provided the initial costs are kept minimum. Secondly, it is critical to keep billing and collection costs to a minimum. It is well within reach to achieve these goals since the high densities allow low connection costs. With modern prepaid card technology it is possible to virtually eliminate the need for meter reading, billing, collection and enforcement.

Informal urban settlements have very high population densities and while high densities can make services that rely on the natural environment increasingly difficult to manage, such as water and sanitation, high densities offer a unique opportunity when it comes to electricity. The Kenyan capital, Nairobi, for example, has over 100 slum communities that are home to 2 million people. Getting a legal, metered electricity connection to this entire group, can cost as little as 200 million US dollars in initial investment – a cost lower on a per connection basis, than what it would take to bring electricity to the rural poor living in dispersed settlements. It would enable electricity to be delivered to a household for as little as 100 Kenya shillings (about US \$1.25) per month.



Solar energy though still expensive, is becoming more and more commonplace. Photo © V. Kitio/UN-HABITAT

A more challenging problem is that of clean cooking-fuels in informal settlements. Energy in the form of cooking fuel is generally the dominant energy need of the urban and rural poor alike. The cost of charcoal in many large cities of Africa is only marginally lower than the cost of domestic cooking gas (LPG). If the initial cost of LPG stoves and cylinders was subsidized, and LPG could be sold in smaller containers with a means to the target the poorest of the urban poor, perhaps with vouchers, the substitution of charcoal or firewood with LPG would have many positive health and environment benefits. Not least it would give women who spend many hours of their time collecting wood or charcoal more free time. But LPG programmes have to address the problems of heavy down payments for initial access.

“City-ward migrants are in many cases the most highly skilled, highly educated, and highly motivated members of rural society. They are ‘pushed’ towards the greater opportunities afforded by the city for themselves and their children, and they go to heroic lengths to get there and start anew,” said Ms. Janice Perlman, in her paper, *Misconceptions about the Urban Poor and the Dynamics of Housing Policy Evolution*. Such people, she said, have

“the aspirations of the bourgeoisie, the perseverance of pioneers, and the values of patriots.

What they do not have is an opportunity to fulfill their aspirations.” With their skills and education, this group is most likely to take advantage of opportunities afforded by electricity.

Access to electricity and modern cooking fuel can complement the broader social and economic needs of the urban poor.

These are training for better skills, effective social institutions for delivery of health, education, day-care and community centers, and clean water. Income generation could be facilitated by making it possible to legally operate small businesses with access along main roads that can cater to a wider city population that can rely on the informal settlements as a resource for repair, services and crafts. Reliable electricity is vital for these small businesses to be able to attract the urban middle class.

Urban areas can be engine of growth and the residents of informal settlements are an important driver of this engine. Affordable, reliable energy services are vital to meeting the aspirations of the urban poor as well as the Millennium Development Goals.

Electricity for informal settlements

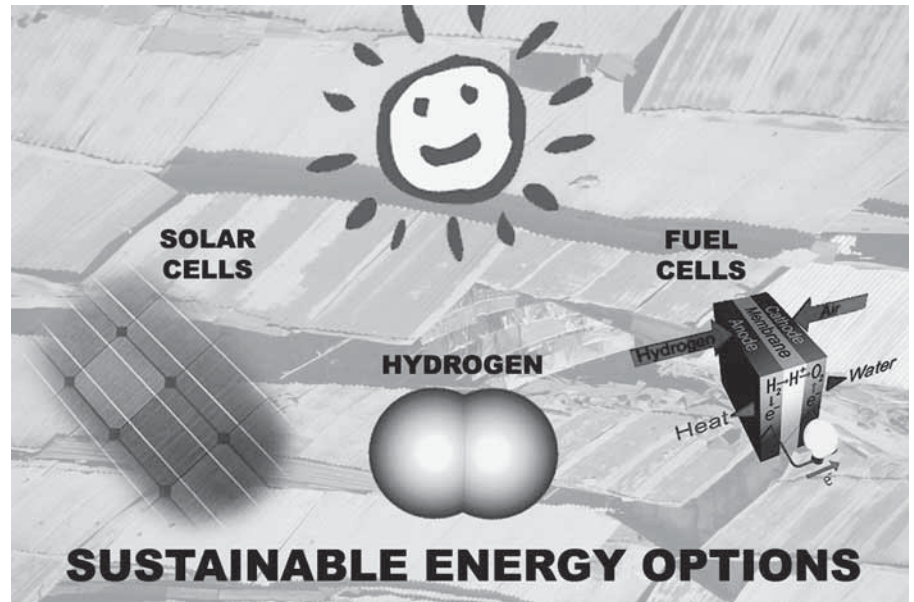
INTERNATIONAL DEVELOPMENT PARTNERS AND ENERGY RESEARCH COMPANIES SHOULD JOIN FORCES TO HELP PEOPLE LIVING IN SLUMS GET AFFORDABLE, CLEAN SOURCES OF ENERGY FOR THEIR DAILY NEEDS, WRITE *JOHN KEANE*, A TOWN PLANNER WHO WORKS ON SUSTAINABLE ENERGY SOLUTIONS FOR INFORMAL SETTLEMENTS IN AFRICA, AND *ULRIK WESTMAN*, A TOWN PLANNER AND ASSOCIATE HUMAN SETTLEMENTS OFFICER AT UN-HABITAT'S SHELTER BRANCH.

TODAY MORE THAN A BILLION PEOPLE constituting one-sixth of the global population are living in urban slums with limited access to grid electricity.

Many slum dwellers use old car batteries for lighting, radios and television. But car batteries do not last long before they need to be recharged. They are prone to leak, and their high lead content also means they have to be disposed of properly. Without adequate waste disposal in slums, car batteries become a major source of hazardous pollution in the very plots where people in informal settlements grow their food. Given the extreme hazards of lead poisoning, improper disposal is a serious threat to urban agriculture in informal settlements, which in some areas accounts for 50 percent of urban food production.

When it comes to alternative cheap, energy sources, what has happened in the arena of getting affordable drugs to poverty stricken sufferers of HIV/AIDS, provides a good strategy: Meaningful reductions in drug prices were achieved because of international pressure. Development organisations, such as the Clinton foundation, have also achieved reductions in drug prices, in part, through guaranteeing drug companies bulk orders and prompt payment. This approach ensures that the market caters for low income groups who themselves benefit through access to cheaper drugs.

If a similar approach is applied to the energy industry, price reductions could be achieved on existing electricity production and energy efficient products to serve the needs of the potentially lucrative market of the world's poor. Examples of these products include energy efficient appliances and lighting such as LED light emitting diodes, photovoltaic solar systems, small-scale wind turbines and fuel cells.



Graphic © UN-HABITAT

Fuel cells convert hydrogen or methanol into electricity with the only emissions being water and heat. With appropriate incentives, fuel cells could be developed to provide power in areas without grid electricity. To this end, commercial actors have already developed prototypes of portable fuel cells for everyday domestic use. If the research and costs of such systems can be minimized, or even subsidized, the benefits for both the environment and those living in informal settlements could be far reaching.

The advantages of using hydrogen to power fuel cells are that it is clean, renewable and abundant in supply. Hydrogen can be produced from water using electricity to separate the hydrogen and oxygen molecules.

While more work still needs to be done, the plan is to be able to produce hydrogen, untaxed, at 1.8 US dollars to 3 US dol-

lars a kilogramme. Untaxed gasoline produces the same amount of power at three times the cost.

Achieving the production of both low cost hydrogen and fuel cells, which are affordable to the urban poor, will undoubtedly be made easier with increased political and financial collaboration between governments, international institutions and the business community.

Experiences within the health sector have shown that mutually beneficial opportunities exist for increased dialogue and collaboration between international development agencies and companies developing new products.

Such market benefits could be extended to include energy research companies so that affordable and appropriate products can be designed and produced to meet the electricity demands of the poor and the informal economy.

UN-HABITAT will hold a special meeting during the 14th session of the Commission for Sustainable Development, which meets in New York 1-12 May. The agency will join Columbia University's Earth Institute and representatives of the UN Millennium Project to see how modern sustainable and affordable energy services, including some of the alternatives discussed on this page, can be enhanced for people living in urban slums of the developing world. UN-HABITAT is of the view that because of population densities and economies of scale within informal settlements, extraordinary benefits can be accrued with respect to very small, inexpensive interventions in the energy sphere. Thus, with small inputs, great strides can be made to increase chances of achieving the Millennium Development Goals for large numbers of people in slums.

The energy dilemma in East Africa

WHILE ENERGY ITSELF IS NOT ONE OF THE MILLENNIUM DEVELOPMENT GOALS, WITHOUT ENERGY TO PRODUCE LIGHT, PUMP WATER, TILL FIELDS, TRANSPORT GOODS, OR POWER CLINICS AND HOSPITALS, *GREGORY WOODSWORTH*, OF THE UNITED NATIONS DEVELOPMENT PROGRAMME ENERGY POLICY ADVISOR ARGUES THAT THE GOALS WILL REMAIN UNATTAINABLE.

THERE IS A CHRONIC ENERGY PROBLEM in East Africa, currently highlighted by the drought and the reduced capacity to generate power. The energy ministers of Uganda, Tanzania, Kenya and Rwanda are considering their strategic options to dramatically increase the access to energy services in the region. They have asked UNDP to help develop a regional energy strategy. In August 2005 the ministers endorsed an initial draft framework and asked the East African Community Secretariat to coordinate its further development and implementation.

A dimension of the energy issue was reflected during a recent regional energy planning meeting. One of the ministers said the estimate that 95 percent of his country's population uses biomass as a primary source of cooking energy was misleading. "I am the Minister of Energy and I can tell you reliably that my household cooks with charcoal, as does my neighbour, and as does most of the city. The real figure is close to 100 per cent."

His candor underlines the reality; whether 95 or 99 percent, the overwhelming majority of East Africans still rely on some form of biomass – dung, straw, harvested wood, or charcoal – for most of their daily energy requirements. The cost, quite literally, of this energy is high, biomass being a lower grade of energy and relatively more expensive than alternatives. Other

associated costs include environmental degradation, a high incidence of respiratory diseases, and the time consuming chore of firewood collection, all of which have a disproportionate impact on women and girls. In many cases there are no real energy choices. Only 12 percent of the region's population of close to 100 million has access to electricity. Other alternatives are often too costly or inaccessible.

High quality, affordable energy is in short supply largely due to the failure of national energy policies to provide energy to their populations. Large investments in the energy sector infrastructure are focused on centralised energy production and distribution mainly to urban centres.

But this does little to provide energy services to the peri-urban and rural poor, a strategy that could address a host of economic and social development objectives, including those related to the MDGs. While energy itself is not one of the MDGs, without energy to produce light, pump water, till fields, transport goods to market, power clinics and hospitals, and provide for economic production, the MDGs will remain unattainable.

The energy ministers would like to see a more balanced approach between the conventional supply and the demand for energy services. Users, after all, are more interested in the service that energy provides, not the source of energy itself. This

does not diminish the importance and the role of the national grid as the main supplier of energy for urban populations and industrial productivity.

The energy ministers have proposed interventions that have a high impact in terms of meeting the MDGs.

The strategy targets are:

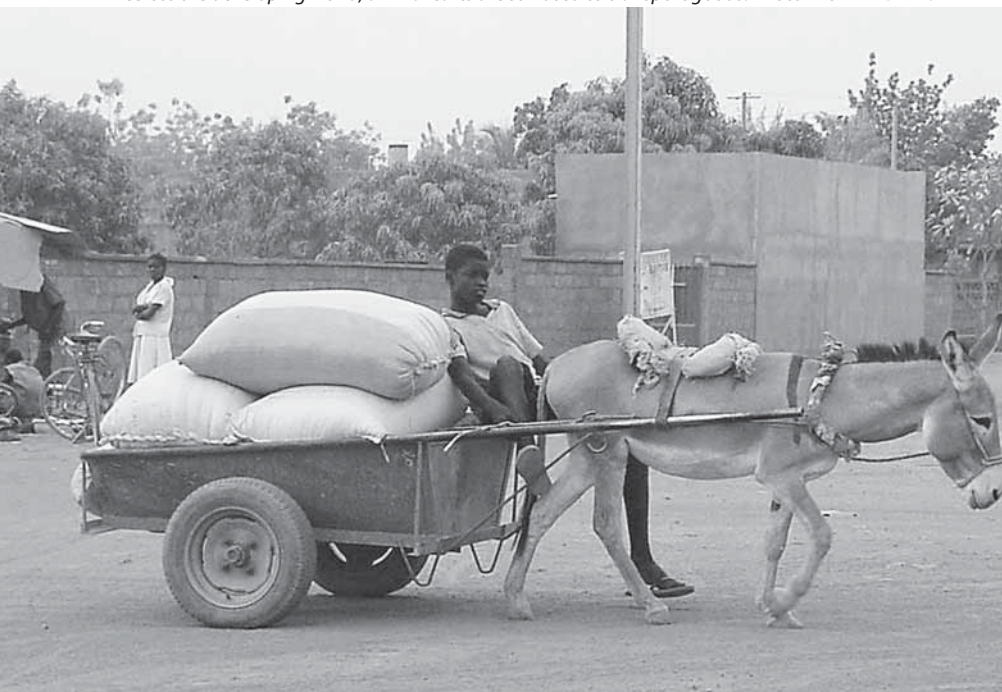
- 50 percent of those who use traditional biomass for cooking should switch to modern fuels. This goes with promoting improved cooking stoves, reducing indoor air pollution, and sustainable biomass production.
- Access to reliable modern energy services for all urban and peri-urban poor.
- Electricity for lighting, refrigeration, information and communication technology, and water treatment and supply for all schools, clinics, hospitals and community centres.

The initial work suggests that for estimated investments of 1.4 billion US dollars, roughly 50 million people could have energy access using various technologies including modern biomass, liquefied petroleum gas (LPG), grid electricity, and mini-hydro power systems. Solar, wind and biogas could be adopted, but have more restricted short-term scale-up potential.

One of the best options to provide energy to more people at low cost will be in the urban and peri-urban areas. The obvious solution is to tap into the electricity wires that run overhead but the cost of connection and other obstacles are currently preventing this.

Throughout 2006, UNDP will be working closely with its development partners, including UN-HABITAT, to help the East African Community Secretariat, as the designated regional coordination body, and its Member States (plus Rwanda) to formulate the full strategy and prepare energy investment programmes.

Across the developing world, animal carts are still used to transport goods. Photo © UN-HABITAT.



London shows how congestion charging works in a big city

AS LONDON'S CONGESTION CHARGING SCHEME REACHES ITS THIRD BIRTHDAY, TRANSPORT FOR LONDON CONGESTION CHARGING DIRECTOR, *MICHÈLE DIX*, EXPLAINS HOW THE PROJECT HAS WORKED, AND WORKED WELL.

AHUNDRED YEARS AGO, IN THE AGE OF the horse drawn carriage, the average speed of road traffic through central London was 11 miles per hour. At the end of the twentieth century, the city's traffic was still moving at 11 miles per hour, and that was the average. Much of the time, the streets were so clogged that vehicles moved at a crawl or not at all.

It is a situation drivers in many of the world's major cities will be familiar with - frustrating for individuals and damaging for businesses.

In February 2003 London took a radical step to do something about it. We introduced the congestion charge to the most clogged-up part of the centre of the city. Our aim was to cut congestion and raise funds to invest in London's transport system, which had suffered years of neglect.

Opponents predicted chaos and confusion. They said there would be rat runs, a ghost town and the public transport system would not cope. Three years on, it's clear they were wrong.

Drivers are charged £8 for entering the zone or driving inside it. Cameras pick-up vehicle registration numbers to ensure that no-one gets away without paying the charge.

The scheme has been successful in reducing the congestion. Traffic in the zone during charging hours (7am - 6.30 pm) is down by 18 percent and delays are down 30 percent. Cutting traffic in the zone has also reduced pollution and accidents and made central London a more pleasant place to live, work and visit.

Since the system was introduced, the average speed of traffic in the charging zone has increased from 14.5 kph (9 mph) to 17 kph (11 mph).

Vehicle emissions within the zone nitrogen oxide and particulates (PM10) have been cut by 12 percent and CO2 by 19 percent. People have perceived an improvement in the environment. The scheme has also contributed towards the major reductions in road accidents we've seen across London. There have been some 70 fewer accidents in the zone each year than would have otherwise been the case.

London implemented the first congestion charging scheme since Singapore introduced theirs in the 1970s. Stockholm has followed suit as has Oslo. No developing country cities have yet implemented a congestion charging scheme. But several are exploring the possibility, and certainly within the next two decades more and more cities will embrace pricing as a traffic management alternative to simply building more roads.

Tens of thousands of extra people are now making their daily journeys by bus. Buses have taken up the overwhelming majority of people who are now leaving their cars at home and, of course, the buses are getting around more quickly and they are more reliable.

More people are cycling too. Recorded cycle journeys rose 20 percent in each of the last three years. It is a fast, cheap, healthy and environmentally friendly way to get around and, with less traffic on the streets, it's more attractive.

There were some who said congestion charging would harm business in central London. Some retailers were among the

most vocal. They said customers would go elsewhere and if they did come they would not spend as much.

Objective analysis of business and economic data show the impact on overall business performance in the zone has been broadly neutral.

Some retailers have experienced sales increases and falls, but largely as a result of other factors including the threat of terrorism, and the closure of the major Central Line underground route into London. At the same time, there are distribution businesses who have seen productivity improve. They can get around faster and often fit another delivery into the day.

Now more than 90 percent of people coming into the central city zone come by public transport. Although the charge has deterred people from using their cars in central London, they are still coming in mainly by public transport, but also more are walking and cycling.

The scheme has netted revenues of over £100 million per year to invest in London's transport system. That has meant we have been able to make further improvements to London's transport, for example, by putting 450 new buses on 12 new routes.

We have steadily introduced the changes to make the charge easier to pay, improve awareness of how the scheme operates, and help drivers avoid running-up penalty charges by forgetting to pay.

It is now simpler to pay electronically, and there are discounts for monthly and annual payments and a lower threshold to qualify for the fleet scheme which helps business users! Eighty-three percent of payers say their experience of dealing with us is good. Plus, this year, we'll be making it possible to pay-next-day - something many drivers have asked for.

So the scheme is becoming easier to use and, after three years, people understand it better too.

Congestion charging has worked in central London and, based on this, the Mayor of London has recently decided to extend it to cover a wider area of central London - the enlarged area will become operational in February 2007.

Innovative urban energy and transport

RECENT YEARS HAVE WITNESSED SIGNIFICANT PROGRESS IN THE RESEARCH, DEVELOPMENT AND USE OF RENEWABLE ENERGY TECHNOLOGIES (RETs) AND THE ADOPTION OF ENERGY SAVING METHODS. HERE, *VINCENT KITTO*, A BEST PRACTICES OFFICER WITH UN-HABITAT'S MONITORING AND RESEARCH DIVISION, GIVES AN OUTLINE OF THE LATEST INNOVATIONS.

PEOPLE AROUND THE WORLD TODAY are more aware than ever before of the importance of energy efficiency and its potential in addressing issue of global concerns about climate change and dependency on fossil fuels. Governments in the developed world are adopting policies and strategies to promote renewable energy, and to increase energy saving initiatives aimed at cutting operating costs CO₂ emissions. In developing countries, some governments have put in place special programmes to explore and promote renewable energy to meet their needs.

But despite the quest for reliable, affordable, economically viable, socially acceptable and environmentally sound energy services, their wider use and application remain very limited.

Weak political will and limited resources for energy saving devices and RETs are among the constraints. But new ways of saving energy and reducing pollution are being explored and put use in many countries.

Renewable energy and energy efficiency

The use of solar water heaters can save up to 60 percent of the energy used by conventional electric water heaters. Increased numbers of municipalities are putting in place regulations to promote this.

For several years now, all buildings less than 27m high, in Israel for example, are required by law to be equipped with solar water heaters. As a result, over 80 percent of domestic hot water is provided by solar energy, representing an estimated 3 percent of the total primary energy.

In Europe, the municipality of Barcelona, since 1999, requires that all new residential buildings be provided with solar water heating. Several other Spanish municipalities have followed suit leading to a tenfold increase in solar heating nationwide. Other Europeans cities provide financial incentives to those people willing to install energy saving devices.

In Australia, the State of Victoria has recently adopted several regulations requiring the installation of environmentally friendly options including solar water heating and rainwater tanks in new buildings.

In Canada, the city of Calgary has made significant energy savings and considerably reduced CO₂ emissions, by replacing conventional streetlights with environmentally friendly and energy saving flat-head lenses streetlights. Streetlight wattage has been cut by half with better lighting that maintains safety on the streets. So far, 37,500 streetlights have been replaced, CO₂ emissions reduced by an estimated 16,000 tons annually netting savings of over 3 million US dollars a year.

Passive solar architecture

Passive solar homes are built with materials suited to human thermal comfort. The orientation of a building is planned to maximise the use of solar energy when needed to warm indoor spaces in winter to cut down summer heat. Great energy savings have been achieved using such architecture in Europe and North America. In Germany alone, by the end of 2003, more than 4,000 such houses were built. The government of Austria has financed a programme to document 1,000 solar houses. Other developed countries have enacted legislation that provides tax incentives for low energy buildings.

Clean electric transport

Electric vehicles use high performance batteries that store electricity. Although they are expensive, they are ideal for cities because their engines use 10 times fewer parts than petroleum or diesel-driven cars. The cost of fuel required is equivalent to 1/6 of the gasoline. A major obstacle to their development is that major conventional car manufacturers are, in one way or other, opposed to the mass production of electric vehicles. Modern electric

Great energy savings have been made using solar architecture in Europe and North America

Electricity from huge wind tower generators goes direct to the national grid

vehicles like the RAV4 car or the REVA in India, have the same performance as gasoline models. They run quietly, produce no exhaust emissions and are cheaper to operate. But the batteries have to be recharged every 120 – 130 km, and charging takes up to 8 hours. Many models have been built around the world, but they are unable to reach a wide market.

Some traditional car makers have turned to manufacturing hybrid vehicles, which combine the benefits of gasoline engines, and electric motors to provide improved fuel economy and reduced pollution. Even if the cost of hybrid vehicles is high, the Prius, a hybrid car built by Toyota, is today in high demand.

China is today the biggest manufacturer and consumer of electric bicycles and in Europe and north America big savings have been made using electric public transport systems.

Poor access to informal and unplanned settlements is a major concern in many urban centres of developing countries. Yet, the municipality of Medellin in Colombia, for example, has recently finalised the construction of a modern metro cable connected to the main city line enabling residents to move around the city in their thousands. "People living in this area are no longer considered second class citizen, they are proud of their modern and affordable transport system," the mayor said.



Innovations in household energy

The Sulabh Sanitation Movement has been promoting the construction of over 117 public toilets connected to **biogas** plants to provide clean energy for households in India. Effluents from the production of biogas are used as manure or are simply discharged safely into the environment without causing pollution. The biogas generated from this anaerobic digestion process is used for cooking, street lighting and electricity generation. A modified diesel engine can run on biogas by connecting the gas to its air filter. High-density settlements, slums, public markets and schools are ideal for toilet biogas plants.

Denmark, Holland, Germany, the United States and other developed countries have invested considerably in **wind energy**. Electricity from huge wind tower generators goes direct to the national

grid. Some countries like India, China, Egypt, have developed extensive wind farms to produce electricity. Recently, a small engineering company based in Nairobi's Kibera slums has started manufacturing and installing small-scale wind generators for domestic use to produce electricity for household needs. The *windcruiser* generators built by Craftskills Enterprises can provide enough electricity to run domestic lighting, television and radio, the fridge, computers and other home appliances. It has installed over 50 wind generators so far in both urban and rural areas. According to the manager, Simon Mwacharo Guyo, the price could come down dramatically if the demand increases.

Diesel engines can be converted to use vegetable oils such as jatropha oil. Such **bio-diesel** systems cause less pollution. India and Mali, both countries without oil reserves, have started production to reduce their dependence on imported fossil fuel. With a grant of 4 million US dollars, Mali plans to have a number of cars running on bio-diesel by 2009. The president of Mali recently inaugurated the first village electrified with jatropha oil in Keleya (3,000 inhabitants). The project uses a modified diesel engine to drive a generator that provides 10 hours electricity daily.

These innovations clearly demonstrate that the reduction of the dependency of global economy on conventional petroleum fuel is possible. It is therefore hoped that policy makers will give these systems greater support than they have up to now.



*Electric vehicles use high performance batteries that store electricity.
Photos © V. Kitio/UN-HABITAT*

Energy in crisis situations – a report from the Pakistan quake zone

ON 8 OCTOBER 2005, AT THE ONSET OF WINTER, AN EARTHQUAKE OF 7.6 MAGNITUDE STRUCK CLOSE TO MUZAFFARABAD IN PAKISTAN-ADMINISTERED KASHMIR, CLAIMING NEARLY 75,000 LIVES AND LEAVING MORE THAN 3 MILLION PEOPLE HOMELESS IN A NATURAL DISASTER THAT MAY TAKE A DECADE TO REPAIR. IN THIS SPECIAL REPORT FROM THE FIELD, *ALBERT REICHERT*, FIELD COORDINATOR FOR BHERI IN PAKISTAN ADMINISTERED KASHMIR (PAK), DISCUSSES THE NEED FOR BETTER AND MORE EFFICIENT ENERGY SOLUTIONS IN DISASTER SITUATIONS.

WITHIN DAYS, UN-HABITAT TEAMS were on the ground to assess the damage and support the humanitarian response. Partnerships were quickly established with World Wide Fund for Nature (WWF), who are implementing a resource conservation programme in Pakistan Administered Kashmir (PaK), les Architectes de l'Urgence (AU), and Edinburgh Direct Aid (EDA), who were preparing to deliver donated clothing and fuel efficient stoves to the affected areas.

The earthquake cut the road linking the Kotla Valley with the rest of Kashmir. The only access to this high valley now is by helicopter or by foot. Part of Machiara National Park, it is an area where WWF has a field office. When their staff and volunteers from Edinburgh Direct Aid were able to get to Bheri, the principal village in the valley, they found virtually every structure in the valley's 13 villages had been damaged or destroyed. This forced countless survivors to spend the winter where they were.

UN-HABITAT's engineering team worked closely with WWF, AU and the local population on the design of an appropriate transitional shelter. Energy efficiency and natural resource conservation were two of the key issues considered in the design. A demonstration shelter was put up at the WWF Conservation Centre in Islamabad to promote the idea.

The following month, with funding support from UNDP, UN-HABITAT began implementing its emergency shelter project in Machiara Tehsil in Pakistan Administered Kashmir and in the Siran Valley in North West Frontier Province.

The key consideration was to incorporate energy efficiency and natural resource conservation in the design of new shelter. As survivors struggled to rebuild temporary shelters, many were looking to the already depleted forests for wood that could be cut into beams and poles.

The team developed a design that relied on recycling structural timber from damaged homes. Thus, one of the prin-



Photo © A. Reichert

cipal pressures on the environment was alleviated.

A related challenge was that of energy efficiency. Open fires are the traditional mode of cooking, particularly in the mountains. There was a double-edged risk to consider – without any alternative, people would use the wood from battered homes or cut down trees. Again, neither option was acceptable.

Edinburgh Direct Aid offered each winterized shelter an energy-efficient stove, designed and manufactured locally with an extended chimney pipe to help heat the home and an optional water jacket to ensure a supply of hot water.

Additional energy efficient features include sandbag walls with A-Frame iron sheet roofing. Polypropylene bags were provided, which filled with pine needles or leaves, were packed under the tin roof to provide insulation from the cold.

After vetting those most desperately in need, village councils decide who gets priority for a new emergency home.

These include children who lost both parents, or those whose lands are at higher altitudes. Materials are transported along footpaths from a helipad in the valley and built by the people themselves with the help of locally trained staff.

Gulam Rabani, a beneficiary of the emergency programme, whose land is in the village of Jabrian at an altitude of around 7,000 feet (2,100 meters), said after that fateful day of 8 October – a date that will be etched in people's memories long into the future: "Our houses are de-

stroyed. There is nothing for our children. We are helpless."

But given the materials and assistance, soon afterwards, he had built a new shelter for his family, and helped build one for a neighboring widow whose eldest son died in the earthquake.

Today, the winter sun glints off the iron roofs of the new shelters. However, there are many people still living in lean-tos made from salvaged materials, or tents. A bitter New Year's Day snowstorm in Kashmir blanketed much of the Kotla Valley, causing many emergency tents to collapse.

All the shelters built by the programme survived the storm intact – the structures were strong enough to withstand the wind and snow, and the high sloping roofs prevented too much snow from accumulating.

The early successes of the shelter programme must be extended to over 400 more families in the Kotla Valley so that the most vulnerable can survive the rapidly deepening winter.

As this story illustrates, the design team used criteria that went far beyond the immediate availability of instant solutions to the critical shelter needs of the families affected by this earthquake.

While there is a clear role for tents in an emergency, there is also the need for more creative and sustainable shelter solutions.

The time to design these solutions, moreover, is at the immediate outset of an emergency. This will ensure that, from the very beginning, a long-term solution is being developed.

Others with better logistics capacity used what resources they had to get people under cover quickly, and for the most part, this meant fabric-based collapsible structures.

The "Habitat Winterised Shelter" by virtue of its sandbag construction, gabled roof structure which can easily be insulated, provides a considerably more energy efficient, well ventilated, and safer environment in Pakistan's harsh winter climate.

Tackling traffic jams - win-win transportation solutions

AS MORE AND MORE PEOPLE AROUND THE WORLD ARE ABLE TO AFFORD THEIR OWN CARS, AND DAILY TRAFFIC JAMS AND POLLUTION GET WORSE IN CITIES RICH AND POOR, HOW DO WE FIND AN EASIER WAY THROUGH THE URBAN SPRAWL? HERE *TODD LITMAN*, OF THE VICTORIA TRANSPORT POLICY INSTITUTE IN VANCOUVER, CANADA, PRESENTS SOME OF THE LATEST THINKING, AND FRESH IDEAS IN URBAN TRANSPORT PLANNING.

SUSTAINABILITY IN URBAN TRANSPORT is sometimes defined narrowly, focusing on a few impacts such as fossil fuel depletion and air pollution. But it is increasingly defined more broadly to include a variety of economic, social and environmental issues. For example, narrowly defined sustainability implies that sustainable transportation can be achieved by simply shifting to solar or nuclear-powered vehicles. But broadly defined sustainability requires additional transportation system changes and better planning, both to reduce accidents and provide non-drivers with better transport options.

Conventional transport planning leaves specific problems assigned to agencies with narrowly defined responsibilities: Transportation agencies are primarily responsible for reducing traffic congestion problems, social agencies are responsible for helping disadvantaged people, and environmental agencies are responsible for reducing energy consumption and pollution.

This type of planning tends to be inefficient, because individual agencies often implement solutions to their problems which exacerbate other problems facing society. It also tends to undervalue solutions that provide modest but multiple benefits. For example, roadway widening may help reduce traffic congestion – but it indirectly increases vehicle travel, parking costs, consumer costs, accidents, fuel consumption and pollution. Conversely, some energy conservation strategies, such as incentives for motorists to choose more fuel-efficient vehicles, may reduce total energy consumption, but because this reduces the per-kilometre cost of driving, it tends to increase per vehicle annual mileage, and so increases traffic congestion, parking costs, consumer costs and accidents.

In Victoria, we have identified a number of transportation planning reforms that help create more diverse and efficient transportation systems, which we call “Win-Win Transportation Solutions” because of their multiple benefits. These are cost-effective, technically feasible reforms that help solve transport problems by correcting existing market distortions that result in econom-

ically excessive vehicle travel. As a result, they help achieve a combination of economic, social and environmental planning objectives, including reduced traffic congestion, road and parking facility savings, consumer savings and choice, equity, safety and environmental protection.

A major barrier to more sustainable transportation is the perception that economic and environmental goals conflict. Some people oppose climate change emission reduction programmes on the grounds that they reduce economic development. But *win-win solutions* can provide a combination of economic, social and environmental benefits.

Although individually their impacts may appear modest, typically affecting a small portion of total travel, their effects are cumulative. These are some solutions:

Least Cost Planning

Least-cost planning, or Integrated Planning considers demand management solutions. It involves the public in developing and evaluating alternatives, such as using roadway expansion funding for transit improvements, rideshare programmes or mobility management programmes.

Parking Management

Parking Management entails more efficient use of existing parking facilities –shared parking, flexible minimum parking requirements, and more direct user charges.

Commute Trip Reduction

Commute Trip Reduction programmes encourage people to reduce car trips. Typically they use a variety of incentives

and support to reduce peak-period driving, including better cycling facilities and flexible working hours.

Transit Improvements

There are many ways to improve public transit, including better vehicles and stations, more frequent service, reduced crowding, improved walking conditions to transit stations, and HOV Priority for High Occupant Vehicles (buses, vanpools and carpools) priority over general traffic, so public transit travel is faster and more efficient.

Walking and Cycling Improvements

Walking and cycling travel can substitute for some motor vehicle trips. Communities with good walking and cycling conditions drive less.

Smart Growth Land Use Policies

Smart Growth land use policies encourage the development of more compact, mixed, walkable, transit-oriented communities.

Traffic Calming and Management

Traffic calming reduces speeds and volumes on specific roads. Typical strategies include traffic circles at intersections, raised crosswalks, and partial street closures to discourage short-cut traffic through residential neighbourhoods.

Road Pricing

Road pricing means that motorists pay directly for driving on a particular roadway or in a particular area. Transportation economists have long advocated road pricing as a way to fund transportation improvements and to reduce congestion.

Pay-As-You-Drive Pricing

Pay-As-You-Drive (PAYD) pricing means that vehicle insurance premiums and other fees are based directly on how much it the vehicle is driven. This provides a significant financial incentive to reduce driving, while making these charges fairer and affordable.

Bangkok has cut its traffic. Photo © B. Williams.



Better kitchens make for better energy use and healthier homes

THE ROLE OF THE KITCHEN HAS BEEN LONG NEGLECTED BY ARCHITECTS, ENGINEERS AND HOME USERS THEMSELVES, WHEN IT COMES TO ENERGY USE FOR SUSTAINABLE DEVELOPMENT, WRITES *MARIA NYSTRÖM*, AN EXPERT AND AUTHOR ON KITCHENS AT LUND UNIVERSITY IN SWEDEN.

CONDITIONS LIKE THOSE DESCRIBED by the Nobel literature laureate, Mr. V.S. Naipaul, persist today in many developing countries. The kitchen, after all plays a most important role in the home, and has done so throughout history dating back to some of the earliest archaeological remains of early human settlements. However, the role of the kitchen has been neglected by architects, engineers and people at home.

Why should the kitchen be given high priority? Because it plays a key role as the place where family meals are prepared and cooked, and where the energy and technology requirements of a dwelling intersect. It must be safe, efficient, clean and healthy. In reality, as discovered by Mr. Biswas, neglect makes the kitchen a frequently dangerous and unhealthy place for those working or spending time there. In developing countries, those are predominantly women and children.

Where traditional fuels are used, which is the case for over the half of the population of the world, kitchen users are exposed to indoor air pollution, with the risk of acute or chronic respiratory diseases, cancers, or carbon monoxide poisoning. Burns and scalds from unprotected stoves and fires are also major health hazards, especially among children. Other risks come with increasing

"Then Mr Biswas had another surprise. Through the doorway at the far end he saw the kitchen. And the kitchen had mud walls. It was lower than the hall and appeared to be completely without light. The doorway gaped black; soot stained the wall about it and the ceiling just above; so that blackness seemed to fill the kitchen like a solid substance" –

V.S. Naipaul in
A House for Mr Biswas.

use of modern and supposedly safer sources of energy such as electricity. This can be an unforeseen cause of danger due to poor understanding by the user of the risk of open wires or contact with water.

Energy saving cooking stoves have come in for a good deal of attention the recent decades, mainly because of deforestation, desertification, energy crises, environmental pollution, and other problems connected on the global level. The main reason why much attention is given to stoves is that cooking demands a lot of energy. Some 50-70 percent of all the wood used in the world ends up under someone's cooking pot.

Experience with previous stove projects shows that economic realism alone will not persuade people to accept a new stove. People's cooking patterns often lie deep in tradition, and behaviour cannot meet priorities like time saving and energy efficiency. Technology change requires that the stove and its immediate surroundings, as well as the user must be included. The time and energy saving argument has not been strong enough to persuade families to use better stoves.

The first step in designing a kitchen is to learn to understand the kitchen environment, acknowledge and learn about local customs, practices, and traditions so that the people living in a home have a say in what is best.

It is important to recall that the whole range of culinary activities defines the boundaries of kitchens. These may take place indoors, outdoors, or both. Architects and engineers must take thinking beyond physical walls into account.

The kitchen area is a complex environment with the *culinary activity chain* as its main function.

This process has a flow of activities and sub-systems. These entail food preparation, cooking, dishing up, dining, washing up, drying and storage. Kitchen activities are linked to working positions, sitting, standing, squatting or bending while cooking.

Saturating the market with energy saving cooking stoves, or extending stove projects so that they comprise the entire culinary area, is not enough if the aim is to reduce and optimize energy consumption of households.

Household energy is more than fuel for cooking. Water for washing and drinking must be heated, the house must be heated or cooled, lighting is required, animal food must be boiled.

The design of a house, a neighbourhood and a city is therefore of great importance for indoor climate, congenial surroundings, energy consumption patterns, and to health and well-being.



New and old kitchen technology. Photos © V. Kitio/UN-HABITAT

Preparing cities for a world of expensive oil

In the next 20 years, the world's cities will go through a fundamental transformation, writes Walter Hook, Executive Director of the Institute for Transportation and Development Policy in New York. Not only will cities in many developing countries expand greatly in size and population, but they will have to serve the basic mobility needs of their people in a world of much higher oil prices.

IN THE SECOND HALF OF THE 20TH CENTURY, MANY CITIES IN the world began to emulate the transportation policies of the United States. Developing countries admired US automobile culture, and borrowed US highway design methodologies to reshape their cities around the automobile. Back in the 20th Century, this didn't seem unwise.

Oil prices reached historically low levels, and large, important sectors of the global economy were still engaged in vehicle manufacturing. The cities that grew out of these underlying economic fundamentals tended to make it easy to drive anywhere, and virtually impossible for a person, no matter how motivated, to walk or cycle safely.

The American city was the ultimate manifestation of this economic structure. Roughly 90 percent of Americans rely on private cars for their daily commute, even for very short trips.

In New York City, with the largest mass transit system in the United States, about a third of the population still drives to work. Roughly 72 percent of these trips are less than 5 miles (8km), and 22 percent less than a mile. The average passenger vehicle weight in the US in 2004 was around 4,000 pounds (1,814 kg). Only in the US would so many people find it necessary to move a vehicle of such weight for a short trip. This is why the US consumes roughly a quarter of the world's annual oil production.

In developing countries, where per capita incomes are sometimes as low as a dollar a day, only the wealthiest 10 percent of the population are likely to own a private vehicle in their lifetime, so the domination of public space by the motor vehicle directly translates into domination of public space by the ultra-rich. Because population densities are frequently so much higher than in the US, expanding roads in the developing world is generally much more expensive and socially difficult, requiring the forcible relocation of far more people and buildings. As a result, congestion tends to become a problem at much lower levels of motor vehicle ownership. Furthermore, higher density also means more people are immediately exposed to traffic related noise and air pollution. With far more pedestrians and weaker enforcement of poor driving, many more road users are killed. In China, for example, the number of pedestrians killed each year is a state secret, but in one major city with a population of 8 million, there are some 1,000 fatalities a year – roughly double New York with a similar size population.

As large cities of the developing world emulate the American way, obesity and obesity related diseases are rapidly spreading to the developing world as walking and cycling become more difficult. City center blight, a phenomenon previously restricted to the US, is now afflicting many Latin American cities.

There are, however, clear signs this late 20th Century auto-centric adolescence is beginning to pass. While China, Brazil and India become the most important producers of motor vehicles, in the US and many other countries, the importance of motor vehicle manufacturing as a source of employment and GDP growth is dropping rapidly as part of a general trend towards de-industrialization.

Secondly, oil prices are going up. The International Energy Agency (IEA) predicts annual oil consumption will rise by 50 percent between now and 2030, as the US continues to sprawl and the population centers in the developing world motorize. While the IEA says oil prices will remain roughly stable for another two decades, a growing number of experts are challenging this. In his new book *Twilight in the Desert*, Matthew Simmons claims, that Saudi Arabia, for example, is already at its maximum production level.

However, higher oil prices may be compensated by lower vehicle costs. China, India, Brazil, Mexico, and other developing countries have moved heavily into motor vehicle manufacturing, and are producing vehicles at incredibly low costs by historical standards. One can buy a new passenger car in India today for only about 5,000 US dollars, and ultra low-cost Chinese motorcycles are flooding into southeast Asia.

Politicians should be preparing themselves for days of expensive oil, cheaper vehicles, few motor vehicle manufacturing jobs, and tight competition for limited road space. Where no government action is taken, the clear winner in this emerging transport market place will be the motorcycle. In China, motorcycle and electric bicycle sales have skyrocketed. In India, Indonesia, Vietnam, and other parts of south and southeast Asia, motorcycles are an exploding share of the vehicle traffic. Even in Brazil, motorcycle use has grown hugely. While still relatively rare in Africa, motorcycles have also spread to Burkina Faso, northern Kenya, and Uganda, and their success presages a rapid growth in motorcycle use in Africa.

Their affordability helps millions of poorer people travel cheaply using relatively little fuel. Like bicycles, they are also extremely efficient users of road space. But their increasing use is generally also accompanied by escalating road fatalities, dangerous particulate air pollution, and irritating noise pollution. These problems can be solved by regulation. In Kuala Lumpur, Malaysia, an increasing number of Chinese cities like Chengdu, and in The Netherlands as well, bicycle facilities are shared with motorcycles.

A growing number of dynamic mayors and governors are winning political power by challenging the needs of motorists over the needs for public space and decent facilities for transit and non-motorized modes. The Mayor of Bogota cancelled a massive ring road and used the money to build 300 km of bike lanes, a state of the art bus rapid transit system, more libraries, playgrounds, and schools. (see page 18). The Mayor of Seoul, Korea, built a 50-mile bus rapid transit system, tore down an elevated highway in the city center, and built many new parks and public spaces. The Governor of Jakarta has already constructed three bus rapid transit lines. Pedestrian zones are also springing up all over Chinese cities.

Learning from Bogota's bus transport system

THE COLOMBIAN CAPITAL, BOGOTA, HAS ESTABLISHED A SMART NEW BUS NETWORK USING ADVANCED STATE-OF-ART TECHNOLOGY AND COMMON SENSE TO BEAT ITS NOTORIOUS TRAFFIC CONGESTION. SARA CANDIRACCI OF UN-HABITAT'S ENERGY AND TRANSPORT SECTION EXPLAINS HOW GOOD URBAN MANAGEMENT AND PLANNING CAN MAKE A REAL DIFFERENCE.

FOR DECADES, BOGOTA WAS KNOWN FOR its chaotic traffic, air pollution and slow, bewildering public transport. Since the beginning of January 2001, Bogota's traffic management system has found an advanced state-of-the-art alternative to daily traffic congestion. As part of a comprehensive urban mobility strategy, including the promotion of non-motorised transport and restrictions on automobile use, the municipality of Bogota has developed the *TransMilenio* rapid bus transit system. It was set up in partnership with a host of local agencies and private companies.

The system is based on a network of reserved bus lanes along major arterial roads, with stops every 500 metres on average. The trunk routes are served by articulated diesel buses that have a capacity for 160 passengers each. These in turn are served by special feeder routes with smaller buses that can carry 80 people at a time.

The trunk lines have express buses that stop only at selected stops, and others that pull in at every stop. This has enabled the city's new system to carry up to 45,000 passengers per hour in each direction.

The service is operated by private local transport companies associated with national and international investors. By the end of 2002, 750,000 passengers per day were carried along 41 kilometres of lanes reserved for buses only. During peak hours, 35,000 passengers per hour per in each direction were being transported in the busiest section. *TransMilenio* is designed to expand over a 15-year period to include 22 corridors with 388 kilometres of reserved lanes, served by 3,000 articulated buses able to carry 1.3 million passengers daily.

The system is run by a satellite control centre linked to GPS receivers on each bus enabling controllers to keep track of progress and problems along any given route at any time.



These pictures show Bogota's new Rapid Bus Transport System. Photo © Transmilenio.

The new bus network, which cost 297 million US dollars, is funded by fuel taxes to the tune of 46 percent, 28 percent from local Central District administration, 20 percent from the central government, and a 6 percent World Bank loan. Three percent of the funding comes from ticket sales. The tickets, which cost the equivalent of 52 US cents each, are transferable and valid on all routes, including the suburbs that are yet to be served by the new network.

The new system seeks to uphold quality and consistency of services, reduced fuel consumption in the city, respect for human life and reduced accident rates, affordability, quicker journey times, and inclusiveness – especially for the estimated 9,500 people with disabilities who travel by bus every day.

The benefits include a 50 percent cut in journey time, less noise and a 40 percent reduction in air pollution. There has also been a 90 percent drop in accidents

along the trunk routes. It has also brought about a 40 percent peak time reduction in private car use, and has created 7,300 full-time jobs and 10,000 part-time jobs.

The *TransMilenio* system's ability to carry 750,000 people a day at a low cost serves as an example for public transport operators around the world, especially in developing countries with huge needs and limited funds.

The new Bogota mass transit experience is now being studied for implementation in other cities. The medium sized Colombian towns of Ibagué, Bucaramanga and Pereira, each with 500,000 to 1 million inhabitants, are currently preparing projects to set-up similar bus systems, using reserved bus routes and economic incentives.

Elsewhere in Latin America – in Valencia, Venezuela, Panama City and Lima – local authorities are seriously studying the Bogota experience with a view to replicating it.



Better bus networks are the best option for cities in the developing world

The growing number of private cars in developing nations casts a worrying shadow over the projected course of global greenhouse gas emissions. But most cities in the developing world still possess the basis for a more sustainable future through public transport, especially bus rapid transit systems, write two leading experts, Lewis Fulton of the United Nations Environment Programme (UNEP/GEF) and Lloyd Wright of University College London.

PUBLIC TRANSPORT AND NON-MOTORIZED TRANSPORT WALKING and cycling still command a dominant share of city travel in developing countries. Unfortunately, the quality of these modes is often quite poor with regard to security, comfort, convenience and prestige. This situation calls for a revolution in public transit services in particular. It is one that can be achieved by *bus rapid transit* (BRT) systems.

In short, BRT systems are like surface metro systems, with large capacity (often articulated) buses running on dedicated road lanes, with well designed bus stations typically spaced a half kilometre apart that serve as city development hubs much like underground metro stations. The big advantage of BRT over underground or overhead metro rail systems is cost: it can typically be constructed for as little as 1/50th the cost of such rail systems.

These systems as developed in cities such as Bogotá (*see opposite page*) and Curitiba have an impressive record.

BRT networks can save large amounts of motor fuel, and reduce large amounts of greenhouse gas emissions at relatively low cost, compared to the status quo – where no such investments are made and a steady shift to private vehicles occurs. Their savings also compare quite favourably to technology substitutions – such as shifts to more efficient or alternative fuel buses, but without major upgrades to the bus *system*.



Overall, we have found that there is a clear potential for using “bus rapid transit” and related measures (e.g. pedestrian and cycling enhancements) to provide large reductions in fuel use and CO₂ emissions at quite low cost compared to vehicle and fuel technology-oriented solutions. In the process, efficient urban mobility systems can be preserved and enhanced around the world.

Perhaps the principal challenge that must be faced to get BRT systems built is political will. Though these systems provide clear benefits, they also can be strongly opposed by certain groups, such as existing automobile drivers (who might lose some road space) and existing bus drivers (who might fear losing their jobs – though this need not be the case). Thus the challenge ahead lies largely in convincing mayors and other decision makers and stakeholders of the benefits of BRT systems.

There is nothing more convincing than a trip in one of the “success story” cities such as Bogotá. The more cities that adopt high-quality BRT systems, the more examples will exist, and the easier the task will be to convince more cities to take the plunge.

With cities such as Dar es Salaam (Tanzania), Delhi (India), Hangzhou (China), Lima (Peru), and Santiago (Chile) now developing such systems, there is a good chance to get the needed momentum going.

Public transport on the decline

City	Earlier year	Public transport as a percentage of motorized trips	Later year	Public transport as a percentage of motorized trips
Bangkok	1970	53	1990	39
Buenos Aires	1993	49	1999	33
Kuala Lumpur	1985	34	1997	19
Mexico City	1984	80	1994	72
Moscow	1990	87	1997	83
Sao Paulo	1977	46	1997	33
Seoul	1970	67	1992	61
Tokyo	1970	65	1990	48
Shanghai	1986	24	1995	15
Warsaw	1987	80	1998	53

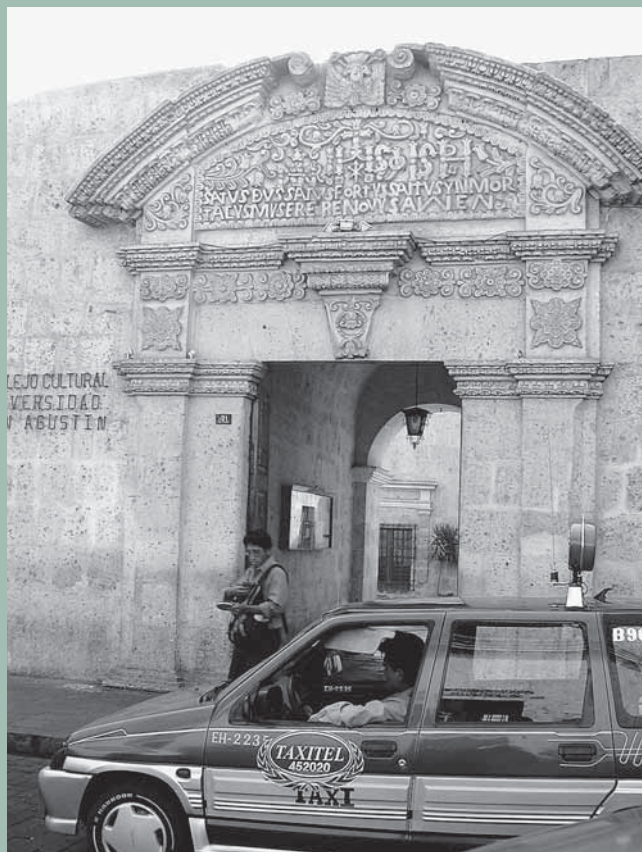
Source: WBCSD (2001).

New stoves for nature conservation at Mount Kilimanjaro

In a bid to curtail deforestation in the foothills of Africa's highest mountain, Mount Kilimanjaro, the Green Garden Women's Group in 2003 started a drive to ensure that local public institutions like schools use energy efficient stoves that burn less wood. The Moshi City Council is implementing the programme. In an example of how successful the programme has been, one local primary school alone used a lorry load of wood every week for school meal cooking fires. Considerable energy was wasted, and kitchen staff suffered respiratory and eye ailments. The Green Garden Women's Group stepped in, helped build a new stove for the school with proper ventilation, and trained the cooks to use it properly. Today the school kitchen needs only one lorry load of wood a month to prepare the same number of daily meals. *For further information see: Sustainable Moshi Project, smpmoshi@moshimc.org*



The new energy saving stove in a spotless school kitchen. Photo ©: Sustainable Moshi Project



Another taxi in Arequipa. Photo ©: K. Buhren/UN-HABITAT

Arequipa, Peru - more taxis than in Manhattan

The first and lasting impression of the beautiful Plaza de Armas in the town of Arequipa, some 450 km west of the capital La Paz, is the huge number of cars obstructing views of historic buildings. On an average, 50 cars cross the old town square every minute. Over the last 13 years, the number of cars has been growing and growing. Most are used as taxis, and local people say the town has more taxis than Manhattan. As a result, air pollution has become a major problem in Arequipa where studies show that vehicle emissions account for 61,000 thousand tons of atmospheric contaminants a year, posing serious health risks for residents. In a bid to improve the situation, a local Agenda 21 programme to strengthen municipal environmental management in Arequipa was started in 1999. This led to the creation of an environment department in the city council. Last year, Arequipa became the first city in the world to publish an environmental assessment report in collaboration with UNEP and UN-HABITAT. Arequipa will now focus on urban mobility and transport problems, and keep track of its problems through an Environmental Management Information System. *For further information see: The GEO Cities Report on Arequipa, www.pnuma.org/geociudades/*



Huge savings are made from this new waste-burning biogas plant at the Sri Vajira Children's Home. Photo ©: Sri Lanka Sustainable Cities Programme

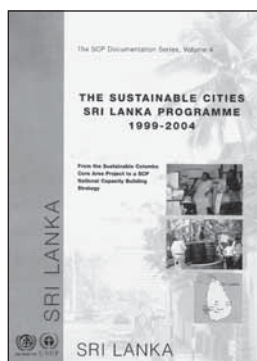
Biogas in Kotte, Sri Lanka

The rising cost of water, electricity and cooking gas at the Sri Vajira Children's Home in a Buddhist Temple in Kotte, Sri Lanka, has become a growing problem in premises housing some 300 children and 45 staff. Until the installation of a new biogas plant, the cost of meals and tea was averaging 280 US dollars a month for gas and water. The municipality chose the home for the new biogas plant fueled by household and market waste as a demonstration project because of the immediate benefits it would have for poor children. Taking into account installation costs of just over 1,000 dollars, the plant has helped the home save more than 300 dollars a year in electricity costs. It has also helped the municipality cut its own electricity costs by double that amount. The project is an example of how both the home and municipality have benefited. The city council has now stepped in with a campaign to replicate the system at household level. But it is having little success, showing that there is no one-size-fits-all solution even in the same community. Together with the Sustainable Cities Programme, Kotte is working on a new solution to produce renewable energy at low cost for its residents. *For further information see: www.irc.nl/bus*

-compiled by Karin Buhren and Cecilia Kinuthia-Njenga, of UN-HABITAT's Sustainable Cities Programme.

The Sustainable Cities Sri Lanka Programme, 1999-2004

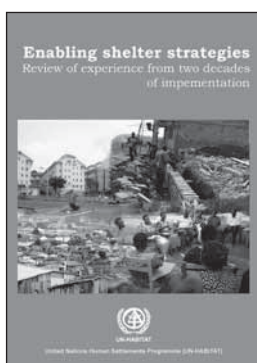
ISBN: 92-1-1-131748-7
 Language: English
 Publisher: UN-HABITAT/UNEP



This publication is a complete review of the Sustainable Cities Programme in Sri Lanka and its impact over the period 1999-2004. It explains how three municipal councils in the Greater Colombo Core Area developed institutional mechanisms and approaches to devise participatory environmental planning and management. The programme is now in its third phase, and this work running into 34 pages is an important contribution to the understanding of urban management in Sri Lanka.

Enabling Shelter Strategies - Review of experience from two decades of implementation

ISBN 92-1-131767-3 (printed version)
 ISBN 92-1-131543-3 (electronic version)
 HS/785/05E
 Language: English
 Publisher: UN-HABITAT

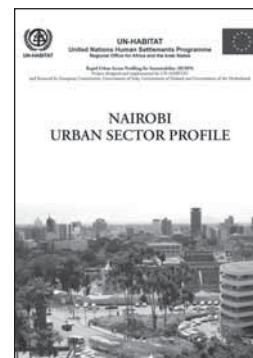


This well sourced comprehensive report running into more than 200 pages has been prepared as part of UN-HABITAT's role in monitoring the implementation of the Habitat Agenda. The report's review of experiences with enabling shelter strategies is a contribution towards the formulation of better housing and urban development policies. Indeed, the formulation and application of effective enabling shelter strategies are crucial to the full and progressive realization of the right to adequate housing and the achievement of adequate shelter for all.

Nairobi Urban Sector Profile

ISBN: 92-1-131803-3
 HS/802/05E
 Language: English
 Publisher: UN-HABITAT

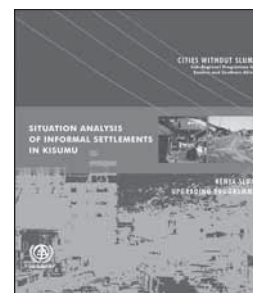
The Rapid Urban Sector Profiling for Sustainability (RUSPS) consists of a rapid, action-oriented assessment of urban conditions, focusing on priority needs, capacity gaps and existing institutional responses at local and national levels. The purpose of the study is to develop urban poverty reduction policies at local, national and regional levels, through an assessment of needs and response mechanisms, and as a contribution to wider-ranging implementation of the Millennium Development Goals. This work carries the latest data and indicators on the Kenyan capital, Nairobi.



Situation Analysis of Informal Settlements in Kisumu

ISBN: ISBN/92-1-131765-7
 HS/ HS/783/05E
 Language: English
 Publisher: UN-HABITAT

This is a look at Kisumu City's partnership with UN-HABITAT under the Cities Without Slums (CWS) initiative. Part of the Kenya Slum Upgrading Programme (KENSUP) framework, the upgrading programme in Kisumu on the shores of Lake Victoria, has commenced in earnest and is expected to comprehensively transform the living status of the majority poor resident in the slums. This situational analysis report is part of the initial outputs aimed at providing baseline information to further inform the process. It presents a logical analysis of the current slum conditions focusing on land problems, housing, infrastructure, social services and general livelihood.



To order these and any other publications, go to www.unhabitat.org and click on publications

Further Italian housing finance for Serbia

UN-HABITAT has received 8.5 million dollars from the Italian Government for a social and housing integration programme for tens of thousands of war refugees and other vulnerable people in Serbia. The funds received on 27 December 2005, are the second allocation of a total of 15 million euros Italy is disbursing for the programme. The first portion of the funding was disbursed a year ago. The programme aims to provide some 670 new homes for 3,000 refugees and vulnerable people, to build institutional capacities for social housing development, assist the social and economic integration of refugees and displaced people, and help boost the development capacity of local governments in their development planning and municipal information systems. UN-HABITAT, in collaboration with the Ministry of Capital Investments, has been implementing the programme with the Municipalities of Cacak, Kragujevac, Kraljevo, Nis, Pancevo, Stara Pazova and Valjevo. Known as the Settlement and

New Deputy Executive-Director takes office

Ms. Inga Björk-Klevby, took office in January as Assistant Secretary-General of the United Nations and Deputy Executive-Director of UN-HABITAT. A Swedish national, she was appointed by UN Secretary-General Kofi Annan last October while serving as her country's ambassador to Côte d'Ivoire, Burkina Faso, Guinea, Liberia and Sierra Leone. She was previously in charge of Sweden's international development cooperation policies, programmes and budget. She also worked for more than two decades in international finance at the Central Bank of Sweden, the International Monetary Fund (IMF), the World Bank, the Asian Development Bank and the African Development Bank. "I am delighted to welcome Ms. Björk-Klevby to UN-HABITAT," said Mrs. Tibaijuka. "With her distinguished diplomatic and professional career and her commitment to international development, Mrs. Björk-Klevby will make an important contribution to the success of this organization and the worldwide implementation of the Habitat Agenda."

UN-HABITAT salutes Emmanuel Dierckx de Casterlé

Emmanuel Dierckx de Casterlé, UNDP Resident Representative in Morocco will retire soon. UN-HABITAT wishes to acknowledge his support to its programmes in Morocco that he nurtured closely for five years. These include the implementation of a series of Local Agenda 21 projects and the launching of the two campaigns. Mr. De Casterlé extended his tireless support and advice to our colleague Monceyf Fadili, the Habitat Programme Manager in Morocco. We also wish to acknowledge the expert follow-up and backstopping work done by our colleague Jean-Christophe Adrian, who was instrumental in attracting the interest of UNDP to the activities of the Agency in Morocco.



During his previous tenure in Mozambique, Mr de Casterlé also actively contributed to the success of UN-HABITAT's post-flood reconstruction programme in 2000.

New agreement with the Stability Pact for South Eastern Europe

UN-HABITAT and the Stability Pact for South Eastern Europe signed a co-operation agreement in January paving the way for improving urban development and social housing in southeast Europe. Officials said the new Regional Capacity Strengthening Programme for Urban Development and Housing in South Eastern Europe (RCSP) came into being primarily because economically motivated rural-urban migration flows was putting enormous pressure on urban housing markets.

A global Internet discussion of urban and shelter problems

From internet cafes in the slums of Nairobi, New Delhi and Lima to flashy office blocks in Europe and north America, thousands of people from around the world beamed into the Habitat Jam in December for a global internet discussion of urban problems aimed at bringing fresh ideas from ordinary people to leaders and experts preparing for the third session of UN-HABITAT's World Urban Forum in Vancouver next June. For three days, they participated in 50 World Urban Cafe Jam Sessions in slums in Africa, Latin America, and Asia. Each session, specifically held for those without access to computers or the Internet, sought to capture the ideas and concerns of people living in slums.

Upcoming events

Velo-Mondial 2006,

A bi-annual international mobility conference involving the World Bank, UNDP and transport NGO's, Cape Town, 5-10 March 2006.

World Bank Energy Week

Washington, 6-8 March 2006

Fourth World Water Council

Mexico City, 16-22 March 2006

African Ministerial Conference on Housing and Urban Development

Nairobi, 2-5 April 2006

International Workshop on Climate Change and Sustainable Development

Organized by UNDESA in cooperation with Tata Energy Research Institute, New Delhi, 7-8 April 2006.

The Fourteenth Session of the Commission for Sustainable Development (CSD-14)

Will review progress in Energy for Sustainable Development, Industrial Development, Air pollution/atmosphere; and Climate change.

UN Headquarters, New York 1-12 May 2006.

Third Session of the World Urban Forum,

Organized by UN-HABITAT and the Government of Canada, 19-23 June Vancouver, Canada

The third session of the World Urban Forum is hosted by the Canadian Government in Vancouver, the birth place of UN-HABITAT 30 years ago. The theme of the forum 9-23 June is *Our future: Sustainable cities - turning ideas into action.*

A note of thanks

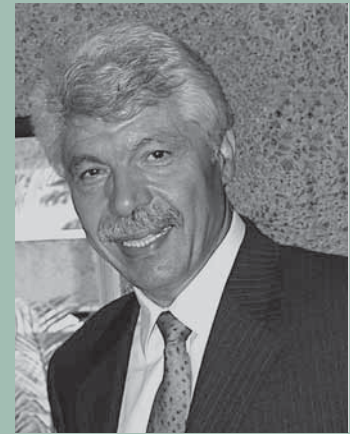
Mr. Daniel Biau is relinquishing the Chairmanship of the Editorial Board after seven years at the helm of *Habitat Debate*. Mr. Biau, Director of UN-HABITAT's Regional and Technical Cooperation Division, helped oversee the redesign of the flagship quarterly magazine into a new, more modern, reader-friendly format, and more importantly guided its substantive content.

Mr. Biau, a French national, devoted considerable energy and much of his personal time going through every article and every input into each issue of *Habitat Debate*, often working late into the night, and re-reading pieces three or four times if necessary, to ensure that our audience was always presented with a fine, informative product.

During his seven years of tenure, Mr. Biau brought with him not only a considerable institutional knowledge of UN-HABITAT and its relationships with our partners in government, municipalities and civil society, but also his considerable experience and knowledge in the field of improving human settlements around the world. Above all, it was his personal interest and devotion to *Habitat Debate* that has served to make the magazine one of the most authoritative publications in its field.

The Editor and Members of the Board wish to take this opportunity to say thank you to our colleague Daniel, and to wish him well in his current functions. As the agency weighs the appointment of a new Chairman to be announced in coming months, it goes without saying that Mr. Biau will continue to write for *Habitat Debate*.

Merci Daniel!



UN-HABITAT OFFICES

Headquarters

UN-HABITAT

P.O. Box 30030, GPO,
Nairobi, 00100, Kenya
Tel: (254-20) 7 623120
Fax: (254-20) 7624266/7624267/
7624264/7623477/7624060
E-mail: infohabitat@unhabitat.org
Website:
<http://www.unhabitat.org/>

Regional Offices

Africa and the Arab States

UN-HABITAT Regional Office for
Africa and the Arab States
P.O. Box 30030, GPO,
Nairobi, 00100, Kenya
Tel: (254-20) 7621234/7623221
Fax: (254-20) 7623904/7623328
(Regional Office)
7624266/7 (Central Office)
E-mail: roaas@unhabitat.org
Website:
<http://www.unhabitat.org/roaas/>

Asia and the Pacific

UN-HABITAT Regional Office for
Asia and the Pacific
ACROS Fukuoka Building, 8th Floor
1-1-1 Tenjin, Chuo-ku
Fukuoka 810-0001, Japan
Tel: (81-92) 724-7121
Fax: (81-92) 724-7124
E-mail: habitat.fukuoka@unhabitat.org
Website: <http://www.fukuoka.unhabitat.org>

Latin America and the Caribbean

UN-HABITAT Regional Office for
Latin America and the Caribbean
(ROLAC)/Oficina Regional para
America Latina y el Caribe (ROLAC)
Av. Presidente Vargas, 3131/1304
20210-030 - **Rio de Janeiro RJ, Brazil**
Tel: (55-21) 2515-1700
Fax: (55-21) 2515-1701
E-mail: rolac@habitat-lac.org
Website: <http://www.unhabitat-rolac.org>

Liaison Offices

New York Office

UN-HABITAT New York Office
Two United Nations Plaza
Room DC2-0943
New York, N.Y. 10017, U.S.A.
Tel: (1-212) 963-8725/963-4200
Fax: (1-212) 963-8721
E-mail: habitatny@un.org

Geneva Office

UN-HABITAT Geneva Office
ONU-HABITAT Bureau de Genève
Maison Internationale de l'Environnement 2
International Environment House 2
7, Chemin de Balexert, 5th Floor
CH-1219 Châteline, Genève
Postal address:
UN-HABITAT Geneva Office
Palais des Nations
Avenue de la Paix 8-14
CH-1211 **Genève 10, Switzerland**
Tel: (41-0) 22 917-86 46/7/8
Fax: (41-0) 22 917-80 46
E-mail: habitatqva@unog.ch
Website: <http://www.unhabitat.org>

European Union Office

UN-HABITAT Liaison Office
with the European Union and
Belgium
14 rue Montoyer
B-1000 **Brussels, Belgium**
Tel: (32-2) 503-35-72
(32-2) 503-1004
Fax: (32-2) 503-46-24
E-mail: unhabitat@skynet.be or
unhabitat.admin@skynet.be
Website: www.unhabitat.org

Information Offices

Hungary

UN-HABITAT Information Office
H-1124 **Budapest**
1077 Budapest, VII. Kéthly Anna tér 1.II.38.
Hungary
Tel/Fax: (36-1) 441 7737
E-mail:
horcher@unhabitat.datanet.hu

India

UN-HABITAT Information Office
5th Floor (East Wing)
Thalamuthu Natarajan Building
(CMDA Building)
Egmore, **Chennai 600 008 India**
Tel: (91-44) 2841-1302
Fax: (91-44) 2851-6273
E-mail: unchssp@md2.vsnl.net.in

China

UN-HABITAT Beijing Information Office
No. 9 Sanlihe Road
Beijing 100835 People's Republic of China
Tel: (86-10) 6839-4750, 68350647
Fax: (86-10) 6839-4749
E-mail: office@unhabitat.org.cn
Website:
<http://www.cjn.gov.cn/habitat>

Russian Federation

UN-HABITAT Executive Bureau in
Moscow
8, Stroiteley Street,
Building 2
Office 809
Moscow, 119991 Russian Federation
Tel: (7-095) 930-6264
Fax: (7-095) 930-0379
E-mail: unhabitat@gosstroy.gov.ru
URL: www.unhabitatmoscow.ru



The Third Session of the World Urban Forum



The World Urban Forum, held every two years, was established by the United Nations to examine one of the most pressing issues facing the world today: rapid urbanization and its impact on communities, cities, economies and policies. It is projected that in the next 50 years, two-thirds of humanity will be living in towns and cities. The major challenge facing us is to reduce growing poverty in cities. We must improve the access of the urban poor to better shelter, and basic services like clean water and sanitation so that we can achieve environmentally friendly, sustainable urban growth and development.

The third session of the World Urban Forum (WUFIII) will be hosted by the Government of Canada in Vancouver, the birthplace of UN-HABITAT 30 years' ago. The theme of the forum 19- 23 June, will be, Our Future: Sustainable Cities – Turning Ideas into Action. As in past years, the forum is expected to attract a wide range of partners, from non-governmental organisations, community-based organisations, urban professionals, academics, to governments, local authorities and national and international associations of local governments. Many of these participants include senior government leaders, and some of the world's leading experts and foremost thinkers on urbanisation and how to manage it. Already 1 billion people around the world live in slums. That figure is set to double in the next 30 years if we fail to achieve the Millennium Development Goals.

The level of participation in the forum has grown with each session. The first World Urban Forum in Nairobi in 2002 drew 1,200 participants, a figure that doubled to 4,400 at the second session in Barcelona in 2004. The forum is successful because it does not follow the formal rules of procedure that usually govern official UN meetings, and its working arrangements are deliberately kept simple and relatively informal to generate a healthy and inclusive debate on urban issues.

The main theme of this session is **Our Future: Sustainable Cities – Turning Ideas into Action** with the following sub-themes:

Sustainable Cities: Urban Growth and Environment
 "The shape of cities: urban planning and management"
 "Energy: local action, global impact"

Sustainable Cities: Partnership and Finance
 "Municipal finance: innovation and collaboration"
 "Urban safety and security: taking responsibility"

Sustainable Cities: Social Inclusion and Cohesion
 "Achieving the MDGs: slum upgrading and affordable housing"
 "Public engagement: the inclusive approach"

Our Future: Sustainable Cities - Turning Ideas Into Action

June 19-23, 2006, Vancouver, Canada

www.wuf3-fum3.ca
www.unhabitat.org/wuf



World Urban Forum

Forum urbain mondial