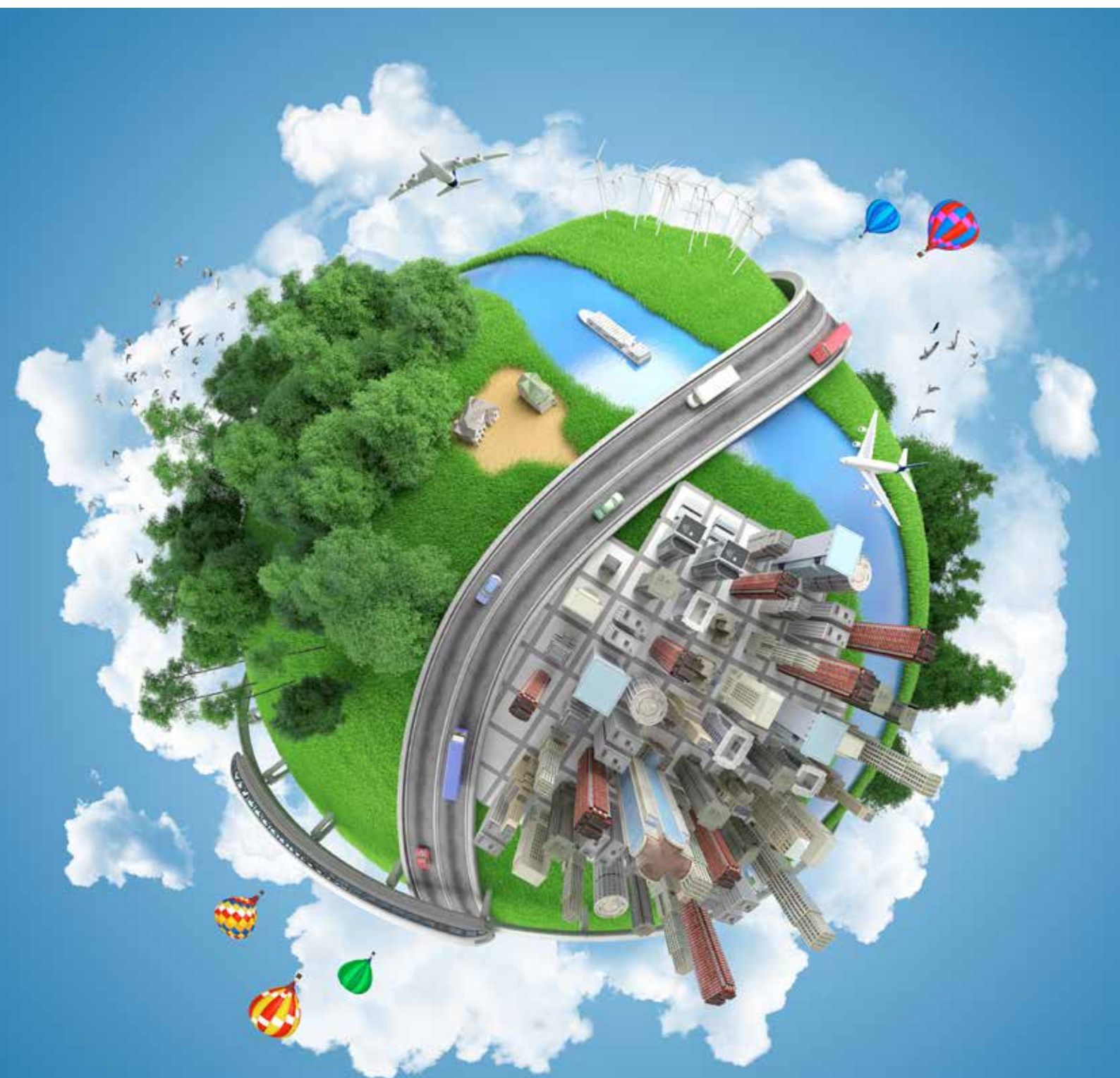




UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION

# Sustainable Cities

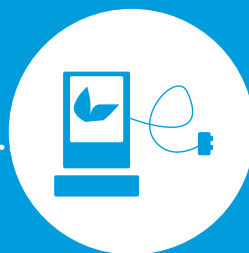
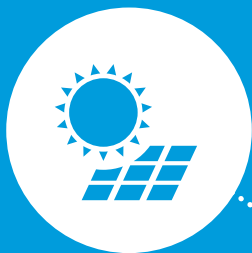
## Hubs of Innovation, Jobs, Industrialization, and Climate Action



INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT



SUSTAINABLE CITIES: PLATFORMS  
FOR INDUSTRIALIZATION AND  
TURNING TODAY'S CITIES  
INTO LIVABLE ECONOMIC  
POWERHOUSES



# Sustainable Cities

## Hubs of Innovation, Jobs, Industrialization, and Climate Action



### Background

As the world continues to urbanize rapidly, the importance of developing cities that are both sustainable and smart has begun to receive widespread recognition by national, state and local governments around the world. This is particularly true in developing countries and emerging economies where urban growth is particularly high and the existing systems and infrastructure are not sufficient. Estimates show that more than half of the global population currently live in cities, and is expected to reach two-thirds by 2050.

This global megatrend of accelerated urbanization, while bringing greater opportunities for growth and human well-being, will continue to exert pressure on resources (e.g. energy and water), as well as on the environment's carrying capacity to absorb waste and emissions. Industries located in or near cities, are key resource users as well as sources of pollution, waste, and GHG emissions. Especially as urban growth will happen mostly in developing nations, combating the adverse effects of urbanization and industrialization will require integrated and practical solutions. The way cities are governed and developed, therefore, cannot continue as usual and must incorporate action towards reducing environmental footprint, while addressing increased vulnerability from the effects of a changing the climate, and additionally providing higher quality public services. Since industry is a key engine of economic growth, industries must also be an integral part of sustainable city planning and serve as solution providers. Conversely, industries must be provided with efficient and sustainable city services (e.g. power supply, waterworks, transport, etc.) in order to continue developing economies through job and income generation.

This situation presents an opportunity for UNIDO to support countries in jointly addressing their urban and industrial development challenges, through its work in fostering sustainable cities. The global development agenda advocates in Sustainable Development Goal (SDG) 11, the need to “make cities and human settlements inclusive, safe, resilient and sustainable” while UNIDO’s mandate of realizing Inclusive and Sustainable Development (ISID) is an integral component of SDG 9 to “build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. ISID also reinforces the importance of linkages between interdependent development goals; known as the “nexus-approach”. Within the focus area of “industrialization”, the industrial sector has been characterized as:

**MORE THAN HALF OF THE GLOBAL POPULATION LIVES IN CITIES, AND THIS LEVEL IS EXPECTED TO INCREASE TO TWO-THIRDS BY 2050.**

- ❖ **1.** Requiring input factors such as energy, which like any other scarce resource, needs to be conserved and consumed more efficiently,
- ❖ **2.** Producer of commodities, and while doing so, should aim at “long-term efficiency and productivity gains in all its processes, contributing to safeguarding the environment, mitigating climate change, and advancing sustainable production and consumption”; and,
- ❖ **3.** A source of technology and knowledge exchange. For industry to thrive, it relies on an enabling business environment, including functioning cities and infrastructure, a stable legal framework and non-violent societies.

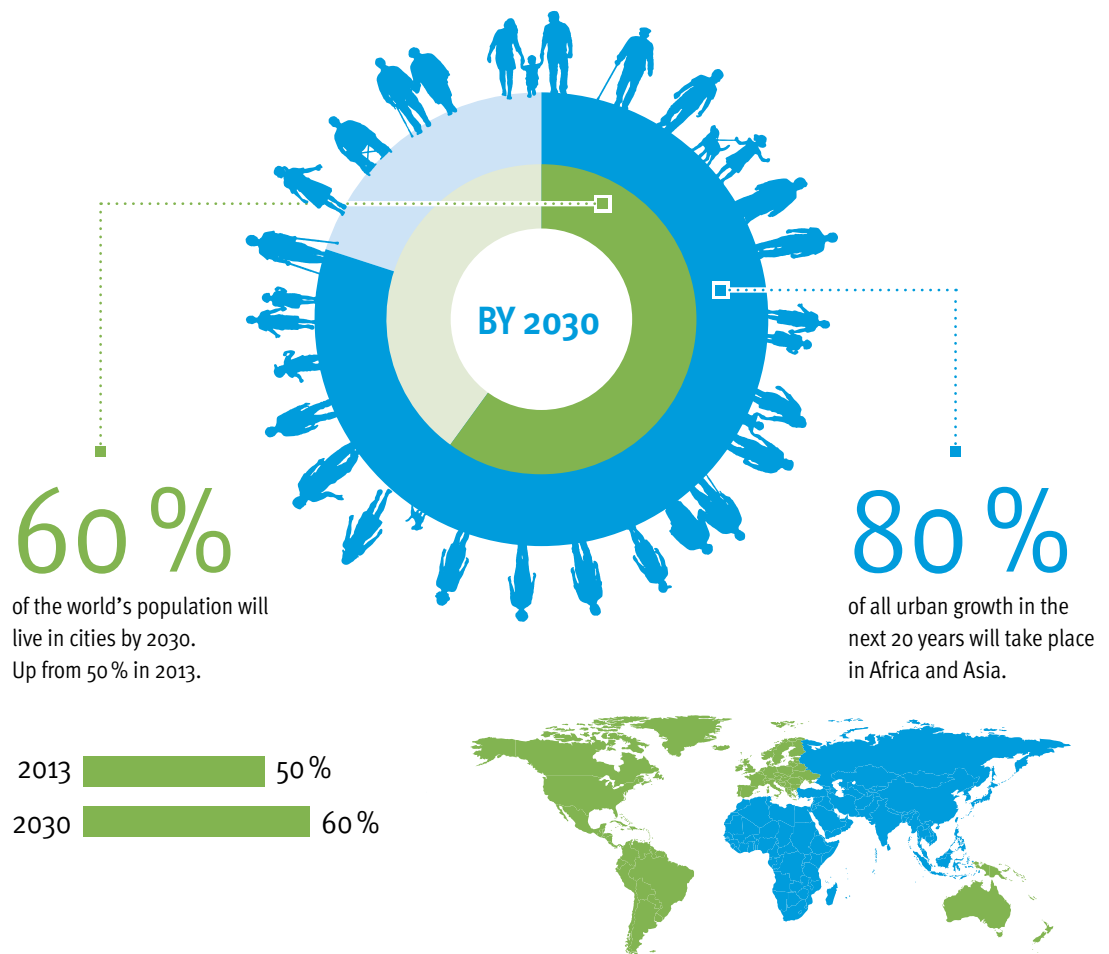
## A SUSTAINABLE CITY SERVES THE BEST INTEREST OF INDUSTRY

Sustainable and inclusive industrialization of cities provides opportunities for developing synergies, such as decoupling economic growth from environmental degradation, while at the same time creating employment. Cities benefit from the role of industries in local economic development through job creation and income generation. In industry also lie critical solutions towards limiting the carbon intensity of growth, considering the impacts of its activities as an energy consumer (and in some cases energy producer), major freight transport user, promoter of efficiency and clean energy technologies and solutions, preserver of green cover and implementer of sustainability initiatives. A sustainable city serves the best interests of industry as it benefits from the efficient and peaceful functioning of its host cities.

### URBANIZATION

#### THE EVIDENCE OF CHANGE<sup>1</sup>

Almost two-thirds of the world's population will reside in cities by 2030. Urbanization is creating significant opportunities for social and economic development and more sustainable living, but also exerting pressure on infrastructure and resources, particularly energy.



<sup>1</sup>. Table adapted from UN Habitat



# UNIDO services linked to sustainable cities

The development of sustainable cities requires integrated interventions in sustainable planning, sustainable investment, and sustainable technologies. In line with its mandate of Inclusive and Sustainable Industrial Development (ISID), UNIDO will play a lead role in the promotion of sustainable technologies for sustainable cities through its Global Forums and large portfolio of technical cooperation projects around the world.

## UNIDO'S INTERVENTIONS

### THEMATIC STREAMS



#### CLIMATE RESILIENT INDUSTRIES HOSTED BY CITIES

- Industrial energy efficiency (IEE) & renewables for industrial applications
- Green supply chains / Green Freight influenced by Industrial Parks & Clusters
- Disaster Risk Reduction through resilient energy systems and air quality management



#### CLIMATE SMART CITY SERVICE DELIVERY

- Energy Management System (ISO 50001) in cities
- Efficient and low carbon waterworks, transport, buildings, city services
- Smart waste-to-energy refineries
- Smart grids



#### VALUE CHAIN DEVELOPMENT FOR SUSTAINABLE CITIES

- New energy vehicles
- Sustainable building materials
- Clean Fuels
- Climate-Smart Peri-Urban Agriculture (Greening the Food Value Chain)

### DEVELOPMENT INTERVENTIONS



#### ENABLING POLICY AND INSTITUTIONAL MECHANISMS

UNIDO's analytical assessments (e.g. Greenhouse Gases, waste, water and other environmental impacts) and lessons from pilot technology demonstrations would be key inputs to urban planning and formulation of policies and programs on sustainable city development. This intervention includes developing institutional capacities at the local and national levels.



#### INNOVATION AND TECHNOLOGY DEMONSTRATION

UNIDO through its global forums and technical cooperation projects, will take a lead role in the promotion of sustainable technologies to complement the ongoing work of programme partners on sustainable planning and investment. Showing techno-economic feasibility of technologies available for increasing energy security and reducing environmental impacts paves the way for innovation, decreasing costs of mitigating measures, and, future replication and scale-up.



#### INVESTMENTS AND PARTNERSHIPS

While UNIDO will focus on its very specific areas of intervention under the sustainable cities program, it will aim to assist in leveraging financing and private sector investments, as well as South-South cooperation, through its technical assistance and institutions-building approaches. UNIDO will also tap into its network of experts, technical/institutional partners and other partnership platforms (such as the Green Industry Platform, Eco-cities network, Sustainable Energy Centres, Sustainable Energy for All (SE4ALL), Global Cleantech Innovation Programme (GCIP) for SMEs, Low Carbon and Low Emission Clean Energy Technology Transfer, Climate Technology Centre and Network (CTCN)) to achieve higher impact results on the ground.



#### KNOWLEDGE MANAGEMENT

UNIDO will assist with the establishment of collaborative and multi-stakeholder platforms to facilitate information exchange and knowledge sharing as well as partnership and supplier development platforms to facilitate diffusion of information and technology and support creation of sustainable linkages along value chains and across clusters. A system will be put in place to facilitate the transfer of knowledge: (1) from already proven smart sustainable cities to other pilot cities; (2) among pilot cities; and, (3) from pilot cities to other developing country cities striving to be smart and sustainable. City twinning, an approach already used before, could be continued through a south-south and/or north-south cooperation mode. The selected cities would also be introduced into UNIDO's existing eco-cities network.

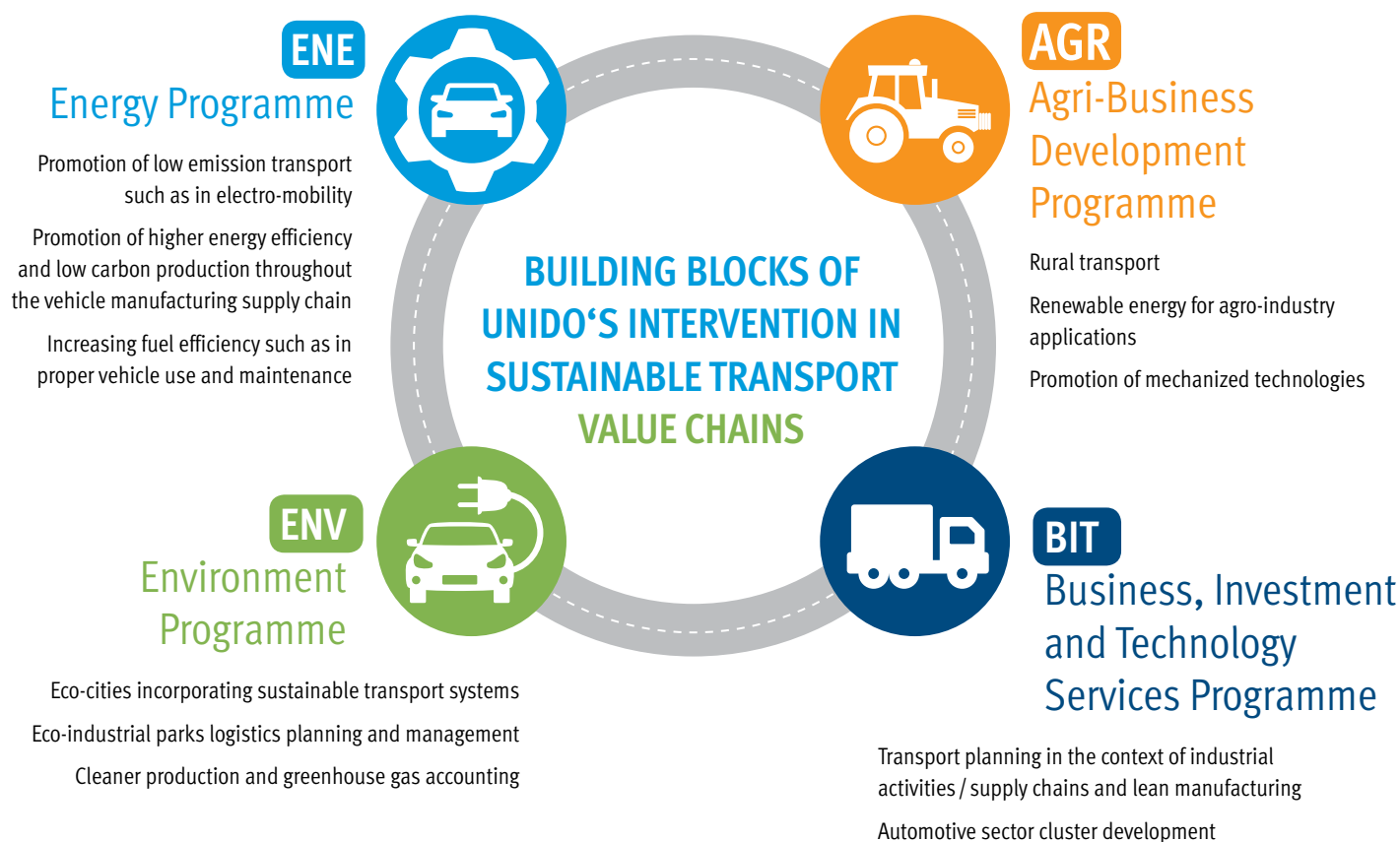


## Transport within Sustainable Cities

### MOBILITY IS A KEY ISSUE IN CITIES

Mobility is a key issue in cities, and therefore, the transport sector is at the crossroads of various city issues: the most important ones being economic competitiveness and attractiveness, energy security, and social equity. Sustainable transport is vital for maintaining good air quality, reducing energy-use and greenhouse gas emissions, and enabling inhabitants to commute efficiently and according to their needs. This requires policy-makers and transport planners to understand and incorporate the varying transport needs of women, men, and youth into policy frameworks. Having adequate transport infrastructure, together with inclusive and sustainable industrialization, is a precursor to economic development, job creation and prosperity for all.

The recently adopted Sustainable Development Goals (SDGs) include sustainable transport objectives as part of SDG 7 on clean and sustainable energy, SDG 9 on innovation, industrialization and infrastructure, and SDG 11 on sustainable cities and communities, among others. UNIDO aims to promote sustainable transport that supports the inclusive and sustainable industrial development of its member states. These interventions will focus on promoting higher efficiency, low-carbon production throughout the vehicle manufacturing supply chain, fostering enabling policy frameworks, building and strengthening local capacities and enhancing knowledge transfer and innovation.



## UNIDO LOW-EMISSION TRANSPORT STRATEGY – KEY AREAS OF INTERVENTION

### DEVELOPMENT INTERVENTIONS

#### ENABLING POLICY FRAMEWORK

- Local/sectoral policies
- Technical regulations
- Incentives, voluntary standards
- Implementation strategies
- Financing schemes

#### CAPACITY BUILDING

- Needs assessment, SME development
- Value-chain and life-cycle emission assessments
- Skills development
- Demonstration/pilots

#### KNOWLEDGE MANAGEMENT

- Knowledge networks
- Adoption and adaptation of low carbon technologies
- Innovation
- Technology promotion centres
- Training curricula and guidelines for industry

### THEMATIC AREAS

#### VEHICLE TECHNOLOGIES

Standards: vehicle emissions, fuel efficiency (sale and importation), and grid connectivity;

Fiscal Incentives: taxes and fees based on efficiency/emissions;

Consumer awareness: fuel economy and emissions labels;

Support for R&D

- 1 Vehicle manufacturing – advances engine technologies (electric, fuel cell, hybrid); fine-tuning to accommodate fuel blends and alternative

fuels (particularly 2-3 wheelers); testing protocols to measure vehicle emissions and fuel economy

- 2 Vehicle refurbishment – lighter vehicle materials; conversion technologies
- 3 Vehicle Inspection and Maintenance (incl. Eco-Driving)
- 4 System for monitoring, reporting and verification of emissions; testing methodologies
- 5 Life-cycle based GHG emission assessment
- 6 Low-emission air conditioning for vehicles

#### TRANSPORT SUPPORT FACILITIES

Sustainable cities / urban development strategies (transport planning, electric utilities management);

Traffic Control Measures; congestion charges

- 1 Charging stations (with Renewable Energy, Smart Grids);
- 2 Non-motorized transport structures;
- 3 Use of ICT in transport management

#### ALTERNATIVE FUELS

Fuel blending requirements; Fuel quality standards

- 1 Biofuels Production;
- 2 Fuel switching (Petrol/Diesel to LPG/CNG)
- 1 Analysis of life-cycle carbon emissions of biofuel products – standardized methodologies

### TARGET INDUSTRIAL/ADMINISTRATIVE SECTORS

Government  
Automotive Manufacturer's  
Association, Service Providers/  
Recyclers

Policy makers at the national, regional  
and city levels  
Industry decision makers  
Technology suppliers  
Utilities  
Sectorial industry association  
Technology and research centres

Fuel Producers/Suppliers

## Gender within sustainable cities

### FAIRNESS AND GENDER EQUALITY ARE CRUCIAL

For cities to be sustainable, social dimensions such as inclusiveness, cultural adequacy, fairness and gender equality are crucial, besides dimensions related to the economy, ecology, built environment and policy. UNIDO sees empowerment of women not only as a responsibility, but foremost as an opportunity since women's economic participation and wellbeing are crucial for a society at large and "poverty incidence tends to be lower in countries with more gender equality".

Two aspects are crucial when planning and re-organizing gender-friendly cities: safety and comfort. The safety of women has to be a priority while planning sustainable cities, as they are disproportionately subject to gender based violence and harassment are prevalent in cities. Furthermore, a crucial component of working adults' lives – for both men and women - is the comfort and support they can access in order to balance family and work life. Such comfort would include efficient access to employment, schools, childcare, storages, and health and, sanitary facilities. Moreover, the elimination of gender-based occupational segregation, gender gaps in payment and other forms of labour market discrimination, is also essential. Financial support for education, business and other training opportunities would also aid the economic empowerment of women, who are often disenfranchised from professional development opportunities.

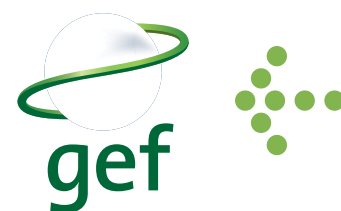
Energy, as an integral part of sustainable urban planning, can help to make cities safer, improve sanitation and health and create sustainable transport and mobility concepts. Promoting the installation of lights to reduce crime against women and to provide security in public places can be helpful for creating a safer environment for women.

UNIDO's strategy for promoting gender equality and women's empowerment in the framework of ISID is to support the development of people-centred sustainable cities that are based on the principles of human rights, gender equality and wellbeing. Focus will be to promote the economic empowerment of women by supporting industries and enterprises to provide access to clean and affordable energy and related services such as water and sanitation, safe public transport, and lighting of streets. Furthermore, the development of information and communications technology (ICT) infrastructure could improve safety of women in cities by providing access to information. UNIDO aims to incorporate gender dimensions in urban energy projects in part by increasing women's representation, engagement and participation in decision making processes and utilizing gender expertise of women's networks and associations, NGOs and international organizations.





# The GEF Sustainable Cities Integrated Approach Pilot (SC-IAP)



The Global Environment Facility (GEF) launched the Sustainable Cities Integrated Approach Pilot (SC-IAP) to help cities address the challenges posed by mega-trends (urbanization, rising middle class and population growth) of global environmental degradation, in an integrated manner. The goal is to promote sustainable urban development through better integrated models of urban design, planning, and implementation. Designed to function as proof of concept, it is expected that this innovative pilot program will create a strong network of cities that will act as global ambassadors for urban sustainability planning, with tangible benefits at both the local and global levels. Moreover, in contrast to more traditional project-based approaches, the activities implemented as part of the Sustainable Cities IAP will continue to influence resource flows and investments for years to come. Given the extent of urban infrastructure development expected to take place in developing countries over the coming decades, such a comprehensive program could not come at a better time.

At the same time, local action will be strengthened while promoting coordinated national and regional-global partnerships to jointly address barriers to sustainable urban and territorial development. UNIDO is one of the specialized agencies assisting countries in accessing GEF SC-IAP set aside funds, primarily building on the country allocations the focal areas of climate change and chemicals and waste.

The programme aims to promote among participating cities an approach to urban sustainability that is guided by evidence based, multi-dimensional, and broadly inclusive planning processes that balance economic, social, and environmental resource considerations.

The SC-IAP projects where UNIDO is participating as an implementing agency, solely or with other partners, are presented in the following sections.

UNIDO IS ONE OF THE AGENCIES ASSISTING COUNTRIES IN ACCESSING GEF SC-IAP SET ASIDE FUNDS, PRIMARILY BUILDING ON THE COUNTRY ALLOCATIONS ON THE FOCAL AREAS OF CLIMATE CHANGE AND CHEMICALS AND WASTES





## Sustainable cities initiative for Senegal

### Context

Currently, almost 57 % of Senegal's population resides in urban areas (about 11 million people in 2010). Of the 11 million people, 25% live in the Greater Dakar area and 41% in cities located along the coast including Dakar. The country's high demographic growth (+2.5%) is expected to increase its population by 2050 up to 25 million people of which then 16 million are then expected to live in cities. As a consequence of the demographic pressure, the urban sector in Senegal has been focused primarily on habitat management and improvement. For example, about 40% of agglomeration of Dakar is estimated to be in informal settlements without provision and management of basic services such as water, electricity, sanitation often located in flood-prone areas. Effective urban planning has been lacking behind these developments. Only 30 % of cities have an urban plan and the few existing ones lack updates, implementation results and, more importantly, participation of civil society. Other constraints include a lack of integration of urban development in territorial planning; governance of land-use planning and land allocations, and discrepancies in the legal framework. The convergence of these ongoing challenges with emerging climate change impacts increase the vulnerability of cities and illustrates the increasing importance of examining the relationship between climate change processes, urban vulnerability and development in order to define responses at an urban scale. Sustainable development of cities is an urgent need and a priority in line with the Government broad urban poles development program for accelerating economic growth and reducing poverty.

### Objective

The proposed integrated approach pilot (IAP) project will support specific activities related to storm water management and climate change adaptation, while also promoting more integrated long-term strategies to ensure that the government's urban growth pole

strategy incorporates a greater focus on sustainability and resilience. The project will seek to share the lessons from pilots in Greater Dakar and Saint-Louis with other cities in the country to improve the potential for learning and replication. Further, the project will improve capacity to plan and implement sustainable city management practices, including climate resilience, in selected urban areas.

A second project component will promote sustainable industry through the implementation of a green industry strategy in Greater Dakar industrial parks. This will include greening existing industries and creating new industries based on resource efficiency, in addition to promoting integrated waste management. Small to medium scale pilots of energy efficiency measures that do not require large up-front investments will be promoted, particularly within the Diamniado industrial zone.

### Expected outcomes

- Mainstreaming Diamniadio as a leading example of sustainable urban and territorial management, with renewable and efficient energy systems being an integrated solution to management of buildings, water treatment and waste disposal, and demonstrating local benefits of addressing global environmental concerns in an integrated manner;
- Strengthening the national urban policy framework to promote sustainable cities model.
- Improving planning and management capacities of participating pilot cities and central government for sustainable cities;
- Increasing investments in pilot cities to generate local and global environmental benefits;
- Increasing knowledge and partnerships on sustainable cities and climate resilience at multiple levels;

### Implementing agency

World Bank, UNIDO

### Donors and partners

Global Environment Facility (GEF)



## Sustainable-city Development in Malaysia

### Context

In Malaysia, a country that has seen significant economic development in recent years, 73% of the population in 2012 lived in urban areas. While this growth in urbanization brings challenges in terms of urban planning and development, it also holds promise for the improved living standards, with a close link between urbanization and improved income levels.

However, while there are significant opportunities in Malaysia associated with the development of sustainable cities, there are also a number of barriers present in the market that currently prevent their widespread adoption. These include:

- Lack of the necessary policy, regulations and incentive programmes to encourage investment in smart cities by the private sector, despite interest from government institutions;
- Lack of information about the factors that the creation of a sustainable city entails and limited capacity to introduce these technologies and measures; limited awareness also hinders the development of demand for such cities by the general public and businesses
- Lack of the necessary supporting infrastructure: charging station networks, service/equipment providers, support applications, maintenance, etc.

### Objective

The proposed child project will directly contribute to the IAP goals of integrated sustainability planning, namely: integrating climate risks in urban planning and management. This will be achieved through:

- Support to the development of national urban policy frameworks, improved planning and management in Melaka City,
- Increased investment in Melaka City into urban management modalities; and
- Increased knowledge and partnerships on sustainable cities in Melaka City, and in Malaysia in general.

### Expected outcomes

- Integrate climate risks in urban planning and management;
- Improve and develop national policies for strategic direction and demand creation for sustainable-cities;
- Develop incentive schemes (funding models, green procurement, PPPs, etc.) while building institutional capacity of policy-makers at the national level, specifically focusing on the policy coordination partners of Malaysia's Smart City Programme;
- Conduct awareness raising events for policy-makers, industry and end-users organized at the local and city levels for dissemination of tangible results achieved;
- Increase the adoption of electric vehicles through demonstration activities of solar-powered charging facilities, smart-grids, IT applications, etc.;
- Demonstrate energy efficiency and renewable energy applications in commercial and government buildings;

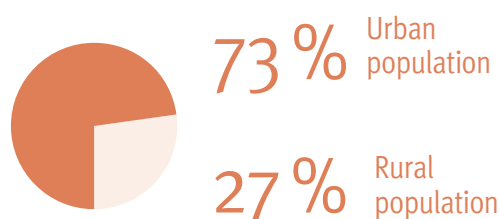
### Implementing agency

UNIDO

### Donors and partners

Global Environment Facility (GEF), Malaysian Industry-Government Group for High Technology

### MALAYSIA | Urbanization 2012





## Abidjan Integrated Sustainable Urban Planning and Management in Cote d'Ivoire

### Context

The population of Cote d'Ivoire has tripled over the past four decades, from 6.7 million in the early 1970s to its current population, which stands at more than 22 million. Since 2010, over 50.1% of the population resides in urban zones. The city of Abidjan covers an area of 54,000 hectares, of which 8,700 are lagoon areas. The city's population stands at roughly 2.5 million inhabitants, and the rapidly growing population has placed enormous pressure on the allocation of road and housing space. This has led to severe traffic congestion, increased air pollution, and the rapid proliferation of informal settlements and slums, which are often cut off from public services and subject to exposure to extreme weather events. The project aims to address severe air pollution and rising GHG emissions with a two-pronged approach that addresses pollution originating from multiple sources. The project also aims to improve traffic conditions and overall mobility through the integration of intelligent transport system (ITS) elements and infrastructure in priority areas. This will result in improved traffic efficiency, thereby promoting mobility, reducing road accidents, and increasing the productivity of urban economic activities while concurrently reducing GHG emissions.

### Objective

To enhance the local capacity to assess and respond to environmental degradation through the application of integrated sustainable urban planning and management methods while encouraging the uptake of innovative lower carbon technologies that reduce GHG emissions and improve air quality in the city of Abidjan.

### Expected outcomes

- Increasing scope and depth of integrated urban planning and management policies and processes, particularly related to integrated land use and transport planning.
- Creating national policies and strategies for an enabling environment to mainstream the adoption of cleaner fuels and vehicles in Abidjan.
- Improving local and global air quality and lowering emissions from industry.

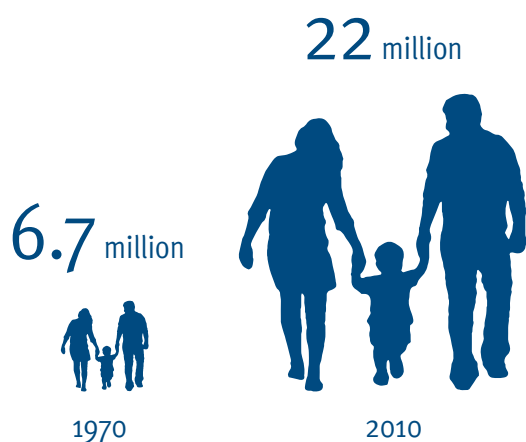
### Implementing agency

African Development Bank, UNIDO

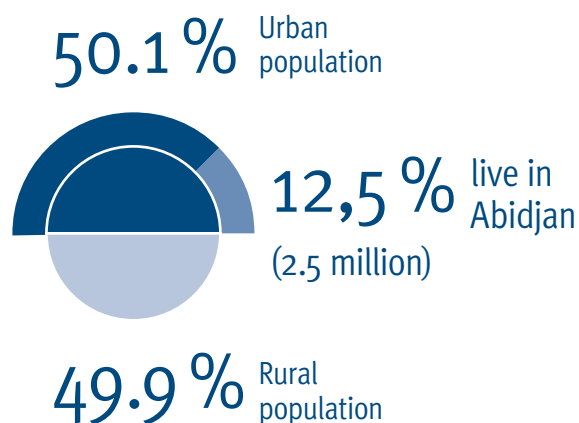
### Donors and partners

Global Environment Facility (GEF)

### COTE D'IVOIRE | Population



### COTE D'IVOIRE | Urbanization





## Sustainable Cities Integrated Approach Pilot in India

### Context

India's growth and urbanization trend is nothing like it has seen in the past with projections to 2030 of: GDP multiplying by a factor of 5; urban population rising to 590 Million; working age population increasing by 270 Million; and, net new employment in cities reaching 70% (McKinsey Global Institute, 2010). To accommodate the growing demand and competition for resources (e.g. energy and water), increase efficiency in basic service delivery (e.g. waste management, transport), provide employment and investment opportunities, and, satisfy the aspiration for improved quality of life in urban areas, the country has to develop new or retrofit existing cities to those that are smart, sustainable and inclusive. Government programs recently launched: Swachh Bharat Abhiyaan (Clean India Mission), 100 Smart Cities Mission, and Atal Mission for Rejuvenation and Urban Transformation (AMRUT), are all geared towards enhancing the quality of urban life, providing a clean and sustainable environment, and laying down basic infrastructure for city service delivery. The Sustainable Cities Integrated Approach Pilot (SC-IAP) project is going to be implemented in four cities: Vijayawada-Guntur, Mysore, Jaipur and Bhopal, integrating sustainability strategies in both urban and industrial development planning and management.

### Objective

To assist Indian cities in achieving sustainable urban development goals as aligned with ongoing national missions on city development.

### Expected outcomes

- Integration of sustainability options (low emission strategies) in city development planning
- Pilot demonstration of smart and sustainable strategies
- Partnership platform for implementation of sustainability strategies at city level
- Knowledge management and replication

### Implementing agency

UNIDO

### Donors and partners

Global Environment Facility (GEF),  
Ministry of Urban Development -  
Government of India

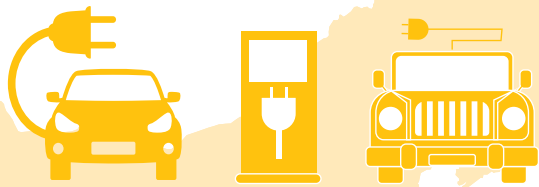
INDIA |  
Projections to  
2030

Gross Domestic Product (GDP) multiplying by a **factor of 5**

Urban population rising to **590 Million**

Working age population increasing by **270 Million**

Net new employment in cities reaching **70%**



## Integrated adoption of New Energy Vehicles in China

### Context

The main technical pathway to realize large-scale energy-savings and emission reductions in the automotive industry is through the development of “New Energy Vehicle” (NEV) technologies. These advanced-powertrain vehicle technologies, which include electric battery and plug-in hybrid technologies have the advantages of high energy efficiency (EE) and zero tail pipe emissions. While the use of EVs reduces the demand on imported liquid fuels, improving energy security; it does not reduce environmental impacts if electricity is mainly sourced from coal fired power generation.

In 2012, to respond to energy and environmental challenges, the Chinese Government released the “Energy Saving and New Energy Vehicles Industry Development Plan (2012-2020)” and put forward the development goals on national NEVs. This policy set clear policy targets for the sector, of having 500,000 and 5,000,000 NEVs in operation by 2015 and 2020 respectively. To achieve this, China has conducted a NEV demonstration at city level in two phases: phase 1 demonstrations (2009 to 2012) were conducted in 25 cities and phase 2 demonstrations (2013-2015) are underway for 88 cities. In both demonstration phases at the city level, it was the central government who chose the cities based on their geographic, social and economic diversity and representativeness, existing foundation and/or preparation work in NEVs and demonstrated interest by the local regions to be a pilot location.

### Objective

Facilitate and scale up the integrated development of New Energy Vehicles (NEVs) and Renewable Energy (RE) through the development of policies, technologies and standard system to promote the development of NEVs and RE by deploying smart grid and smart charging infrastructure and carry out a demonstration of the integrated policies and technology standards in Yancheng and Shanghai.

### Expected outcomes

- ➔ Drafting of technical standards and guidelines to provide regulatory elements, leading to higher adoption of NEV schemes by city Governments, vehicle manufacturers and consumers.
- ➔ Increasing institutional capacities and raising public awareness of policymakers and national stakeholders on the use of integrated EV-SG (Smart Grid)-RE systems.
- ➔ Demonstrating the technology integration at two city scale projects (Yancheng) and innovative business models for the promotion of EV fleets (Shanghai).
- ➔ Raising awareness of stakeholders, on NEVs research and development, manufacture, operation, and maintenance.

### Implementing agency

UNIDO

### Donors and Partners

Global Environment Facility and Ministry of Industries and Information Technology (MIIT)  
Society of Automotive Engineers of China (SAE-China).

**NEW ENERGY VEHICLE (NEV) TECHNOLOGIES HAVE THE ADVANTAGE OF HIGH ENERGY EFFICIENCY (EE) AND ZERO TAIL PIPE EMISSIONS.**





## Climate Change, Clean Energy, and Urban Water in **South Africa**

### Context

UNIDO and REEEP are proposing a pilot initiative aimed at creating model pathways of market-based approaches to the cost effective deployment of clean energy technologies in municipal waterworks in Sub-Saharan Africa. The implementation of this pilot initiative will focus on South Africa and create a solid basis for a market-based replication and scaling up in the country and in the SADC region as a whole.

### Objective

The overall objective of this project is to catalyze market-based approaches to reducing GHG emissions in municipal waterworks in developing countries and emerging economies of Sub-Saharan Africa. The specific objective is increased energy use efficiency and renewable energy production in municipal waterworks in three selected municipalities in South Africa (small and medium cities with about 100,000 inhabitants).

### Expected outcomes

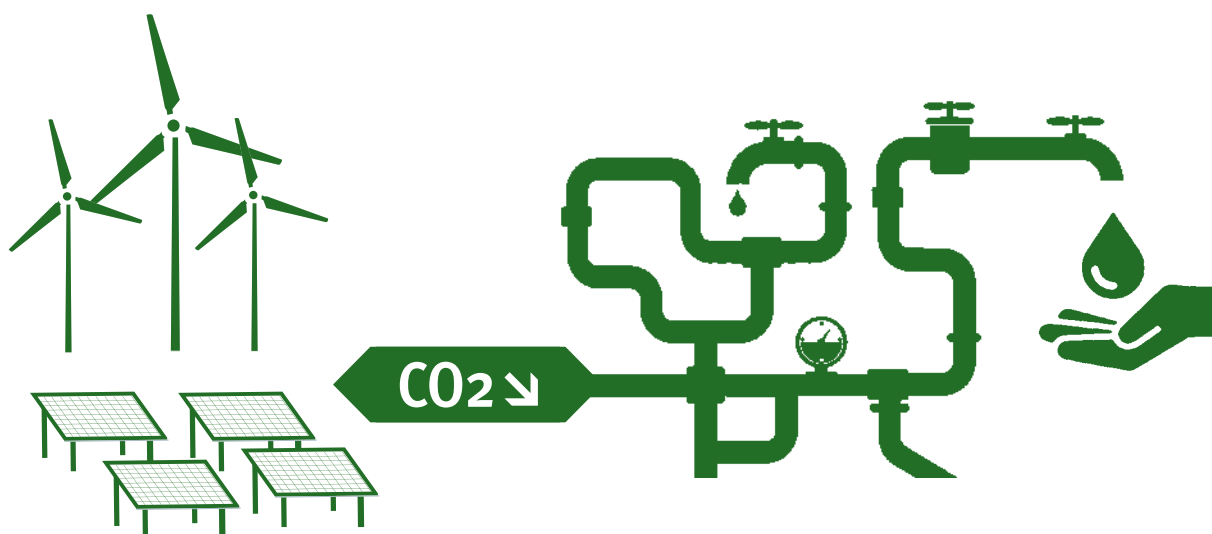
- Demonstrate the technical feasibility and commercial viability of clean energy in waterworks (demonstration projects)
- Enhance capacity of private and public players to conduct energy assessments and plans and identify RE opportunities and implement activities
- Lessons learned of demonstration projects documented and practice based policy and market insights developed
- Replicate and promote pilot projects and lessons learned and practice based market and policy insights disseminated to targeted stakeholders at national, regional and international level

### Implementing agency

UNIDO

### Donors and partners

European Union (EU), Renewable Energy and Energy Efficiency Partnership (REEEP)



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