Eco-innovations in the urban regeneration projects

Eco_Cities

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Contents

List of Acronyms

APMCHUD	Asia Pacific Ministerial Conference on Housing and Urban Development
AVAC	automated vacuum collection systems
BAS	building automation system
BEF2030	Built Environment Foresight 2030
BMS	building management system
BREEAM	Building Research Establishment's Environmental Assessment Methodology
BRT	Bus Rapid Transit
CH_4	methane
CO_2	carbon dioxide
CSR	Corporate social responsibility
CT	Communication Technology
CURC	College and University Recycling Coalition
DAE	Digital Agenda for Europe
DEGEST	demography, economy, government, environment, society and technology
DIT	Dublin Institute of Technology
EC	European Commission
EIP-SCC	European Innovation Partnership on Smart Cities and Communities
EIT	The European Institute of Technology
ENOLL	The European Network of Living Labs

EPA	Environmental Protection Agency
EPA	United States Environmental Protection Agency
EPBD	Energy Performance of Buildings Directive
EPCs	Energy Performance Certificates
EPIC	European Platform for Intelligent Cities
EU	European Union
FCFCG	Federation of City Farms and Community Gardens
GDP	Gross Domestic Product
GDP	Gross Domestic Product
GHG	greenhouse gas
GIS	geographic information systems
HVAC	Heating, ventilating and air-conditioning
ICT	information and communication technologies
ICT	Information and Communication Technologies
IntelCities	Intelligent Cities
IT	information technology
ITS	intelligent transportation systems
KAB	Keep America Beautiful
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design
LEZ	low emission zones
LRT	light rail transit
MPO	Miejska Partyzantka Ogrodnicza
MEF	Major Economies Forum
N20	nitrous oxide
NGOs	non-governmental organisations
NY	New York
O_3	ozone
OECD	Organization for Economic Cooperation and Development
PEEST	policy, economy, environment, society and technology
PERIPHČRIA	Networked Smart Peripheral Cities for Sustainable Lifestyles
PPP	public-private partnership
PRT	private rapid transit

PV	photovoltaic
PWC	PriceWaterhouseCooper
R&D	Research and Development
RFID	radio frequency identification
RICS	Royal Institution of Chartered Surveyors
ROI	return on investment
SMARTiP	Smart Metropolitan Areas Realised Through Innovation & People
SUMP	Sustainable Urban Mobility Plans
TBM	tunnel-boring machines
TDM	travel demand management
UK	United Kingdom
ULI	Urban Land Institute
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USA	United States of America
USGBC	US Green Building Council
WEEE	waste electric and electronic equipment

Publisher's note

We're delighted to bring you the book series prepared by the Authors taking part in the "Eco-innovations in cities" Project (POKL.04.03.00-00-249/12-00). The series, which is available free of charge, consists of six books:

- "Eco-cities" by Dominika Brodowicz, Przemysław Pospieszny and Zbigniew Grzymała
- "Green Project Funding" by Hanna Godlewska-Majkowska, Katarzyna Sobiech-Grabka, Paweł Nowakowski
- "Green Urban Regeneration Projects" by Marek Bryx, Jacek Lipiec, Izabela Rudzka
- "Planning and Management in Eco-cities" by Stanislaw Lobejko, Anna Stankowska, Mariusz Zabielski
- "New Models of Urban Entrepreneurship" by Marcin Wojtysiak-Kotlarski, Ewelina Szczech-Pietkiewicz, Katarzyna Negacz
- "Making the 21st Century Cities" ed. by Krzysztof Jarosiński.

The Project was designed and prepared by Professor Marek Bryx, Deputy Rector of the Warsaw School of Economics (SGH), and Doctor Dominika Brodowicz. The Project has been carried out within the Priority IV "Tertiary Education and Science", Measure 4.3 "Strengthening the didactic potential of universities in the fields of key importance for the aims of Europe 2020 Strategy". In line with the objectives, the Project is conducted from 1st July 2013 until 31st December 2015.

The main aim of this Project was to create at the Warsaw School of Economics a one-year specialisation entitled "Eco-innovations in the urban regeneration projects". What is more, the Project's aim is to develop the study offer concerning the area of green and socially responsible eco-innovations in cities regeneration. The main objective of this new specialisation is to enhance students' knowledge

about eco-cities, give them sufficient information and discuss case studies on the subject: how contemporary cities should be planned, developed and managed. As most of our communities exist within the urban environment, the provision of eco-innovations is essential for the well-being of society. This unique educational programme for M.A. students provides information on maximising the benefits of making innovative and creative cities to citizens, local authorities, planners, developers, students, researchers and non-government organisations interested in improving the quality of life in cities.

MSc Alina Modrzejewska-Kołakowska – Project Manager
Prof. Anna Szelągowska Ph.D. – Project Methodological Coordinator

Introduction

The challenges lying ahead of the urban areas, specifically cities are formidable. These include growing population, air pollution, congestion, energy efficiency and demand for high quality of living. Although they are varied and can appear as seemingly unrelated, they more often appear on international agendas of the United Nations, European Union and various non-governmental organisations (NGOs) under umbrella of sustainability or more often as green agenda.

This book is an introduction to the dynamically developing and evolving area of green innovations taking place in contemporary cities, with a specific focus on the European and North American examples. It is divided into three interconnected parts, each prepared by a separate author specialising in the areas like communal services, real estate and information technologies. First, authored by doctor Dominika P. Brodowicz focuses on green urban models and challenges facing 21st century cities. Second, developed by IT specialist and doctoral researcher Przemysław Pospieszny presents green transportation and smart technological innovations. Third, compiled by Professor Zbigniew Grzymała relates to European and American legal requirements and strategies towards eco-cities development.

PART I

Typology and ‘components’ of eco-cities

Chapter 1

Typology of green cities

Dominika P. Brodowicz

"*What is a city, but the people*"
Sicinius in Shakespeare's "Corolianus", Act III, Scene I

Introduction

This chapter is a preliminary review of new and emerging concepts of environmentally friendly cites. It includes examples from the European Union (EU) as well as from the United States of America (USA), but not on a comparative basis. There are and will be significant differences between the EU and the USA cities, which are deeply rooted in the spatial planning tradition, space availability (European compact cities versus American sprawl), social issues and tradition (European walkable communities versus American car dependency). Therefore, this chapter includes examples as a lessons learned instead of comparisons.

1.1. Greening of cities

The world is facing an urban future. It has been projected that even more than 65 per cent of the population will be living in cities by 2050[1]. All issues related to their functioning deserve attention of businesses as well as public bodies. It is vital nowadays, when many spatial planners and property investors are searching for 'the next big thing' and when new ideas and trends are transforming cities and influencing their inhabitants' lives. Among the most

[1] UN (2014), *„World's population increasingly urban with more than half living in urban areas"*, http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html, accessed on 14.02.2015.