

The Issue 2/2015 of CSE has been published shortly after the United Nations Climate Change Conference (COP21) in Paris. With the agreement to be signed in New York starting from April 2016, the approximately 196 ma meglio non indicare numeri precisi) 200 signatory countries are going to pledge to limit the rise in average global temperature of 1.5 degrees through the direct commitment of the majority of countries actually responsible for greenhouse gas emissions. However, national emission limits have not been established yet. According to United Nations experts, the promised cuts are not sufficient. To ensure that the overall goal is met, the agreement stipulates that every five years, starting in 2018, progress in reducing emissions by all countries will be reported. The first of such reports will be undertaken in 2023. As the authors of the editorial in this issue assert, the Conference was closed satisfactorily if it is considered in terms of a “one-step-at-a-time” approach. But the urgency to find truly effective solutions to global warming and its related climate change requires that, over time, the steps become increasingly larger and more determined.

The editorial in this issue concerns environmental sustainability and security in relation to climate change and natural risks. Organized by topic, the articles following the editorial are summarized here.

PLANNING AND ENVIRONMENTAL SAFETY

Synoptic Overview of Spatial Planning in Germany (Zaspel-Heisters, Haury). The spatial planning system in federal Germany is differentiated along vertical, horizontal and sectorial lines. Planning authorities operate on four levels: federal spatial planning, state spatial planning, regional planning and local authority planning. The spatial planning framework is described by investigating various plans, procedures and the principal instruments for implementing spatial planning. Climate protection and energy efficiency are regarded as challenges in spatial and urban planning. Finally, the regulatory capacities of spatial planning and urban development are illustrated through examples regarding wind power and the management of the recent refugee influx into the nation.

SUSTAINABLE URBAN MOBILITY

Metropolitan railway systems and Transit oriented development in Italian provincial coordination territorial plans (Staricco). Transit oriented development (TOD) is receiving global attention as a planning approach that pursues more sustainable mobility patterns and the promotion of polycentric development in contrast to urban sprawl. TOD seems quite suitable for Italian metropolitan areas, where many suburban railways have recently been reorganized as integrated Metropolitan Railway Systems (MRSs). This article examines nine “Provincial coordination plans” (PTCPs) in order to verify the adoption of a TOD approach to support MRSs with special focus on the Bologna PTCP.

Methodology for the development of electrical vehicle charging infrastructure. Case study: Brescia (Maternini, Riccardi). The topic of electric mobility, in terms of both private and public transport, has recently taken on increasing importance, also in the light of recent national and international laws aiming at reducing emissions and pollution. Some European Union member states have issued Charging Infrastructure implementation plans. Italy recently published the *National Infrastructure Plan for Electrical Vehicle Charging*, a sort of guideline for the integrated development of electric vehicle charging systems.

In this article, a methodology is formulated for planning and locating electric vehicle charging stations on a municipal level. The case of Brescia, as a medium-sized urban area, is explored.

ENVIRONMENTAL DESIGN

Ways of interpreting urban regeneration: Hamburg, London, Brussels and Rome (Fratini). Over the coming decades all cities, large and small throughout and beyond Europe, will face the challenge of the regeneration of their urban peripheries. However, the problem of the fringes, in terms of urban decline and social exclusion, concerns not only the areas located on the physical edge of the city but the city as a whole. The case studies represent different ways to improve regeneration policy and action.

Rome, its region and the regeneration of the "light city" (Latini). For at least 100 years, an impressive number of derogatory campaigns have been waged against single-family-home suburbs and their consequent sprawl and alleged negative effects. In this article, following a rough, operational classification relating to economic, functional, environmental, social, aesthetic aspects, the arguments used by critics are explored as they appear in two general studies of this topic. Considering today's condition of the "light city", with large areas already affected by a conspicuous amount of casual and disorderly building, a regeneration strategy that can provide opportunities for new housing, well-designed landscapes and investment within the reach of a large number of households seems advisable and feasible.

BUILDING TECHNOLOGIES

Hypothesis of infographic digitization of the building stock: the innovative contribution of ICT tools (Barbato). The strategies of the Italian Government and public administrations are moving the interests of clients towards policies that ensure the functional recovery and renewal of Italy's extremely rich real estate infrastructure. Incentives regarding the energy, environmental and structural renewal of the existing building stock ensure that housing demand will be reduced, recording a slow but constant decline in the construction of new homes and buildings in general. Thus, the need arises for a plan to manage the nation's built heritage. In this article, a supporting methodology is proposed to foster a new strategy suitable for improving the management of the built heritage through infographic building digitization by implementing appropriate Information and Communication Technology tools (ICT).

ENERGY EFFICIENCY IN BUILDINGS AND NEIGHBORHOODS

Energy planning at the district level: an Implementation Plan as a first step towards smarter city development (Delponte). Energy policies, from initiatives launched in the 1990s right up to today's EU Smart City and Communities program, confirm the interest focused on cities for strategic interventions in the energy sector. But some questions are still open: How to manage energy issues on the urban scale and what kind of tools to put into place? The author takes into account

the methodology proposed in the FP7 project “TRANSFORM-TRANSFORMAtion Agenda for Low Carbon Cities” as one of the possible ways to face the challenge. According to the TRANSFORM Project, the Implementation Plan (IP) is understood as a strategic neighbourhood-scale document that can be used to support a strategy for a given urban area (Smart Urban Lab, SUL).

The hidden face of efficiency (Masullo). Efficiency is two-faced: it is necessary but sometimes it is an illusion. It is not the solution for an energy-hungry world but it is a part of the solution for a sustainable one. The author states that *exploring the boundaries of efficiency is like being inside the smallest box in a Chinese box set. If you don't open your mind to the world outside, you will stop at the walls of the smallest box thinking that you have made your best effort, ignoring the broader scenarios*. The article describes different approaches to exploring the infinite efficiency scenarios that might open in the future: efficiency could be a costly but useless exercise, with its only effect of slightly influencing the limits of an economic system that overexploits natural resources and damages the ecosystem services fundamental for life.

An overview concerning combined heat and power production: a smart way to improve energy efficiency (Kusch). Cogeneration power plants simultaneously generate power and usable heat in a single, integrated system which achieves a degree of overall efficiency that is much greater than electricity production alone. This makes better use of energy conversion and reduces greenhouse gas emissions. Combined heat and power production is already relatively common in Europe while it is less common, for example, in the USA. There is great potential for further implementation throughout Europe and globally, including the industrial sector. Cleaner production schemes offer suitable frameworks that promote the uptake of combined heat and power production by industry, in particular small- and medium-sized enterprises.

MATERIALS ENGINEERING

Industrial paper recycling processes: suitable micronization for additive polymer application (Valente, Tirillò). The traditional paper recycling process faces problems relating to the disposal of sludge and waste, the use of incinerators and water treatment. As a result, an interesting alternative proposed by the Department of Chemical and Materials Engineering at the Sapienza University of Rome is using paper as a filler in thermoplastics or as a recycled thermoplastic matrix composite. In this way it is possible re-use paper but it is also possible to reduce the amount of polymer having an equal volume. Paper has to be subjected through grinding. The chosen grinding process is fundamental for obtaining a suitable product for the composite. After pre-grinding, the charge has to be subjected to micronization. As a result, the importance of optimizing both the grinding and micronization processes is clear.

We hope our readers will find these articles of interest.