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european post-carbon cities of tomorrow

Zagreb Strategy Paper

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STRATEGY PAPER OF ZAGREB TOWARDS A POST-CARBON CITY

UNDP Croatia, Zagreb, August 2016

Zoran Kordic, UNDP Croatia

ENGLISH SUMMARY

CHALLENGES FACING THE CITY

After conducting an initial assessment of Zagreb, through which the physical, ecological, social and economic analysis was given, along with analysis of city's development strategies designed by the local government and valuable inputs given by the workshop attendants from variety of professional backgrounds, several challenges preventing city's low-carbon development emerged. Here is the summary of the most frequently mentioned and discussed challenges preventing development of the city:

- Urban sprawl - the amount of forest has decreased significantly from 168.8 km2 to 92.9, a reduction of 45%, over 6 years from 2006 to 2012;
- Eco system protected areas - there has been a significant decrease in the number of eco-system protected areas;
- Waste management - the current trend shows a decrease in production of communal waste, but only 1% of communal waste is collected separately;
- Carbon emission intensity - slow progress in implementation of energy efficiency and lack of usage of renewable energy sources;
- Water loses - water losses have been unchanged during the last ten years and current levels are high;
- Transport infrastructure - favouring private motorised over non-motorised and public transport modes, cycling makes up only 3% of all travel;
- Youth unemployment- 28% of total unemployed are aged between 20 and 29;
- High level of poverty - The poverty level is quite high at 20.5% and has increased over the last 5 years;
- Weak local economy - depends too much on imports.

STAKEHOLDER CONSULTATION GROUP

The process started with the vision-building workshop. The technique presented in the training workshop was followed. Stakeholders drawing their visions after which they summarised the

drawings and organised them in the form of mind map. Stakeholders accepted the proposed process methodology. The drawings phase ensured a relaxed atmosphere among participants so they were able to freely express their ideas.

This was followed by a scenario-building workshop. The technique presented in the training workshop was followed. The transition timeline was posted on the wall. It showed a line running from 2015 to 2050 with four main areas representing the years 2015, 2020, 2030 and 2050. Participants were invited to write down opportunities, challenges, milestones and objectives on post-its and post it on the transition timeline.

THE 2050 POST-CARBON VISION FOR ZAGREB

The narratives of the vision are as following:

- A city that produces zero waste and pollution, where every by-product is a raw material or energy product for other activities. At the same time, the economy is largely localised, with a neutral ecological footprint or better. Looking at maximizing the use of certain resources, and minimising the number of mediators between producers and consumers, all consumers are producers of something else.
- A city which is planned in an integrated way, intended with the aim of activation public spaces, with decentralised activities and polycentricism through the civil participation.
- A city that is compact, planned in accordance with demographic predictions, which recycles its spaces, encourages multi-functional and energy-efficient construction connected with a quality infrastructure which, among other things, allows sustainable mobility.
- A city that keeps its natural environment and natural resources encourages the symbiosis of urban and rural areas inside the preserved green zone.
- A city that is a leading healthy city with happy and long lived citizens with available: healthy adequate water for drink highly standardised organic food, good air quality and waste management systems.
- A city in which long-life, free, critical, creative and holistic education is available for everybody, producing active citizens.

IDENTIFYING MILESTONES AND ACTIONS

Time	Milestones	Actions to achieve milestones
2016-2020	Research of local resources and new technologies	Establishment of centres for research of local resources and new technologies
2016-2020	Social entrepreneurship	Encouraging development of small and medium-sized social entrepreneurship

2016-2020	Reuse and recycle centres	Establishment of the centres for reuse
2016-2020	Low carbon strategy and action plan	Development of a strategy and action plan to reduce greenhouse gas emissions
2016-2020	Increasing share of renewable energy in energy production	Incentivising investment in renewable energy and energy efficiency for local use
2016-2020	Urban agriculture	Providing more spaces for local food production and their permanent designation in spatial plans
2016-2020	Utilisation of EU funds	Participation in large number of EU and international projects
2016-2020	Communication and coordination with citizens	Establishment of the centre for communication and coordination with citizens and civic initiatives
2016-2020	Urban regeneration	Conversion of existing unused urban spaces into business incubators
2016-2020	Monitoring the quality of all components of environment	Setting up systems for monitoring the quality of all components of environment
2016-2020	Climate Change Adaptation Plan	Adaptation of the strategy
2020-2030	Resource efficiency	Use of social innovation to achieve resource efficiency
2020-2030	Reducing the use of motorised vehicles	Implementation of new cycling infrastructure
2020-2030	Food in public spaces	Growing edible plants in public spaces
2020-2030	Sustainable consumption	Implementation of educational and information campaigns on sustainable consumption
2020-2030	Decentralised and democratised energy production of renewable energy sources	Increasing the supply of renewable energy
2020-2030	All existing buildings renovated and energy efficient	Implementation of energy efficiency measures in public buildings and private households
2020-2030	Food donation programs	Establishment of a sustainable system of donation and distribution of food from the supermarket chains

2020-2030	Better food quality	Introduction of an effective system to control the quality of food
2020-2030	Transparency in public administration	Development of a culture of transparency in public administration
2020-2030	Public spaces	Optimisation and planning the use of spaces in accordance with the needs of community
2020-2030	Lifelong learning	Introduction of civic education as a basis for involvement and participation of citizens; promoting non-formal education
2020-2030	Critical thinking	Development of comprehensive schools and kindergartens
2020-2030	Participative budgeting	Co-decision and participation of citizens in the management of the city budget
2020-2030	Active citizens	Creating a connected active neighbourhood that participate in local self-governance
2020-2030	Sustainable transportation of goods	Introduction of obligation to use sustainable means of transportation for transportation of goods and delivery
2020-2030	Living streets	Revitalisation of public spaces and streets to encourage social inclusion and outdoor activities
2020-2030	Efficient public transport system	Development of a public transport system with transport hubs that allows easy transition from one mode of transport to another; introduction of obligatory basic public services within a short distance of all places of residence
2030-2050	Introduction of low-carbon urban areas	Strengthening neighbourhood identities
2030-2050	Circular economy	Development of a local plan to introduce circular economy and concept of 'life cycle of products and services', which follows the environmental footprint of products and services
2030-2050	All production of energy in the city and surrounding areas	Development of central heating system, Introduction of obligation of setting photovoltaics or green roofs on all new buildings
2030-2050	Soil regeneration	Using principles of restoring agriculture
2030-2050	Local food production	Short food supply chains; developing a network of small producers to exchange locally produced food, Eco markets, stimulating the development of family farms and agricultural production around the town

2030-2050	Social inclusion	Development of wide range of measures aimed at social inclusion of marginalised citizens
2030-2050	Governance reform	Encouraging new governance and communication models to engage citizens
2030-2050	Healthy lifestyle	Broad implementation of measures for preventive medicine and increased number of health care
2030-2050	E-vehicles	Popularization of ecological vehicles and development of e-filling station

ASSESSMENT OF NEEDS

What can the city do?

- develop and ensure stable long-term vision
- develop more specialised strategies and actions plans and work on their execution
- setting more ambitious targets than the national targets and frameworks are set
- considering small scale projects can have bigger impacts on citizens life that big projects
- give more attention to citizens initiatives and grassroots ideas
- start using incentives and taxes as a mode of award for sustainable projects
- develop a continuous dialogue with citizens
- reform of the governance structure - make if more flexible, collaborative and inter-sectoral
- start accepting social innovations in urban governance and financing
- develop better dissemination networks with foreign cities
- prepare a sufficient project pipeline and be involved in more EU projects
- prepare more capital investments eligible for EU funding
- work much harder on dissemination and education related to sustainable development
- give more power to neighbourhood councils and community organisations as they have a great role in transition
- include citizens in decision-making process

What can national government do?

- develop more efficient public administration system on national, regional and local level as it has a huge influence on program development and project implementation
- consider the use of innovation in order to simplify some processes and adapt them to the needs of today's society and thus speed up the transition
- accelerate the development of national strategies that provide a framework for post/low carbon transition as in many cases local governments have to wait for national government

to start defining their own development strategies which are often a precondition for implementation of projects

- accelerate the enactment of laws and regulations that allow implementation of projects related to post/low carbon transition. Include citizens or groups that demonstrate interest or provide new solutions in decision-making process
- enable faster implementation of large-scale projects that have a significant impact on local community by giving more power to local authorities in project execution
- accept or develop more financial instruments targeting communities (territorial communities or specific interest communities) or NGOs which have a substantial role in development
- national government is completely in charge of some sectors (e.g. education, health, pension systems) but maybe should give some flexibility to the regional and local governments to introduce their own systems or solutions (in case those are more ambitious)
- allow some changes in policies related to energy, start-ups, cooperatives, NGOs
- start ranking cities according to their post-carbon development index
- ensure better cooperation between the cities and give more visibility to examples of good practices

What can EU do?

- make EU funding system simpler by skipping the national level as it sometimes takes too long and is complicated for national governments to make all adjustments and documents which should be also transposed to regional and local levels
- provide more financial sources for urban development and deploy more financial instruments intended for urban areas
- engage local level while developing policies and involving cities in decision-making process (as they are working the most on implementation of EU targets into concrete actions)
- monitor the achievement of targets within the urban areas and identify obstacles that appear exactly in the implementation of EU goals within urban of areas
- set more ambitious or specific targets for urban areas in general
- take into account the specificities of some states or cities when setting binding targets and allow tailor-made approach (e.g. growing/shrinking cities).
- ensure visibility and scaling-up of successful small-scale projects and initiatives that can sometimes even influence EU policies. Stimulate demo and pilot projects that aim to solve problems in urban areas
- Urban Innovative Actions are a good tool to support and institutionalise experiments in the urban areas. As well as URBACT they contribute to capacity building and the acceptance of innovations. UIA and URBACT budget should be increased to allow more cities to participate
- develop more programs or instruments like CLLD or LEADER which directly serve the needs of community and self-organised groups within some territory
- start ranking cities according to their post/low carbon development index and publish the results regularly

- continue Urban Audit with improved accuracy of the data collected
- support development of initiatives and dissemination networks for low-carbon urban development. Improve cooperation between countries and cities in the field of urban development.

IMPACT OF THE PROPOSED MEASURES ON CITY DEVELOPMENT

This part consolidates the work on modelling the business as usual (BAU) and post-carbon (PC 2050) scenarios for Zagreb and quantifying the impacts. It should be noted that the BAU scenario is primarily developed from a continuation of current trends with consideration of current projects. Whilst PC2050 is developed from an interpretation of the vision, action and milestones developed in the stakeholder workshops. A summary of the KPI's current trends and the expected outcomes under the scenarios is given below.

ENVIRONMENTAL

In the PC scenario effort will be put into energy efficiency, whereby one can expect a reduction in energy intensity. In the BAU scenario the renewable part of the energy mix is expected to increase, which will contribute to a reduction in the carbon emission intensity.

In the PC scenario several measures will be taken, such as a high level of energy production on a household level, which will decrease the carbon intensity significantly.

A small increase in the share of transportation can be observed in the energy consumption by sector. In the future the industry is expected to lower its share. The trends in air quality can also not be observed so it is difficult to project the trend for BAU. However, we would generally expect air quality to be greatly improved by 2050 with improved transport emissions. This is not only due to hybrid and electric vehicles but also to improvements, also in emission technology for fossil fuels.

However, the current trend shows a slight increase in cycling, which is expected to continue in the BAU scenario. In the PC scenario a new biking network will be put in place resulting in an increase in the share of cycling with a corresponding reduction in car traffic.

For waste generation, the current trend shows a decrease, but since the data is limited the trend is uncertain. In the BAU scenario a minor decrease in waste generation can be expected. In the PC scenario, focus will be put on the circular economy which could improve waste recovery and generation.

Water losses have been unchanged for the last ten years. The current levels are high and the issue has not been dealt with in either the BAU scenario or in the PC scenario. Water losses are thus expected to be a future problem, especially combined with the effects of climate change.

There is no data available on energy efficient buildings but due to investments in energy efficiency, improvements can be expected in both the BAU scenario and in the PC scenario.

ECONOMIC

The trend for sustainable economic growth is positive, with the level of wealth showing an increase of 61% from 2003 to 2010. This trend is expected to continue and will be slightly higher in the PC scenario. As is the case in most European cities, the service sector share of GDP and employment is growing and this will continue under both scenarios, with an associated fall in the contribution by industry.

SOCIAL

In terms of equality the indicators are positive, with a very low unemployment rate and a high rate of tertiary education for both sexes. The male rate of tertiary education is however 9% lower, at 45.6% compared to the 54.4% for females. No significant changes are expected for either the PC or the BAU scenario.

The poverty level is quite high at 20.5% (2013) and has increased over the last 5 years, which is of some concern. However, in both scenarios and particularly for PC2050 a decrease can be expected as a result of economic development. Life expectancy has improved considerably from 2003 to 2012, but is still low at 78.8 years by European standards.

In terms of green space there is strong cause for concern as the amount of forest has decreased significantly from 168.8 km^2 to 92.9, a reduction of 45%, over 6 years from 2006 to 2012. This suggests either considerable urban sprawl and/or deforestation for another cause.

	SUB-DIMENSION	INDICATOR	Trend	BAU 2050	PC 2050
ENVIRONMENT	Biodiversity	Variation rate of ecosystem protected areas	Decrease.	-	0
	Energy	Energy intensity variation rate	Too short time span for trend No data	+	++
		Variation rate of energy consumption by sectors	Small increase in share of transport?		
	Climate and Air Quality	Variation rate of carbon emissions intensity	Short time period Short time period	+	++
		Carbon intensity per person	-	+	++
		Variation rate of carbon emissions by sector	No data on trend		
		Exceedance rate of air quality limit values	No data?	0	+
	Transport and mobility	Variation share of sustainable transportation	Little difference, share of bicycling increased slightly?	+	+
	Waste	Variation rate of urban waste generation	Too short time period?	+	++
		Variation rate of urban waste	Increasing, but low levels?	+	++

	SUB-DIMENSION	INDICATOR	Trend	BAU 2050	PC 2050
		recovery			
	Water	Water losses variation rate	Small change?	0	0
	Buildings and Land Use	Energy-efficient buildings variation rate	No data available	+	+
		Urban density variation rate	+1%	0	+
ECONOMY	Sustainable economic growth	Level of wealth variation rate	+61%	++	++
		Variation rate of GDP by sectors	Industry->Business?	N/A	N/A
		Employment by sectors variation rate	Industry->Services?	N/A	N/A
		Business survival variation rate	No data	ND	ND
	Public Finances	Budget deficit variation rate	No data	ND	ND
		Indebtedness level variation rate	No data	ND	ND
	Research & Innovation dynamics	R&D intensity variation rate	No data	ND	ND
SOCIAL	Social Inclusion	Variation rate of unemployment level by gender	Annual variations	ND	ND
		Variation rate of poverty level	Increase	+	+
		Variation rate of tertiary education level by gender	Different trends	+	+
		Variation rate of average life expectancy	+2.2 years	+	+
	Public services and Infrastructures	Variation rate of green space availability	Large reduction in forest area	--	0
	Governance effectiveness	Existence of monitoring system for emissions reductions	-	N/A	N/A

ANNEX. STAKEHOLDERS: ZAGREB

Name of the participant	Organisation
Valerija Kelemen Pepeonik	Zagreb City, City Office for Strategic Planning and Development of the City
Sonja Sočivica	Zagreb City, City Office for Strategic Planning and Development of the City
Vladimir Lay	Institute of Social Sciences Ivo Pilar
Jelena Puđak	Institute of Social Sciences Ivo Pilar
Tomislav Tomašević	Institute for Political Ecology
Tena Petrović	Safege Consulting
Lidija Srnec	Croatian Meteorological and Hydrological Service
Željka Fištrek	Energy Institute Hrvoje Požar
Željko Jurić	Energy Institute Hrvoje Požar
Gordana Dragičević	Permaculture Croatia
Vladimir Halgota	Cyclists Union
Vera Đokaj	Cluster for Eco-Social Innovation and Development CEDRA
Marko Gregović	Social enterprise, Brodoto
Edo Jerkić	Green Energy Cooperative
Maja Božičević Vrhovčak	Society for Sustainable Development Design
Žana Barišić	Political Party Za grad
Lin Herenčić	Energy and Environmental Protection Institute
Kata Marunica	NFO, Architects office
Matijana Jergović	Health public institute Andrija Štampar
Goran Krajačić	Faculty of mechanical engineering and naval architecture
Ivan Kardum	Cooperative for ethical financing
Goran Jeras	Cooperative for ethical financing
Rene Lisac	Society of Architects Zagreb
Kristina Careva	Society of Architects Zagreb
Cvijeta Biščević	Permaculture Croatia
Marina Kelava	Association for Independent Media Culture
Neven Višić	Student association, e-Student