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Cities and climate change

More than two thirds of the European population lives in urban areas, accounting for over 70% of global carbon dioxide emissions from energy consumptions.

Municipal governments play a leading role in the transition pathway towards a sustainable future. As a matter of fact, cities:

- magnify the drivers of climate change,
- experience the impacts, in terms of vulnerability,
- concentrate the highest room for action also through behavior change strategies

... are the ideal platform on which to implement effective plans and strategies as concerns climate change mitigation and adaptation



... can contribute considerably to the achievement of the national objectives and international commitments.

Aim of the research

This research was aimed to understand:

• The state-of-art of the urban climate action plans developed in Spain and Italy. These two countries share similarities on many levels (i.e. cultural, geographical, climate vulnerabilities, urban configurations and institutional framework).

• Why and how cities have started actions to reduce their contribution to climate change and become more resilient, investigating also the influence of national and international climate alliances.

These aims are pursued through an in-depth analysis of mitigation and adaptation plans and programs in a sample of Spanish and Italian cities in terms of emission targets set, methods adopted, topics included and actions taken.



Data and methods



The database (developed in a wider research covering 200 urban areas in 11 EU countries [1]) focuses on the following sample of 26 and 32 Spanish and Italian municipalities included in the Eurostat Urban Audit (UA) database [2]:

Spain: Gijón (GI), Las Palmas (LP), L'Hospitalet de Llobregat (LH), Logroño (LO), Madrid (MD), Málaga (MA), Murcia (MU), Oviedo (OV), Palma de Mallorca (PL), Pamplona/Iruña (PA), Santa Cruz de Tenerife (SC), Santander (SA), Santiago de Compostela (SC), Sevilla (SE), Toledo (TO), Valencia (VA), Valladolid (VL), Vigo (VG), Vitoria-Gasteiz (VI), Zaragoza (ZA).

Italy: Ancona (AN), Bari (BA), Bologna (BO), Brescia (BS), Cagliari (CA), Campobasso (CB), Caserta (CE), Catania (CT), Catanzaro (CZ), Cremona (CR), Firenze (FI), Foggia (FG), Genova (GE), L'Aquila (AQ), Milano (MI), Modena (MO), Napoli (NA), Palermo (PA), Padova (PD), Perugia (PG), Pescara (PE), Potenza (PZ), Reggio Calabria (RC), Roma (RO), Sassari (SS), Salerno (SA), Taranto (TA), Trento (TN), Torino (TO), Trieste (TS), Venezia (VE), Verona (VR).

It gathers information on Climate Change Mitigation (CCM) and Adaptation (CCA) plans and actions, analysing also Climate Change Mitigation-Related (CCMR) and Adaptation-Related (CCAR) plans.

It collects socio-economic data and natural-physical characteristics from the UA database.

It provides also information on the cities involvement in climate networks and cities' alliances.

Urban climate actions in Italy and Spain



SPAIN

Covenant of Mayors (CoM)
1,431 signatory cities (15% of the total cities): 81% have published their SEAPs

Spanish Network of Cities for Climate (RECC)
291 members (since 2004), including municipalities, regions and regional networks.

Only 7 cities out of the 26 studied (27%) have included initiatives related to adaptation in their CCM plans. 4 of these cities have integrated an adaptation section or measures in their CCMR plans (Bilbao, Madrid, Murcia and Valencia), 3 have created (or are creating) an adaptation plan specifically.

MITIGATION

ITALY

Covenant of Mayors (CoM)
3,101 signatory cities (38% of the total cities): 82% have published their SEAPs

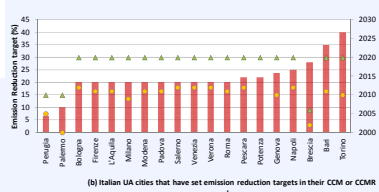
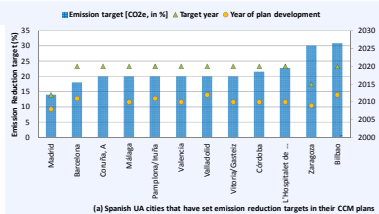
Climate alliance
148 members, including municipalities and associations

11 cities out of 32 (34%) have an adaptation-related plan. Many of these plans were designed to address specific risks.

ADAPTATION

As of January 2013

Main outcomes



The 26 Spanish cities in our sample enroll in RECC or CoM

19 out of 32 of the Italian sample are signatories to the CoM, and only 5 have joined Climate Alliance

Source: De Gregorio Hurtado et al., 2015 [3].

Mitigation

Mitigation topics	% of Spanish plans	% of Italian plans
Energy efficiency	100	91.3
Renewable energies	93.3	95.7
Heating from renewable energies	13.3	91.3
Waste management	73.3	56.5
Urban planning	26.7	73.9
Agriculture	6.7	17.4
Transportation	86.7	87
Intramunicipal reorganisation	13.3	69.6
Buildings (e.g. Heating)	100	100
Jobs	0	43.5
Industry	46.7	39.1
Commerce, trade, services	73.3	47.8
Households	93.3	82.6

Italian cities are on average more active in mitigation actions and appear more ambitious than Spanish cities in setting emission reduction targets.

Mitigation plans in both countries mainly focus on topics related to energy and transportation.

Adaptation

Adaptation topics	% of Spanish plans	% of Italian plans
Health aspects	85.70	38.50
Water management	7.70	57.10
Agriculture	28.60	0.00
Forest management	42.90	38.50
Flood protection	57.10	15.40
Urban planning and development	42.90	30.80

The Spanish plans approach adaptation to climate change more holistically, acting on a number of topics. Health is the most commonly addressed issue.

More than half of the Italian plans deal with a specific risk rather than urban resilience in its broader meaning.

A general delay was recorded in both countries on adaptation at the urban level: plans and initiatives are more frequently carried out at a higher administrative level (Metropolitan Area, Province, Region); and adaptive action is being developed later than mitigation at national and regional levels.

Conclusions

- Climate networks are very effective support mechanisms for both mitigation and adaptation planning.
- Urban climate planning in Spain and Italy has mainly focused on mitigation actions, particularly in the energy sector.
- The policies and plans evaluated indicate a trend towards an increasing awareness on climate mitigation, whereas, the scarcity of local adaptation plans confirms that urban resilience is a very complex issue mostly addressed with a reactive approach.
- Planning for mitigation and adaptation is a dynamic process: the policy framework is quickly evolving and more and more cities are engaging in climate actions both in Spain and Italy.
- Only a richer and more structured interaction between cities, provinces, regions and the national government will assure a successful and comprehensive climate action in the medium term.

A review of the main institutional, socio-economic, environmental and vulnerability characteristics of the 58 analyzed cities sheds light on the potential barriers and opportunities to the development of urban CC plans.

	Barriers	Opportunities
Mitigation	<ul style="list-style-type: none"> - High unemployment rate - Lack of funding - High technology dependency 	<ul style="list-style-type: none"> - Covenant of Mayors - Renewable energies - Energy efficiency measures - International benchmarking
Adaptation	<ul style="list-style-type: none"> - High unemployment rate - Low awareness - Lack of technical knowledge - Lack of funding - Return of benefits in the medium/long term 	<ul style="list-style-type: none"> - Climate networks - National adaptation framework - Local risk reduction - Attraction of investments

Key references

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