

# Local governments as drivers for societal transformation: towards the 1.5 °C ambition

Helene Amundsen<sup>1</sup>, Grete K Hovelsrud<sup>2,4</sup>, Carlo Aall<sup>3</sup>, Marianne Karlsson<sup>4</sup> and Hege Westskog<sup>1</sup>



The political ambition of curbing global average temperatures to 1.5 °C above preindustrial levels requires significant and profound changes to societal organisation, energy use and consumption. It will not be sufficient to maintain or incrementally change status quo, rather it will require radical and paradigmatic transformative changes. Local governments have dual roles in social transformation: to transform within their own organisation, and to act as a catalyst for transformation locally. We find that key factors for transformation include pursuing and institutionalising a long-term sustainable development agenda; and building networks established between different parts of the municipal organisation, and between the municipalities and local businesses, civil society groups and other relevant actors.

## Addresses

<sup>1</sup> CICERO Centre for International Climate Research, P.O. Box 1129 Blindern, 0318 Oslo, Norway

<sup>2</sup> Nord University, P.O. Box 1490, 8049 Bodø, Norway

<sup>3</sup> Western Norway Research Institute, P.O. Box 163, 6851 Sogndal, Norway

<sup>4</sup> Nordland Research Institute, P.O. Box 1490, 8049 Bodø, Norway

Corresponding author: Amundsen, Helene ([helene.amundsen@cicero.oslo.no](mailto:helene.amundsen@cicero.oslo.no))

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## Local authorities as international players in environmental policy

The COP22 Marrakech Partnership for Global Climate Action, building on the Paris Agreement to reduce the emissions to 1.5 °C above preindustrial levels, opens up a new era of global climate governance in which the role of non-national actors, including cities and municipalities, is essential in realizing the global climate goals [1<sup>•</sup>,2].

The Paris Agreement recognises ‘the importance of the engagement of all levels of government and various actors (. . .) in addressing climate change’ [3, p. 21]. This is a break from a traditional top-down approach in which the international agreements are negotiated and signed at the international level, and ‘taken home to be implemented, or ignored, by national governments, with consequent local level obligations’ [4, p. 16]. However, within the domain of environmental policy local authorities are found to take independent policy initiatives and send political signals to both the national and the supranational level (e.g. [5<sup>••</sup>,6]), and representatives of local authorities take active roles in the processes connected to international climate negotiations [7]. Local authorities have control over critical sources of emissions within their own jurisdictions and this is where they show commitment to mitigate climate change [8]. The local scale is also where moderate and potentially catastrophic impacts of climate change will be experienced (e.g. [9,10<sup>•</sup>]). As President Donald Trump pulls the USA out of the Paris Agreement, a number of American states, cities, and municipalities declare that they nevertheless will stick to the agreement. Thus, local authorities worldwide are taking active roles as policy actors, policy front-runners, and societal developers within their geographic areas [1<sup>•</sup>,5,7,11–14].

Building a global regime is necessary, but as pointed out by Ostrom [15], encouraging the emergence of ‘a poly-centric system’ where actors at multiple levels complement each other is important. This means that actors at sub-international levels may start the process of reducing GHG emissions and thereby spur international regimes to do their part. Additionally, strengthening the transformative capacity of cities and communities is needed for meeting the 1.5 °C ambition and for ensuring resilient and thriving communities [16<sup>••</sup>]. In this paper, we address the role of local governments in transformation towards a low-emission society.

## Societal transformation and local governance

The political ambition of curbing global average temperatures to 1.5 °C above preindustrial levels requires significant and profound changes to societal organisation, energy use and consumption. It will not be sufficient to maintain or incrementally change status quo, rather it will require radical and paradigmatic transformative changes [17].

While the focus on societal transformation has increased, the concept has no singular agreed-upon definition. Feola [18] lists eight emergent concepts pertaining to societal transformation: regime shift [19]; socioecological transition [20]; societal transition [21]; progressive transformation [22]; deliberate transformation [23\*]; social practice [24]; and two variations of transformational adaptation [25,26\*]. These and other conceptualizations draw upon diverse theoretical origins but share commonalities in viewing transformation as a process that involves interacting units at multiple levels operating as a larger whole or system [18]. The role of local level government is not explicitly addressed, but the potential to influence national and international levels is a common theme throughout the literature. Local and small-scale initiatives have the potential to be more innovative and resist mainstream values and thereby spark social change that can spread to higher levels of government (e.g. [23\*,27]). This paper highlights the need for attention to the roles of local governance in transformation. We approach transformation as radical change which challenges and changes the dominant social paradigm — including beliefs, values, assumptions and interests [23\*]; and alters the fundamental attributes of the system, including regulations, finance and biology [17]. Radical conceptualizations of transformation proposes a fundamental restructuring of human-environment relations that enable GHG mitigation, climate adaptation and generate a more ecologically and socially just future [28\*\*,29]. The role of local governance in driving transformation can either be seen as an incubator of change spreading to higher levels of governance [30], or as an actor that through continuously working for incremental change may tip the system towards sustainability [27]. Radical and incremental forms of change is conceptualized by several scholars to co-exist in achieving transformation. Park *et al.* [26\*] show the interlinkages between incremental and transformative adaptation, recognising that incremental steps may be necessary on the path to transformation. A stream of incremental adaptive actions is in general seen to have the ability to shift the system towards new development paths that can be described as transformation [25,27,28\*\*]. The direction of the incremental changes is important to observe, because such changes may result in lock-in to systems that are not contributing towards a low-emission society [27], for example large road infrastructure developments. The interdependence between slower change processes and transformation is emphasised by Béné *et al.* in that stability of institutions and systems allow for planning and organisation necessary for systematic and profound transformative changes [31].

Pelling *et al.* [28\*\*] conceptualize change in three stages. The first refers to resistance, signified by a protection of status quo which also may include coping mechanisms. The second stage of change pertains to ‘incremental adjustments’ or changes which in many cases is an

important step in transforming to a low-emission society through incorporating incremental changes that are anchored in today’s systems and societies. The third is transformation.

Taking another focus than on systems, Gillard *et al.* [32\*] argue that the capacity to transform should be examined in terms of power and agency. The values and priorities local level actors espouse when implementing low-carbon initiatives and how well these resonate with the values and rationales held by higher level institutions can according to their argument shape local institutions’ capacity to influence transformation beyond the local sphere. This implies that it is more likely for local institutions to be influential if the values they hold are in line with those prioritised by higher level governance actors. Whether transformative change primarily is initiated and occur through formalised or more informal institutions and networks [28\*\*,33] also becomes relevant for examining the role of the local level government. It is important that the transformation is just and equitable (e.g. [1\*,5\*\*,16\*\*]), but this requires examining who is defining the direction of change and what the trade-offs are between different transformation pathways, especially for vulnerable and marginalised social groups [34]. Transformation to a low-emission society may be both economically and technologically feasible, but questions regarding governance, policy and addressing multiple objectives in a transformation process must also be solved [5\*\*].

Local governments have dual roles in social transformation: to transform within their own organisation, and to act as a catalyst for transformation in the local society. Transformation relates to both mitigation to a low-emission society and building resilient communities [5\*\*].

Pasquini and Shearing [10\*] argue that local governments are important for addressing climate change, because this is the governmental level closest to where the impacts will be felt; it is the level at which individual behaviour may be directly influenced; and responses to climate change are implemented at the local scale. This is supported by a large body of scholarly papers on climate mitigation and adaptation which shows how important municipalities are for both identifying the need for local adaptation and for developing adaptive responses that are applicable locally [35–42]. The local governments’ responsibility in ensuring safe and sustainable conditions for their residents paves the way for extending their role in driving processes for transformation. Local governments are well positioned to become policy front-runners in facilitating transformation to a low emission society, including in provisioning of welfare services, in procurement, in supporting and connecting local businesses to develop new jobs and products that are sustainable, and the role of providing examples of opportunities and possibilities for other actors [6,43,44\*]. Furthermore, local

Table 1

## Factors influencing the process of transformation in local governments

Factors that influence transformation	References
<i>Pre-conditions and Exogenous factors</i>	
Systems thinking	Burch et al. [5**]
Climate and energy policies/trends	Fenton et al. [49]
Shared values and priorities between national and local levels	Gillard et al. [32*]
<i>Endogenous factors</i>	
Local government as active agents of change	Storbjörk et al. [44*], Dannevig et al. [38], Wang et al. [43], Ringholm and Førde [66]
Involvement of stakeholders	Fenton et al. [49], Burch et al. [5**], Ringholm and Førde [66], Burch et al. [5**], Westskog et al. [35], Fenton et al. [49]
Participatory governance	
Political anchoring	
Adaptive co-management	
Integrated decision-making	
Shared vision	Burch et al. [5**], Fenton et al. [49], Ringholm and Førde [66], Pasquini and Shearing [10*], Aarsæther [58]
Problem definition and recognition	
Visible results	
Monitor and evaluate progress	
Institutionalise climate policy at the local level	Broto [52], Burch [45], Westskog et al. [35], Wejs [53], Wejs et al. [54], Kasa et al. (unpublished data)
Political leadership	Pasquini and Shearing [10*], Burch [45], Tørnblad et al., 2014
Policy outcomes with local acceptance	
Buy-in	
Engaged politicians, officials and individuals	Fenton et al. [49], Dannevig et al. [38], Wejs [53], Ringholm and Førde [66], Kasa et al. [50]
Networks – within and between local governments and with other actors	Pasquini and Shearing [10*], Westskog et al. [35], Ziervogel et al. [16**], Ringholm and Førde [66], Kasa et al. [50]
Balancing and coordinating different interests	Hrelja et al. [62], Teigen and Lien [65], Burch et al. [5**]
Path dependency	Burch et al. [5**]
Transformative capacity	Burch et al. [5**], Fenton et al. [49], Keskitalo et al. [40]
Appropriate tools	Burch et al. [5**], Fenton et al. [49]
Financial aspects	
Long-term planning horizon/long time-scale	Burch et al. [5**]
Integrate sustainable development into innovative municipalities	Shaw et al. [47], Burch et al. [5**]
Knowledge dissemination and production	Ziervogel et al. [16**]
Experience and observation of extreme events/real world events	Pasquini and Shearing [10*], Dannevig et al. [38]
Education programmes in schools	Pasquini and Shearing [10*]

governments have the potential to influence climate change impacts, adaptation and mitigation through land use planning, waste management, health care services, infrastructure, and community development [45,46]. Experience from Canadian municipalities show that local governments with sustainable development strategies, rather than a specific climate agenda, have had added benefits for adaptation and mitigation [47]. In terms of transformation, pursuing a long-term sustainable development agenda will highly likely include the potential to develop climate adaptation strategies and a low-emission society [48].

The literature highlights a number of factors that are important for transformation to occur. The absence of these factors will likely hinder or slow the process of transformation. (See Table 1 for an overview.)

As Table 1 shows, factors of the transformation processes at the local level are many and complex, and they depend on the context in which the transformation processes

unfold. However, two factors are shown to be overarching and important for the success of transformation; how the processes are linked to a common understanding and identity of the local community as sustainable, including a common vision and problem definition [5\*\*,10\*,49]; and the extent to which the local governments are connected and engaged in networks aimed at transforming towards a low-emission society [10\*,16\*\*,35,50]. The networks need to be established both between different parts of the municipal organisation, and between the municipalities and local businesses, civil society groups and other relevant actors.

Many of these factors are identified as relevant for transformation while others are being developed and implemented in a number of frontrunner municipalities through their sustainable development strategies and climate policies [1,7,11,12,14,51]. This may be explained by factors such as degree of institutionalisation [45,52–54]; committed and engaged municipal administrators or politicians [10\*,38,49,50,55]; observed and experienced

changes in climate [10<sup>•</sup>,38,56,57]. Municipalities are furthermore dependent on appropriate tools, sufficient capacity and policy targets to be able to transform [5<sup>••</sup>,49]. Burch *et al.* [5<sup>••</sup>] find in their study of Canadian municipalities that long-term planning horizon beyond one electoral period is important. Further, they find that building networks and applying systems thinking, which allow for taking multiple policy concerns into account and involving relevant actors in integrated decision-making, is important, which is echoed by research in South Africa [10<sup>•</sup>] and Sweden [49]. The monitoring and evaluation of progress is key [5<sup>••</sup>,58], in which visible and beneficial results to the community is important for acceptance [10<sup>•</sup>]. This begs the question of whether technical or quantitative indicators are sufficient to measure transformation progress or whether we need different tools. Below we illustrate different approaches to how we can address transformation.

### Local governments as facilitators of change

Transformation to a low-emission society requires a stronger focus on municipalities as societal actors and facilitators of change. Herein lies the potential for municipalities to act as a catalyst for innovation within their geographic area. Two ways in which local governments may contribute to achieving the 1.5 °C ambition are illustrated below by two examples. In the first we highlight the ways in which land-use planning processes may support long-term development, which avoid lock-in to unsustainable practices and thereby contributes to reducing emissions. In the second we explore how local governments can lead by example in reducing CO<sub>2</sub> emissions.

#### Local governments and land-use planning

Land-use planning is particularly important for long-term planning and setting the direction for the development of society (e.g. [5<sup>••</sup>]). The responsibility for land-use planning is organised differently in different countries. In Canada, Sweden, Norway and several other countries, the legal responsibility lies with the local governments, which means that land-use planning is under municipal jurisdiction.

Through land-use planning, local governments have an opportunity to ensure incremental changes towards transformation to a low-emission society. Conversely, their decision-making may result in lock-in to systems that are not contributing towards a low-emission society. This is exemplified by large road infrastructure developments that facilitate traffic growth or housing development without public transport connections and houses that are energy demanding [59–61].

Empirical studies from Sweden test whether the theoretical understanding of the importance of land-use planning for transformation is easy to apply in practice. One study

found that the actual implementation of transformation and sustainable development plans were challenging due to a range of limiting factors, including the prominent role of private property developers and entrepreneurs, economic priorities and routines [62]. They further found that the case municipalities struggle to link the overarching municipal policy goals with detailed land-use planning. However, local governments in Canada that framed their climate policies in line with a sustainable development agenda had a better understanding of the linkages between their existing policies within land-use, transportation and other areas of responsibilities [47]. This facilitated the integration of climate policies.

The role of private developers and entrepreneurs are significant for the development of spatial use in many municipalities. In Norway, approximately 80% of detailed planning for new developments are undertaken by the entrepreneurs, which may challenge the municipal planning processes [63]. This is exemplified in Sweden where private developers are not leading the way towards transformative change, which requires the local government to regulate to achieve the changes they have deemed necessary [44<sup>•</sup>].

#### Local governments leading by example

Local governments are positioned to actively partake in meeting the new ambitions of a low-emission society, and herein lies unknown potentials and possibilities [43]. Local authorities are important ‘change agents’, social and administrative entrepreneurs, and political activists in their attempts at developing local versions of the ‘good society’ [64,65]. The earlier noted example of innovative local governments in Canada that are implementing a sustainability development agenda, are leading the way for a sustainability transition that includes mitigation and adaptation [47].

In some municipalities, a pragmatic approach is found in which the focus is on activities to benefit the local society, irrespective of political party affiliations. This is exemplified by a municipality in South Africa. The case study of the South African municipality found that the efforts to mainstream environmental and climate issues in the organisation were continued after political change in the municipality [10<sup>•</sup>]. The continuation of the climate policies developed by the previous local government is rare, but in this case the continuation was partly credited to the support and acceptance by the political and administrative branches of the municipality [10<sup>•</sup>]. This was possible due to tight social networks in a small municipality. Furthermore, the support and buy-in of the entire municipality was important, and continuation of the climate policies was expected by the electorate. Some of the programme that also included the inhabitants were environmental education in schools and an hourly radio slot per week [10<sup>•</sup>].

Local governments have an important role in coordinating actors within the local democracy, local businesses and local organisations (NGOs). A case from another municipality in South Africa describes a programme through which the municipality actively built transformative capacity through working with and engaging youth, local businesses, and researchers [16\*\*]. The focus of the programme is not directly or solely on climate, but rather on building social relations and agency, particularly among youth, fostering social cohesion, and improving understanding of the natural systems that support life, including food production and clean water. The programme led to enhancement of local transformative capacity through building networks across the municipality.

## Conclusions

The more visible and central role given to non-state actors through the Paris Agreement and the Marrakech Partnership for Global Climate Action has been well received across municipalities, cities and regions. This is a role that local governments have sought for some time, and that fits well with their own commitments to transformation to a low emission society. From previous examples and current initiatives, we see that local governments have the potential to navigate and support equitable and just societal development that may also lead to reduced carbon emissions.

This paper has identified a number of exogenous and endogenous factors that limit actions by local governments. It is clear that the 1.5 °C ambition will require collaboration and network building across government levels and between public and private sectors, organisations and civil society. Locally governed land-use planning represents a clear opportunity for radical transformation, but the broader societal system in which this occurs creates barriers for such transformation. On the other hand, local government as change agents has the potential to influence processes beyond local community which in turn may reduce systemic barriers.

Transformation to a low-emission society is a tall order that requires fundamental and radical change to economies and politics, which are built on fossil fuels. Additionally, there is a highlighted need to develop policies in which all sectors and societal levels are included. At present, the local context is not sufficiently included in national and international policy development. A paradigmatic transformation process built around sustainable development strategies for climate adaptation and mitigation will highly likely have a greater chance to succeed in meeting the 1.5 °C ambition.

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