

## Planning Emergence via Sustainable Partnerships in Urban Ethiopia

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### 1 ABSTRACT

The advent of Complex Adaptive Systems thinking has seen most urban planning authorities becoming relentless in adopting sustainable participatory approaches in strengthening their adaptive capacities for unforeseen events. To developing countries like Ethiopia, this view is based on anecdote rather than reliable empirical evidence. This analysis seeks to close the knowledge gap by evaluating the extent to which urban planning authorities are engaged in sustainable partnerships to boost their adaptive capacities under a climate change scenario. First a conceptual model for sustainable partnerships relevant to a developing country context is developed. Such a model is then applied. Finally, a number of factors that explain the adoption and / or non adoption of sustainable partnerships by some planning authorities are deciphered. Empirical evidence relate to a Delphi study conducted in 2009 in which 64 urban planners from 23 cities / town were surveyed. The binary logistic regression model was employed to decipher some of the factors that explained the adoption and / or non-adoption of sustainable partnerships by some planning authorities. Results reveal that adaptation efforts by most local authorities have not benefited much from forging of working partnerships at various planning scales. Both vertical and horizontal collaboration were found to be limited. Major hindrances included on one hand absence of credible participatory structures and on the other hand the general divide that exists between the environment and planning institutions. Efforts that strive to build proper participatory structures, bridge the current divide and reconcile science and practice would go a long way in fostering sustainable partnerships for improved adaptation.

### 2 INTRODUCTION

For years, partnerships between actors in environmental governance issues have formed a common means of providing infrastructure and services where state funds or expertise were found lacking (Forsyth, 2005). With climate change high on the agenda, recent years have seen this role expand. In addition to this traditional role, partnerships have now become sites where norms of climate change concern and political accountability are formulated and replicated. The need for such a much diversified role of partnerships has seen international groupings such as the United Nations (UN) calling for a greater adoption of partnerships in development policy through the Global Compact, Millennium Development Goals, and ‘Type 2’ partnerships proposed at the World Summit on Sustainable Development in Johannesburg in 2002. Perhaps the greatest and most visible manifestations of partnerships at work has been their role as means to overcoming some of the political standoffs in implementing global environmental agreements, such as the UN Framework Convention on Climate Change (1992) and its Kyoto Protocol (1997) - (Cosbey et al., 2005). Such a partnership discourse has often centred on climate mitigation at both the international and national planning scales (OECD, 2010). At the local urban scale, climate change partnership discourse has focused more on climate change adaptation issues (UN-HABITAT, 2008; Kharen et al, 2011).

The multiplicity of actors that shape and are affected by climate change outcomes has led to a renewed interest in the implementation of sustainable partnerships at the urban scale. Since climate change issues are increasingly viewed from the complex systems thinking lense – a new paradigm that sees the effects of climate change as so encompassing and far reaching, an integrated effort of governmental, non-governmental and private individuals and organizations is required (Nath and Behera, 2011). Such a partnership approach requires a comprehensive framework if coping with the effects of climate change are to become a reality. It is believed that a much more cohesive and closely knitted approach from stakeholders is very important in underdeveloped countries where resource crunch is a major hurdle in the path to adaptation (Nath and Behera, 2011). Such a partnership stance is however underresearched and underdeveloped for most urban areas in developing countries (Mani et al. 2008). Yet most scholars agree at least in principle that a number of factors ranging from scientific uncertainty, through to the current state of technology, the availability of financial resources and short time horizons - which mostly constrain effective adaptive planning (Smit and Pilifosova, 2001; Lorenzoni et al., 2000a, b; West and Gawith, 2005; EEA, 2005; EU, 2007) can be overcome through the adoption of inclusive partnerships.

Such a limited research scope on the policy context of adaptation to climate change (Lim et al, 2005), has had a dent on efforts targeted at exploring best options aimed at enhancing longterm adaptive capacity of many urban local authorities (Lim et al, 2005; Niang-Diop and Bosch, 2005) – particularly those found in Africa. This paper assesses planning emergency via sustainable partnerships in urban Ethiopia. It specifically analyzes the extent to which urban planning authorities in Ethiopia are engaged in sustainable partnerships to boost their adaptive capacities under a climate change scenario.

## 2.1 Partnerships, climate change and urban planning

Partnerships for sustainable development (also called the UN-Type II partnerships) are voluntary, multi-stakeholder initiatives aimed at implementing sustainable development (Parthan et al, 2010). Most climate change partnerships are launched by governments and international governments. Such partnerships tend to be regional or global in scope and reach and are aimed at supporting the practical implementation of climate change initiatives as defined by the Intergovernmental Panel on Climate Change (IPCC), the United Nations Framework Convention on Climate Change (UNFCCC) and other related international groupings (Craik, 2011). Partnerships are considered both in principle and practice as innovative approaches that seek to overcome existing deficits in global governance regulation, implementation, and participation (Szulecki et al., 2010). The discussion of ‘climate policy integration’ through partnerships has however tended to focus on mitigation decisions mostly taken at the international and national levels (Urwin and Jordan, 2008). In the recent past, a number of such partnership initiatives have continued to be developed (refer to table 1) with little or no bearing on climate change adaptation decisions that are normally taken at the local scale.

Name of Partnership	Partners	Objectives/purpose
<sup>1</sup> The Earth Systems Science Partnership (ESSP)	A partnership that represent a concerted effort by DIVERSITAS, IGBH, IHDP, and WCRP	To enable a partnership that: (1) enables the community to identify and carry out research on scientific problems of high social and policy significance in a unified and integrative manner; (2) initiates and supports capacity building; (3) provides a high-level platform for effective engagement with stakeholders and the policy community; and, (4) facilitates efforts to ensure the continued vitality of the scientific enterprise
<sup>2</sup> The Renewable Energy and Energy Efficiency Partnership (REEEP)	Was established in 2002 by the United Kingdom (UK) government together with other committed governments, businesses, and NGOs	Established to deliver World Summit on Sustainable Development (WSSD) commitments made at the 2002 Johannesburg summit.
<sup>3</sup> The US Department of Energy’s Regional Carbon Sequestration Partnerships (RCSPs)	The seven partnerships include more than 350 state agencies, universities, national laboratories, private companies, and environmental organizations, spanning 42 states, two Indian nations, and four Canadian provinces.	The partnership was tasked with determining the most suitable technologies, regulations, and infrastructure for carbon capture, transport, and storage

Table 1. A sample of global partnerships on climate change related issues

It is therefore apparent that a more locally focussed adaptation dimension to climate policy integration has not been explored (Urwin and Jordan, 2008). There is therefore an urgent need to ‘glocalise’ partnerships so

<sup>1</sup> (Leemans et al, 2009)

<sup>2</sup> (Florini and Sovacool, 2009; Parthan et al, 2010).

<sup>3</sup> (Litynski, et al, 2009)

as to facilitate the effective implementation of adaptation decisions at the city or local scale. Such a focus on city level planning is not misplaced given that cities are (undoubtedly) centers of economic growth and population – a dominant feature that has seen them becoming a focal point of both climate change related risks and disasters and the solutions thereof. The OECD, (2009) has for instance advanced three reasons why climate change and adaptation policy should be redirected to municipal level planning. The first argument holds that climate change impacts are manifested locally, affecting city-wide systems (including, economic systems, livelihoods, infrastructure, water and so on). The second thinking holds that vulnerability and adaptive capacities are determined by local conditions. Finally, it is believed that adaptation activities are often observed at the local level and it is therefore easy to tailor actions to the specifics of a particular city (OECD, 2009; Gondo and Kori, 2012). A city based strategy therefore plays an instrumental role in shaping successful climate change adaptation practices.

Defining successful adaptation at all scales (regional, urban and local) is however complicated because the criteria for success are generally contested and context specific (Dessai and Hulme, 2007). It is however usually assumed that elements of effectiveness, efficiency, equity and legitimacy are important in judging successful adaptation (Adger et al, 2005). Many scholars however agree that a path towards sustainable partnerships can help realize such elements and subsequently smoothen the terrain for the achievement of effective adaptation (Schreurs, 2002; Mani et al, 2008; Huntjens et al, 2011; Nath and Behera, 2011). It is therefore imperative that, the workings of, and the interaction between city authorities (as an important arm of government) and other stakeholders be closely monitored if important climate change decisions are to be taken at the urban local scale. Such an expanded role of urban planning has been underscored by the Stern Review, (2008).

The Stern Review (2008) holds that market forces if left alone are unlikely to lead to efficient adaptation decisions. Public intervention is therefore necessary for many different reasons. The usually advanced aims and benefits of such public intervention include but are not limited to: (1) to protect those least able to cope by addressing the causes of vulnerability; (2) to provide information for planning and stimulating adaptation by non-state actors; and (3) to protect important public goods such as ecosystem services, public resources, land use and early warnings of extreme events (Tompkins et al, 2010).

## **2.2 Path to ‘sustainable’ partnerships**

This analysis defines ‘sustainable partnerships’ as collaborative efforts that breeds a win-win situation for each of the stakeholders involved. If adaptation measures are to address the concerns of, and build on the latent energy from each of the stakeholders, then such measures are more likely to be sustainable. The OECD (n.d) contends that, with access to up to date climate science, impacts and vulnerability assessment, urban local authorities should work with other stakeholders to design and implement effective adaptation strategies. This according to Khare et al, (2011) can be achieved via the formulation of programmes and initiatives that benefit from the existence of an integrated continuous and long term strategy. Such conditions are however not yet present in most developing countries in Africa (Nath and Behera, 2011; Gondo and Kori, 2012).

Most programmes geared towards long term sustainability tend to be confronted by a number of significant hurdles. This is because each of the stakeholders has issues that tend to work against long term adaptive solutions (Kharen et al, 2011). To this end enlisting cooperation among climate change agents, before forging of working partnerships is crucial. Such a stance forms the hallmark of what has been referred to as ‘co-operative environmental governance’ (Glasbergen, 1998; Meadowcroft, 1998; Klausen and Sweeting, 2003). In climate change mitigation, co-operative governance has over the years sought to overcome the conflictual nature of negotiations through the creation of a positive negotiating space between climate change actors. At the urban planning scales, such co-operative governance may be deliberate in the sense that it permits local actors to participate in the identification and implementation of norms of climate change concern and political accountability to a variety of adaptation decisions taken (Klausen and Sweeting, 2003). Co-operative governance may make urban planning behaviours that seek to winnow the intricate, and often complex problems associated with actual and potential effects of climate change more functional. Not only will this help boost the adaptive capacities of concerned stakeholders to deal with actual and pending climate change challenges, but this could also increase the number of options by which this objective is achieved. Forsyth, (2005) believes that co-operative governance facilitates this process by increasing local participation in deciding how investment decisions (in climate change adaptation) are made. Most partnerships based on

cooperative governance, however tend to be discurve in nature and run the risk of collapse due to challenges of fostering long term trust building processes (refer to figure 1).

Such challenges require knowledge, approaches and a much more localized understanding of the workings of such solutions that cannot be easily generated through co-operative governance, including all known forms of ‘conventional’ research programmes. A much more broader structure for climate change and adaptation is therefore required. Related efforts in environmental governance and / climate change issues have often identified forging of working partnerships between and among actors as the single most important approach to dealing with such challenges. Such partnerships may take a variety of forms as summarized in figure 1.

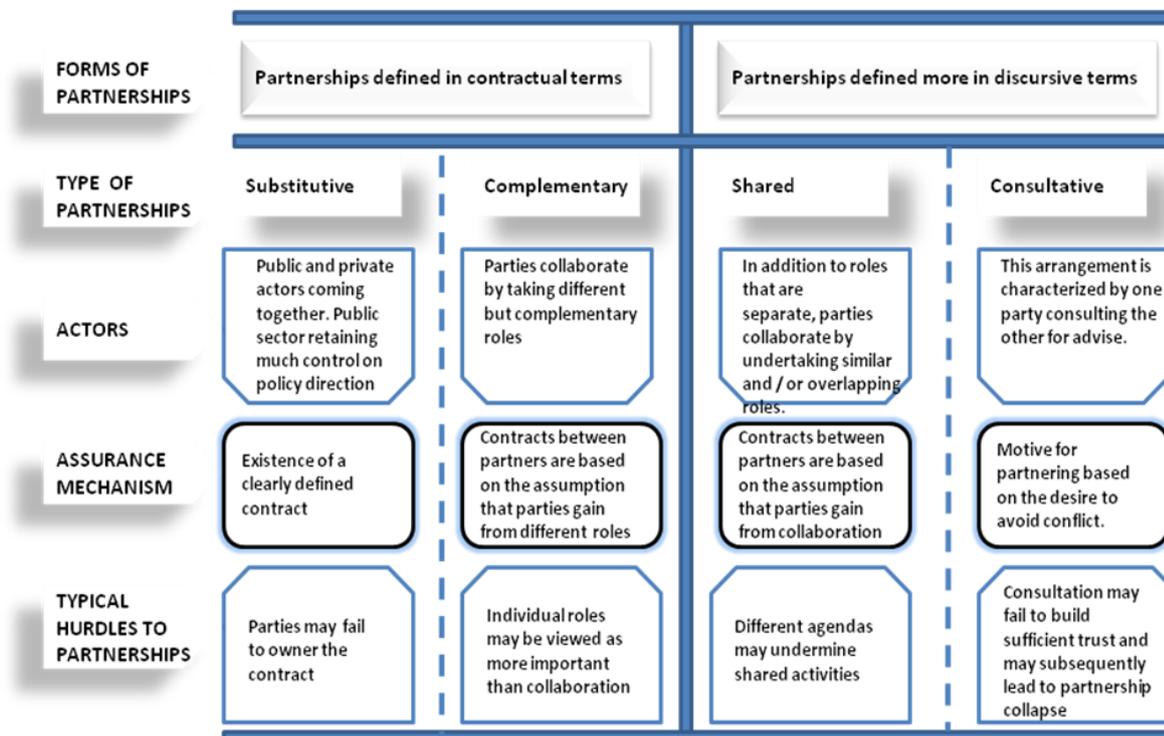


Figure 1. Forms of partnerships

According to figure 1, partnership forms are usually twofold. On one hand are discursive partnerships that often lack any contractual obligations on the part of stakeholders. Specific types include consultative and share partnerships. The other mode of partnerships include stakeholder arrangements defined by binding known contractual agreements. These are usually substitutive and complementary in nature. The path towards sustainable partnerships should be viewed as the gradual transition from consultative type of partnerships through to shared, complementary and finally substitutive types. A review of partnership discourse and practice in developing countries however reveals that such a transitional perspective is not complete. Based on a review of obstacles to climate change adaptation in developing countries, Nath and Behera, (2011) contend that adaptation policies work best when climate changes initiatives help create synergies with other goals and policies. Such a move towards integration has been mooted by policy makers and other societal actors who believe that the policy and or partnership context in which adaptive decisions are made must also be considered (see Burton et al., 2002; Lim et al., 2005; EU, 2007). Such thinking has also been taken up by the United Nations Development Programme which recently investigated how to integrate climate change into all strands of policy making in ways that support adaptive planning (Lim et al., 2005).

Drawing on the different forms of partnerships ranging from discursive through to contractual forms of partnerships and integration, three important levels – including cooperation, co-ordination and integration may be defined as important phases that can define the path towards sustainable partnerships for city authorities in developing countries. A simplified version of this conceptual model is given in figure 2.

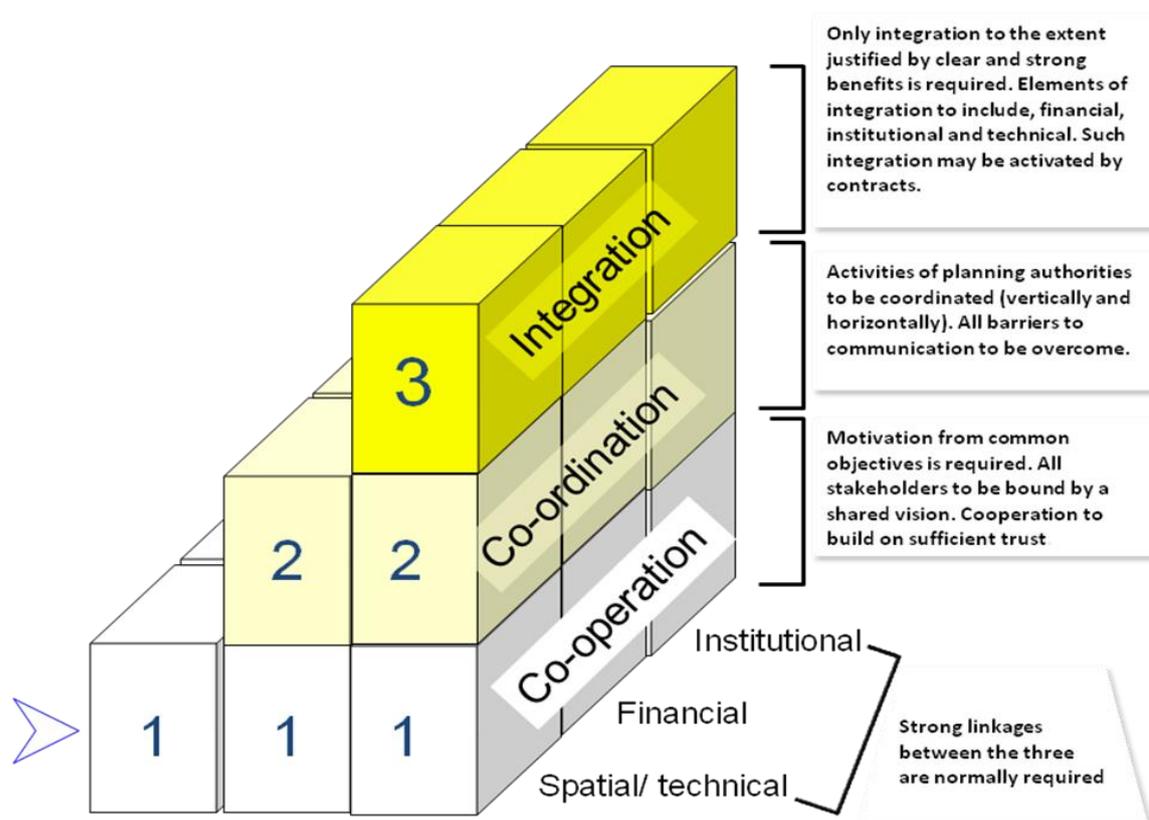


Figure 2. A conceptual model to understanding partnerships for climate change adaptation in developing countries.

### 2.3 Obstacles to ‘sustainable’ partnerships

Most urban planning authorities in the West are becoming relentless in adopting sustainable participatory approaches in strengthening their adaptive capacities for unforeseen events. As argued earlier on, such adaptation practices have been more visible at the national scales rather than the local scales. At the local scale, there exists a multitude of challenges that limit planning emergency via sustainable partnerships.

Khare et al, (2011) for instance observe that most city programmes and initiatives respond to climate change in the absence of any integrated, continuous and long-term strategy. Available empirical evidence on stakeholder involvement in environmental governance issues from elsewhere suggest that collaboration happens incrementally rather than systematically. Most research scholars have argued that most stakeholders participate in socially responsive activities when it serves their self centred interests (Bird and Hughes, 1997; Ferrarini et al, 2001; Pickett-Baker and Ozaki, 2008). Lack of will to engage in partnerships is one other limiting factor often mentioned. Some political scientists for instance have argued that the political implications of partnerships outweigh the potential benefits of enacting environmental policy (see Osbourne, 2000; Rosenau, 2000). Some critics have argued that forging partnerships with the private sectors poses important contradiction to the principles of climate equity. The usual line of argument is that such partnerships weaken environmental regulation through processes such as ‘regulatory capture’ – a situation where policy makers represent the interests of investors at the expense of poor communities (Gouldson and Murphy, 1998; Singleton, 2000).

Using partnerships as a functional means to implementing climate change and adaptation policy has been viewed by some as a neo-liberal attempt to ‘hollowing out’ the role of the state. This has often been viewed as a new trend towards ‘New Public Management.’ Such a ‘new’ trend has often been blamed on the grounds that it reduces public space for governing the provision of essential services – a situation that subsequently erodes the democratic accountability of local governments (Rhodes, 1996; Skelcher et al, 2003; Forsyth, 2005). A much more developmental perspective to climate change partnerships at local level suggests that implementing partnerships without critical attention to questions of participation and governance may result in policy that is not pro-poor (Evans, 1996; Fischer, 2003).

### 2.4 Climate change In Ethiopia

Despite the economic reform made after the political change in 1991 that brought significant improvements in the economy, Ethiopia is still one of the least developed countries (LDCs) in the World (MoFED, 2006). This development status makes the country more vulnerable to climate variability and change. Climate related hazards in Ethiopia include drought, floods, heavy rains, strong winds, frost, and heat waves (high temperatures) among others (NAPA, 2007). The much broader environmental concerns that have attracted interest from government, the private sectors, Non-Governmental Organizations and international donor agencies include land degradation, soil erosion, deforestation, loss of biodiversity, desertification, recurrent drought, flood and water and air pollution (NAPA, 2007). Going into the future such concerns are likely to deepen as temperatures and rainfall amounts are projected to surge. For the IPCC mid-range (A1B) emission scenario, it is projected that the mean annual temperature will increase in the range of 0.9 -1.1 °C by 2030, in the range of 1.7 - 2.1 °C by 2050 and in the range of 2.7-3.4 °C by 2080 over Ethiopia (Figure 3) compared to the 1961-1990 normal. A small increase in annual precipitation is also expected over the country. Higher temperatures in Ethiopia have potentially serious impacts on the length of growing season (for crops), the aridity of the soil, the risk of diseases such as malaria and dengue, and the timing and the intensity of rainfall. At the national level.

Owing to their potentially damaging impact to both rural and urban communities climate change issues have become a high government priority through the National Adaptation Programme of Action (NAPA). The National Adaptation Programme of Action (NAPA) is a mechanism within the UNFCCC, designed to help the Least Developed Countries (LDCs) including Ethiopia to identify their priority adaptation needs to climate change and to communicate these needs to the Conference of Parties (COP) of the UNFCCC and other concerned bodies. In addition, the Ethiopia has already put in place policies, strategies and programs that enhance the adaptive capacity and reduce the vulnerability of the country to climate variability and change. Such programs include Plan for Accelerated and Sustainable Development to End Poverty (PASDEP), Environmental Policy of Ethiopia, Agriculture and Rural Development Policy and Strategy.

### 3 MATERIALS AND METHODS

Empirical evidence presented relate to a Delphi study conducted in 2009 in which 64 urban planners from 23 cities / town were surveyed. The proportion of the sampled officials from each city / town is shown on figure 3. The share of each city / town reflects the number of completed questionnaires that were returned.

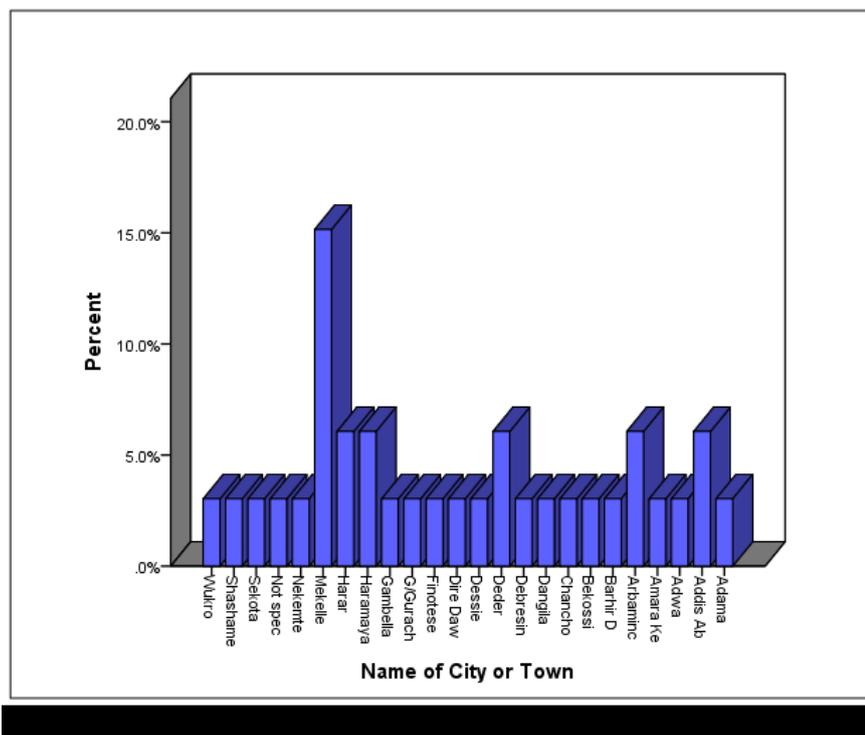


Figure 3. Sample characteristics

The binary logistic regression model was employed to decipher some of the factors that explained the adoption and / or non-adoption of effective partnerships by some planning authorities. Data analysis was performed using the Statistical Package for Social Scientists (SPSS).

### 3.1 Empirical model specification

The logistic regression model was applied to determine factors that explained why some urban planning authorities engaged in sustainable partnerships in response to actual and / or potential climate change threats. When dealing with a dichotomous dependent variable - the main interest is to assess the probability that one or other characteristics is present (Peng and So, 2002; Peng et al, 2002). The logistic regression model answers the question what determines the probability that the answer is yes, or no. The special features of the model guarantees that probabilities estimated from the logistic model will always lie within the logical bounds of 0 and 1. In other words the probability that a municipality picked at random is engaged or not engaged in sustainable partnership is not a continuous variable but a discrete one. The logit regression model can be expressed mathematically as follows;

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n + u_i \quad \text{Where;}$$

Y= is the dependent variable (i.e. probability that a municipality chosen at random is engaged or not engaged in sustainable partnerships to dealing with actual or potential climate change impacts).

$\beta_0$ = is the intercept (constant) term

$\beta_k$ = coefficients of explanatory variables

$X_i$ = explanatory variables

The aggregate expression of the model can be summarized as follows;

$$Y = \beta_0 + \sum_{k=1}^k \beta_i x_i + u_i$$

Any municipality that had its climate change and adaptation activities linked to other stakeholders through cooperation, coordination or integration of activities and policies was defined to be on the path towards sustainable partnerships. The selection of predictor variables is based on the review literature on major limiting factors to effective partnerships. Model variables were therefore defined as follows;

Y= Probability of an expert drawn from a municipality that is engaged in sustainable partnerships (i.e. probability Municipality / engaged in Partn.=1)

X1= Perceived level of financial capacity (1=better; 0=poor)

X2= Perceived benefits of partnering (1=Yes; 0=No)

X3= Perceived level of technical capacity (5 point likert scale: 1=poor; 5=Excellent)

X4= Perceived level of climate science integration in municipal affairs (5 point likert scale: 1=poor; 5=Excellent)

X5= Level of uncertainty about climate policy context (5 point likert scale: 1=low; 5=high)

X6= A general concern for the poor (5 point likert scale: 1=lowest score; 5=highest score)

X7= Perceived level of institutional capacity (0=better; 1=poor).

### 3.2 Model evaluation

Parameters in logistic regression model were estimated using the maximum likelihood method. The statistical significance of each coefficient was evaluated using the Wald test. The enumerated regression coefficients represent the change in the logit of the probability from a unit change in the associated predictor, assuming other factors are constant (Gujrati, 2003). The goodness-of-fit test of the regression model in this study was analyzed using;

- The Omnibus test, which is a likelihood ratio chi-square test that test whether the coefficients of the variables in the model are all jointly equal to zero.

- The Hosmer & Lemeshaw (H-L) goodness-of-fit test, which examines the null hypothesis that the model adjust well to the data and
- The Cox and Snell (1989) and Nagelkerke (1991) – two descriptor measures that reveal the amount of variation in the outcome variable that is explained by the models (Long, 1997; Hosmer and Lameshaw, 2000).

The inferential goodness-of-fit test employed is the Hosmer & Lemeshow (H-L) test that yielded a Chi-square (7 degrees of freedom) of 8.474 and was insignificant ( $p > 0.05$ ) suggesting that the model fitted to the data well. Two other descriptive measures of goodness of fit are R2 indices defined by Cox and Snell (1989) and Nagelkerke (1991). Results suggest 43.1 to 63.6% of variations in the outcome (i.e. the probability of a municipality being engaged in sustainable partnership) can be explained by the model predictors.

#### 4 RESULTS

Results suggests that 26% of the sampled municipality can be characterised as being on the path towards sustainable partnerships. Such partnerships were however found to be limited to discursive arrangement that existed between the concerned municipalities and largely unorganized community groupings, the private sector, and to some extent the respective regional governments. Such partnerships were generally on the lower end of the path towards sustainable partnerships. They are mostly cooperative partnership arrangements that are based on what other scholars refer to as ‘reactive’ adaptation rather than ‘proactive’ adaptation to climate change. No evidence of contractual agreements through such means as the signing of MOUs were discerned. More disturbing to find was the general lack of collaboration between municipalities and environmental agencies such as the Meteorological department, the disaster management unit, the private sector and other civic organizations. The separation between planning and environmental planning institutions has often meant that activities of the National Urban Planning Institute (NUPI) – a professional body of planners and those of the Environmental Management Agency (EMA) have been running parallel with little or no foreseeable signs of integration. This alone has been regressive to building adaptive capacity for many municipalities. Many reasons to constrained partnership arrangements between the municipalities and other chief actors were deciphered (refer to table 2).

Variable	B	S.E.	Wald	df	p-value	Exp(B)
Financial capacity	.091	2.408	.001	1	.970	1.095
Perceived benefits	.839	.546	2.365	1	.124	2.314
Technical capacity	-.581	.714	.662	1	.416	.559
Climate science integration	2.422	.991	5.975	1	.015	11.263
Uncertainty about the climate policy context	-.396	.546	.525	1	.469	.673
A concern for the poor	-2.617	1.172	4.987	1	.026	.073
Institutional capacity	-4.231	1.714	6.090	1	.014	.015
Constant	4.305	3.413	1.591	1	.207	74.043

Table 2. Predictor variables for engagement in sustainable partnerships

The ability of the sampled municipalities to engage in sustainable partnerships varied according to a number of variables. The positive Beta parameter on financial capacity (i.e.  $\beta=0.091$ ) means municipalities that were perceived as financially better were 1.095 times (i.e.  $\text{Exp}[B]=1.095$ ) more likely to be engaged in sustainable partnerships than those who had poor financial capacity. Such a finding was however not statistically significant ( $p\text{-value} > 0.5$ ). Perceived benefits in engaging in sustainable partnerships were also found to be another important factor ( $\beta=0.839$ ;  $p\text{-value}=0.124$ ). Municipalities that did not perceive real benefits from engaging in sustainable partnerships were 2.314 times less likely to engage in such arrangements.

The negative Beta estimate on technical capacity means that municipalities that were perceived as better equipped technically were 0.559 times less likely to be engaged in sustainable partnerships. Such results were however insignificant ( $p\text{-value} > 0.4$ ). On the contrary, municipalities that had a much better level of

climate science integration in own affairs were 11.263 times likely to be engaged in sustainable partnerships. Such findings were significant ( $p < 0.05$ ).

Although such results were insignificant ( $p\text{-value} > 0.1$ ), municipalities that were characterised by an uncertain climate change policy context, were less likely to engage in sustainable partnerships. On the other hand a general concern with the poor and the more vulnerable urban communities was found to be a significant factor in explaining municipal attitude towards sustainable partnerships. Study results revealed that municipalities exhibiting such a concern were 0.073 times less likely to engage in sustainable partnerships than those that had a much lesser concern ( $\beta = -2.617$ ;  $p\text{-value} < 0.05$ ). The negative Beta estimate on institutional capacity reveals that municipalities that have a relatively better institutional capacity are more likely to engage in sustainable partnerships than those whose institutional capacity is weak. This is because better institutional capacity was coded 0, while poor institutional capacity was coded 1. This results were significant ( $p\text{-value} < 0.05$ ).

## 5 DISCUSSION

The ability of municipal authorities in Ethiopia to adapt to climate change, and implementing adaptation decisions (i.e. transforming that capacity into action) has been constrained by the absence of credible partnership between the planning authorities and other key actors – including environmental agencies, local community groupings and the private sector among others. Similar observations on constrained partnerships have been made in other developing countries (Mani et al. 2008; Nath and Behera, 2011).

In the absence of sustainable partnerships it is increasingly believed that most city authorities lose out from further mutual learning between scientists and stakeholders, new opinions, sharing of technical expertise, and the the generation of compromise solutions against actual and / or pending climate change impacts (Renn, 2006; Ceccatop et al, 2011). This analysis revealed that the majority of municipalities in Ethiopia are constrained in terms of their technical, financial, institutional capacity and a general lack of access to climate science. While other studies have revealed that the existence of knowledge, capacity and resources to undertake adaptation, is not a guarantee to taking action (Hanemann, 2000; Moser, 2009; Repetto, 2008), this analysis has revealed that municipalities that are constrained by such attributes were not engaged in sustainable partnerships. On the contrary, those who were better positioned in terms of climate knowledge, technical, financial and institutional capacities were found to be on the path towards sustainable partnerships.

Lack of access to climate science, weak institutional capacity and a general concern for the poor were three most significant activities that defined whether the municipality is engaged on not engaged in sustainable partnerships. Uncertainty over climate science information interferes adaptation decisions and can stymie local authority involvement in sustainable partnerships. It is also important to note that, other stakeholder groups such as NGOs, community groupings, environmental related groups and the business community, can play a decisive role in determining climate change related policy outcomes through their interaction with policy makers and urban local authorities in a partnership environment (Broadbent, 1999; Schreurs, 2002; Mani et al, 2008). The weak institutional capacity that characterize the bulk of municipalities in Ethiopia has often meant such a decisive role has never been a reality for many. Major symptoms of such weak institutional capacity include absence of credible participatory structures and weak communication lines – factors that have seen municipalities failing to harness the advantages associated with horizontal and vertical collaboration with other key climate change actors.

Most partnerships are bound together by a general concern for the poor. It is largely believed that an active and organized civil society can play the role of driving force to lead governments and / or municipal authorities to implement responsive adaptation policies (Kelkar et al, 2008; Nath and Behera, 2011). Interestingly, this analysis revealed that municipalities that had a general concern for the poor and most vulnerable communities were not engaged in any form of partnerships. Perhaps it is the general fear of losing control over the plight of the most vulnerable groups that have seen some municipalities going solo on climate change adaptation issues.

If adaptation decisions are to be successful, there is an urgent need for municipal authorities in Ethiopia to engage in deliberative participatory activities aimed at winnowing the most complex problems associated with climate change. It is the contention of this study that further mutual learning between scientists and

stakeholders can be promoted, new opinions can be expressed, problems can be addressed, technical expertise shared, agreements reached, and compromise solutions found if all vested interests are voiced (Renn, 2006). Stakeholders' involvement is also essential, because stakeholders hold the necessary information that could facilitate the exploitation of scientific knowledge with high social relevance (Forsyth, 199; Griffin, 2007; Reed, 2008).

## 6 CONCLUSION

The advent of Complex Adaptive Systems thinking has seen most planning authorities around the world becoming relentless in adopting sustainable participatory approaches in strengthening their adaptive capacities for unforeseen events. To developing countries like Ethiopia, this view is based on anecdote rather than reliable empirical evidence. The analysis has revealed that participatory decisions have largely dominated the international and to some extent national agendas, with little or no evidence of collaborative effort at the much more local urban scale where most climate change and adaptation decisions are taken.

Using a delphi study that pitted 64 urban planners from 23 cities and / towns of Ethiopia, the analysis revealed that adaptation efforts by most local authorities have not benefited much from forging of working partnerships at various planning scales. Both vertical and horizontal collaboration were found to be limited owing to weak technical, financial and institutional capacities of the concerned municipalities. Major hindrances included on one hand absence of credible participatory structures and on the other hand the general divide that exists between the environment and planning institutions. Efforts that strive to build proper participatory structures, bridge the current divide and reconcile climate science and practice would go a long way in fostering sustainable partnerships for improved adaptation.

## 7 ACKNOWLEDGEMENTS

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