

**WHERE ARE THE NONGOVERNMENTAL  
ORGANIZATIONS AND WHY?  
MAPPING AND EXAMINING THE DISTRIBUTION OF NGO  
ACTIVITY IN BOLIVIA**

by

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## **ABSTRACT**

The presence and influence of NGOs in the landscape of global health and development has dramatically proliferated since the 1980s. However, little is known about the distribution of NGO activity. This paper explores the distribution of NGO activity, using Bolivia as a case study, and examines the question: what factors are related to the distribution of NGO activity across municipalities in Bolivia? A geographic information system (GIS) and a multiple regression analysis of count data are utilized to answer the questions at hand. These analyses show that NGO activity is uneven distributed across municipalities and that NGO activity is related to population size, extent of urbanization, size of the indigenous population, and health system coverage. The literature and the case study results inform three main recommendations: 1) Create and implement national NGO Codes of Conduct, 2) Improve surveillance of NGO activity, and 3) Re-focus and re-orient NGO related research.

**Keywords:** Nongovernmental organizations; NGOs; global health; Bolivia;, GIS; multiple regression; count data.

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## Preface

My colleague and I were walking along a thin foot path that criss-crossed a rugged mountain overlooking a valley in the highland region of Bolivia. We were on our way to visit the community of *Casi Casi* for a workshop during which we would discuss and practice healthy ways to prepare locally available foods for infants and children. Most days, we did not talk much on these hikes often struggling to fill our lungs at elevations of 15,000 feet above sea level, but on this particular day we were engaged in a discussion surrounding the role and distribution of NGOs in the region in which we were implementing a child malnutrition program. My colleague has worked in the NGO sector in Bolivia for several years and has watched the sector proliferate and swell throughout the nation at a rapid pace. Sometimes, it seemed as though the only vehicles on the road were trucks bearing the logo of one NGO or another. A handful of times, we arrived at a small community and another NGO was already there conducting a workshop, occasionally addressing the same subject but conveying a different message. As we walked, I asked my colleague why there were so many NGOs working in this particular region of Bolivia but very few in other regions that seemed to be equality and often times in greater need of support. “I don’t have a good answer to that question” she said. We walked the rest of the foot path towards *Casi Casi* quietly, each of us thinking about the question and pondering the factors that might explain where NGOs work and implement their projects,

why some regions have many NGOs while others have none, and how this might influence the people whose lives and livelihoods we were working to improve as well as health and development efforts as a whole.

It has been a year since I worked within the NGO sector of Bolivia and this question has stayed with me throughout this time. I have realized since that many, if not most questions surrounding NGOs, their role and their impact on the populations and settings within which they work remain unanswered. The NGO sector is somewhat of a 'black box' in global health and development despite its widespread presence and influence. For my capstone, I will unpack this black box and explore this question that presented itself on the foot path towards *Casi Casi*.

# 1. Introduction

Over the past three decades, NGOs have become increasingly important players in the realm of global health and development. Currently, a significant proportion of international aid is funnelled through NGOs and the number of NGOs that operate and implement projects in low and middle income countries (LMICs) has grown exponentially since the 1970s (Ahmed & Potter, 2006). Services such as education and health care, historically managed and implemented by the public sector, are increasingly being provided by NGOs (Mercer, 2002). Despite the growing presence and increasingly important role of NGOs in LMICs, the ways in which these organizations influence and are influenced by the context in which they work is not well understood. NGO research has largely focused on examining the impacts of individual organizations or individual projects, often overlooking the broader implications of NGOs, their work, their distribution, and the ways in which they operate in a given setting (Fisher, 1997; Bebbington, 2004; Tvedt, 2006). In general, systematic and empirical analyses of NGOs in global settings are lacking (Fruterro & Gauri, 2005). An area of NGO research that has rarely been examined is the distribution of NGO activity across space and those factors that are related to this distribution. Critical discussions regarding the implications of patterns of NGO distribution for populations, research, and practice are even more limited (Bebbington, 2004). Considering the centrality of social justice and

concerns for inequities of health outcomes and resources within the field of global health and development, it is somewhat surprising that research analysing and discussing the issue of NGO distribution, particularly uneven distribution, is so sparse. To ensure that NGOs have positive impacts on the ground and that the limited resources are allocated and utilized in ways that create positive and lasting change for populations in need, more comprehensive, in depth, and critical explorations of NGOs and the NGO sector are needed.

This paper explores the distribution of NGO activity from a global health and development perspective. NGO distribution is described, and factors that are related to NGO activity across space are identified and modelled using Bolivia as a case study. Although the Bolivian context is used as a case study to examine and better understand NGO distribution, the discussion and findings have wider purchase and contribute to broader discussions regarding global health and development in LMICs.

The paper is organized as follows. The first section presents the definition of NGOs and describes the evolution of the NGO sector to contextualize further discussions. The second section discusses the distribution of NGO activity at both the global and national scale, and outlines those factors commonly cited in the literature to explain patterns of NGO activity across space. In the third section, the Bolivian case study is presented. The paper concludes with recommendations for NGO related global health and development research and practice.

## **1.1 Defining NGOs: Opening the ‘black box’**

The term ‘nongovernmental organization’ was first used by the United Nations in 1945 in Article 71 of Chapter 10 of the United Nations Charter (United Nations, 1945). The term was used to describe the specific role of consultants working with the United Nations who did not belong to any particular national government (Martens, 2002). At the time, the meaning of the term was vague and open to interpretation (Lewis, 2001; Srinivas, 2009). Today, the term remains somewhat difficult to define but is used to describe a much wider array of organizations than it did in its original form. The contemporary interpretation and definition of an NGO can vary across sector, discipline, nation, and scale. Little consensus exists regarding what the term in fact does and what it ought to encompass (Martens, 2002). Generally speaking, there are two broad approaches to defining NGOs (Lewis, 2007). In the first approach, NGOs are defined in terms of what they are not (Fruttero & Gauri, 2005; Lewis, 2007; Schuller, 2007). In other words, they are defined simply as organizations that are not associated with the state or with the market and are not in the business of making profit. This approach can be problematic as NGOs tend to be conceptualized in an overly simplified manner as the ‘good’ actors of society in contrast to the ‘evil’ state and market (Bebbington, 2008). Additionally, this approach assumes firm boundaries between NGOs, governments, and the market and consequently fails to analyze NGOs in terms of the context and social structures of which they are a part (Bebbington, 2004; Pfeiffer et al., 2008). According to Bebbington (2004), this approach has also contributed to the

individual organization case study approach that has been dominant in NGO research. The second approach to defining NGOs is somewhat more specific and useful. It is growing in popularity in the recent literature. This approach focuses on the idea that NGOs are organizations concerned with social and economic change, and working towards reducing poverty and improving the health and lives of populations in need (Lewis, 2001). Not-for-profit motives are also fundamental in definitions taking this approach. In perhaps the most comprehensive and constructive discussion of definitional issues surrounding NGOs to date, Vakil (1997) suggests that NGOs are best understood as “self-governing, private, not-for-profit organizations that are geared to improving the quality of life for disadvantaged people.”

Unfortunately, many scholars fail to offer the definition of NGOs they have adopted, perhaps assuming the term to be common knowledge or opting to avoid the challenge of arriving at an acceptable definition. This is problematic however as failing to define the way in which the term NGO is understood in a given study or paper threatens the validity of the findings, makes the comparison of studies and findings difficult if not impossible, and may impede theoretical and empirical progress regarding the NGO sector (Vakil, 1997; Martens, 2002; Ahmed & Potter, 2006). Despite the challenge of defining NGOs, this is an important first step in any critical and useful analysis.

This paper defines NGOs in the same manner as the Bolivian government since the major questions at hand are explored in the Bolivian context. According to the Bolivian government an NGO is “any not-for-profit organization or group of

people, both foreign and national, of religious character or not, that implements activities to improve well-being and development within the national territory, which may be financed by state funds or international co-operation resources” (translated from VIPFE, 2006). This definition is similar in scope and tone to that offered by Vakil (1997) cited above as well as those of prominent health and development organizations such as the World Bank (see Appendix 1).

## **1.2 The evolution of NGOs in health and development: Unpacking the ‘black box’**

According to the Union of International Associations, the number of NGOs that exist today is at least twenty times greater than it was in 1951 (Union of International Associations, 2002). Figures suggest that official development assistance provided through NGOs has increased from 4.6 percent in 1995 to 13 percent in 2004, and today, more than 75 percent of World Bank projects involve NGOs (Brinkerhoff, Smith, & Teegan, 2007; Lewis, 2009). Lewis and Opoku-Mensah (2006) report that NGOs have become ‘big business’ with estimated operating costs in just 37 nations exceeding US\$1.6 trillion. It should be noted that these figures represent rough estimates as accurate calculations would require more detailed and complete data than what is currently available. Nonetheless, such figures provide a useful illustration of the rapid growth that has occurred within the NGO sector. Over the span of just three decades, NGOs have become among the most prominent and important actors within the field of health and development. The proliferation itself, and the fact that this has occurred nearly everywhere (although to varying degrees), are nothing short of

remarkable. As Lester Salamon stated (1993, p.1), "...a veritable associational revolution now seems underway at the global level that may constitute as significant a social and political development in the latter twentieth century as the rise of the nation state was to the nineteenth century."

The growth of NGOs has been reviewed by numerous scholars from various ideological perspectives and areas of study (Edwards & Hulme, 1996; Green & Mathias, 1997; Bebbington, 2008; Ahmed & Potter, 2006; Lewis & Kanji, 2009). Characterizing the evolution of NGOs as four successive waves or periods, similar to what both Bebbington (2008) and Ahmed and Potter (2006) have done, is a constructive approach to review the proliferation of the NGO sector worldwide.

In what can be considered the first wave of NGO activity, beginning around the time of WWII and ending in the late 1960s, a small number of large and well established NGOs existed (Bebbington, 2008). At this time, NGOs primarily responded to emergencies and conflicts, providing support in the form of relief (Ahmed & Potter, 2006). As an example, Oxfam, or at that time, the Oxford Committee Against the Famine, was established in 1942 to provide famine relief to victims of the Greek Civil war (Lewis & Kanji, 2009). This period was also largely coloured by religious and missionary affiliations (Green & Mathias, 1997).

The second wave of NGOs and NGO work, from the early 1970s to early 1980s, is marked by a time when NGOs became more important players in the field of development and health. During this period, the role of NGOs widened

and organizations became more involved in development efforts at the community level, employing participatory and empowerment approaches rather than focusing primarily on larger emergency and relief efforts. NGO activity had not yet boomed and the NGO sector was still relatively small (Ahmed & Potter, 2006).

During both the first and second waves of NGO activity, the public sector was heralded as the most effective and appropriate means through which the development and health issues of LMICs could and should be addressed (Green & Mathias, 1997). In the health sector for example, strengthening and expanding ministries of health and improving coverage and access to publicly provided health services was a primary focus. Consequently, the majority of health and development aid was directed to and through governments (Green & Mathias, 1997). This view and support for the public sector is evidenced in the revolutionary Alma-Ata 'Health for All' declaration which was signed by governments the world over and within which governments were seen as primary agents for improving health and addressing poverty and inequalities in health (Lawn, 2008).

The third wave, beginning in the early to mid 1980s through to the late 1990s, was characterized by the rapid proliferation of NGOs around the globe. Prior to 1980, there was very little mention or exploration of NGOs in academic literature but by the mid 1990s, NGOs had become the 'favoured child' of development agencies and donors (Edwards & Hulme, 1997; Lewis, 2001). This proliferation is closely tied to changing political and economic ideologies, growing

interest within the international donor community to fund NGOs and their projects, as well as the increased availability of large-scale funding (Mercer, 2002; Lewis, 2005). Many scholars who have examined trends in NGOs over time suggest that the dramatic rise of NGOs is largely related to an increase in NGO funding, which in turn rests upon the untested assumption that NGOs are more cost-effective and have a comparative advantage in reaching the poor and vulnerable compared to the public sector (Green & Mathias 1997; Pfeiffer, 2003; Lewis, 2009). This assumption is itself rooted in the neoliberal ideologies of the era that promoted privatization, marketization, and a reduced government presence (Gershman & Irwin, 2000; Pfeiffer et al., 2008; Lewis & Kanji, 2009). During this era, Structural Adjustment Programs were imposed on indebted countries by the international financial institutions in hopes of stabilizing economies and infusing neoliberal agendas into LMICs (Gershman & Irwin, 2000). Although the nature of Structural Adjustment Programs varied across nations, a common theme was the dramatic reduction of government spending on social programs such as housing, health care, and education (Gershman & Irwin, 2000). With efforts to decrease the role of the state and growing confidence in the free market, NGOs were touted as the most appropriate means to fill the gaps in public services and hailed as 'development alternatives' (Drabek, 1987). Greater space for NGO projects and increased confidence in the NGO sector relative to the governments of LMICs fuelled the dramatic rise of NGOs throughout the world.

The fourth and current wave in the evolutionary history of the NGO sector is differentiated from the third by the shifting role and primary focus of the NGO sector; it has been shaped by the dominant poverty reduction agenda, the Millennium Development Goals, and donor desires for measurable improvements (Bebbington, 2008). Additionally, a general trend away from community-based development and empowerment activities and a rise in NGO service delivery has been documented (Mercer, 2002). NGO services provision has become particularly common in the realm of health care (Janes & Corbett, 2009). Some donors now view NGOs predominantly as service delivery partners (Lewis & Opoku-Mensah, 2006). Increasingly, public funds are channelled through NGOs to provide services in the form of short and medium term contracts (Loevinsohn & Harding, 2005).

An important element within the current era of the evolutionary history of the NGO sector is an undercurrent of scepticism regarding NGOs and their contributions to health and development (Zaidi, 2004; Lewis & Opoku-Mensah, 2006; Srinivas, 2009). This scepticism is likely rooted in growing donor demands for measurable success, and intensified by a general lack of monitoring and research surrounding the broader impacts of NGOs. Many scholars, practitioners, and lay people have started questioning the previously untested assertion that NGOs have a comparative advantage to both the state and the private sector and are the best vehicle for health and development programs in LMICs. In some cases, scepticism has grown into criticism with a growing body of scholars and literature highlighting the negative impacts of NGOs in LMICs

(Mercer, 2002; Pfeiffer, 2003; Pfeiffer, et al. 2008). After all, as Milton Friedman pointed out more than four decades ago “the power to do good is also the power to do harm” (Friedman, 1962). Rather than inspiring critical and constructive questions surrounding the broader effects of NGOs and ways to improve the functioning of the NGO sector, this growing scepticism has created a divide between those who support NGOs and those who critique them (Fruttero & Gauri, 2005).

It should be noted that this paper does not attempt to prove or disprove positive impacts or consequences of NGO activity nor does it aim to contrast NGO cost-effectiveness to the state or the market. Rather, this paper seeks to inspire critical, constructive, and evidence-based dialogue about the NGO sector, and the distribution of NGO activity in particular, to identify policy and research options to support global health and development efforts towards improving the lives and well-being of populations in need.

## **2. NGO distribution:**

### **2.1 Indicators of NGO activity**

Since the realm of NGO related research has been dominated by studies looking at single organizations and/or projects, our understanding of adequate indicators of NGO activity for examining the NGO sector in a broader sense is limited. A discussion of possible indicators of NGO activity is warranted prior to outlining the current landscape of NGO distribution globally or nationally.

As noted above, there is a general lack of representative data regarding NGOs presence or activity. Many studies exploring questions about NGOs across countries must therefore employ a proxy measure for NGO activity that is more readily available. Financial based indicators such as aid allocation through NGOs or NGO expenditure is commonly used as a proxy for NGO activity when looking at the global scale (Nancy & Yontcheva, 2006; Koch & Rueben, 2008; Koch 2009). Whether financial flow and allocation accurately represents the level and intensity of NGO activity on the ground is questionable, and this proxy lacks the specificity necessary to answer most NGO related research questions. However, this information is reasonably accessible and consistent across nations as it tends to come from the funding bodies themselves and in certain cases, may be the only available option to measure NGO activity (Neumayer, 2003). Studies looking within a given nation may also employ aid and financial flows as

an indicator of NGO activity in the absence of an NGO database or active registry managed by a reliable body (Brown & Desposato, 2008).

A more appropriate indicator for NGO activity is the total number of NGOs working in a particular country or region. The total number of NGOs provides a better indication of NGO activity as it is more specific than simply using financially based indicators (Boulding, 2009). For those few countries that consistently manage an NGO registry (Uganda, India, Kenya or Bolivia for example), this type of information is readily available, reliable, and (to varying degrees) representative of the NGO sector on the ground.

A final possible indicator is the total number of NGO projects. This indicator is an improvement on both financial-based indicators and the total number of NGOs as it is more specific and reflective of actual coverage, scope and intensity (Boulding & Gibson, 2009). Using NGO projects as an indicator for NGO activity is particularly important for studies with a spatial component since the location of the actual organization is commonly the head office and likely does not accurately represent the location where the projects are in actuality implemented. Using the total number of NGOs to represent NGO activity could bias the sample towards urban centers where head offices tend to be located. Additionally, the total number of NGO projects gives a better indication of the intensity of the NGO activity as nearly all NGOs are engaged in more than a single project, often numerous, which can only be reflected by exploring NGO projects as opposed to organizations (Barr & Fafchamps, 2005). The term 'NGO project' can of course, encompass a wide array of activities and approaches

within global health and development. Depending on the research question and methodological approach, the variability across NGO projects may be important to examine and the term itself may need to be unpacked further, and defined in more detail. What is and is not considered an NGO project is closely linked to the way in which the term NGO itself is defined and what is and is not considered an NGO. This further supports the importance of clearly defining the term NGO at the outset of any study or paper.

When available, an NGO registry or database managed by the state is the best source of data regarding NGO activity for research purposes; whether using total NGOs or total NGO projects as an indicator. There are also some examples of non-state institutions (universities or NGOs) maintaining NGO registries. In the absence of a registry or database, the total number of NGOs or NGO projects must be determined by survey, which is time consuming and resource intensive (Galef & Gauri, 2005). Survey data does however, have the potential to provide more detailed and specific information regarding NGOs and NGO projects.

Finally, it may be appropriate to use per capita indicators of NGO activity (NGO aid per capita, number of NGOs per capita or number of NGO projects per capita for example) (Fruttero & Gauri, 2005).

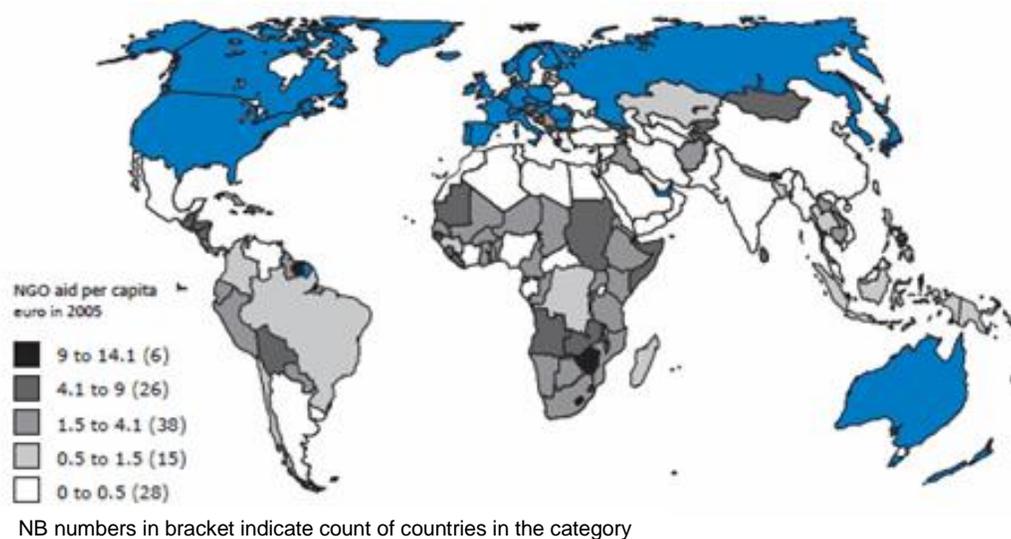
Ultimately, the indicator for NGO activity that is selected and used in a given study or project should be guided by the research question, proposed methods, and objectives at hand. It is likely however, given the general lack of

reliable, complete, and accessible NGO related data, that the final indicator selected will be influenced by data availability.

## **2.2 Global distribution of NGO activity**

As the NGO sector has boomed over the last three decades, NGO presence has not grown equally across different settings. This has resulted in uneven spatial distributions of NGOs and their activities across the globe. This notable spatial heterogeneity is often highlighted in the recent NGO literature (Bryson, McGuinness Ford, 2002; Bebbington, 2004; Mercer, 2002, Taylor, 2004; Fruttero & Gauri, 2005; Koch & Ruben, 2008; Koch, 2009). Of particular interest regarding the question of spatial distribution of NGOs at the global scale is the recently published book entitled *Aid from International NGOs: Blind Spots on the Aid Allocation Map*. In this book (and in much of his other work), Koch examines distribution patterns of international NGOs across LMICs. The map in Figure 1 presents data regarding per capita NGO expenditure (in Euros) based on data from 61 of the world's largest international NGOs (Koch, 2009). Those countries in darker shades receive greater NGO aid per capita while those countries in lighter shades receive less NGO aid per capita (those in blue were not included in the study). Some nations receive more than 20 times as much aid per capita from international NGOs than others. For example, Zimbabwe, Sri Lanka, Bangladesh, Kenya, Sudan, and Uganda together receive more than 100 million Euros annually, while countries such as Guinea, Côte d'Ivoire and Yemen together receive less than 10 million Euros annually (Koch, 2008). The term 'blind spot' has been used to describe those countries that have limited NGO

activity while the term ‘hotspot’ refers to those nations where NGOs have concentrated and are highly abundant – overly abundant according to some sources (Mercer, 2002; Koch, 2009).



**Figure 1: Map of Global NGO activity distribution. From Koch (2009, p. 69)**

### **2.3 National distribution of NGO activity**

It is more informative to examine the issue of NGO distribution at the national scale where a greater understanding of context and location can inform the discussion (Mercer, 2002). Distribution of NGO activity at the national scale is the primary focus of this particular paper.

Observation and logic suggest that NGO activity is also unevenly distributed within nations but, “there have been few serious attempts to map [NGO activity] and unevenness at this scale” (Bebbington, 2004, p. 728). Limited data exists to examine patterns of NGO distribution within national boundaries as only a few nations keep and manage representative NGO registries and national surveys of NGOs or NGO projects have been limited. Studies that have

examined spatial distribution of NGOs at the national level have documented uneven distribution similar to that seen globally. Within a given nation, there are hotspots and blind spots of NGO activity (Barr & Fafchamps, 2006; Fruttero & Gauri, 2005; Lann, 2007; Raberg & Rudel, 2007). For example, in Bangladesh, Fruttero & Gauri (2005) showed that NGO activity was concentrated in certain regions, using NGO related survey data and interviews with a selection of NGO managers. In Tanzania, a nationally representative survey showed that NGOs are highly concentrated in the Arusha region while limited in others (Lann, 2007). NGO distribution across regions in Bolivia is explored in greater detail in the following case study.

## **2.4 Factors related to NGO distribution**

A map of NGO distribution, whether at the global, national or local level, can highlight regions where NGO activity is concentrated compared to those regions where NGO activity is limited or non-existent. It is important to take this spatial analysis a step further and identify those factors that are related to patterns of NGO activity. Identifying factors that are related to the distribution of NGO activity can provide insight into the characteristics of the NGO sector and identify issues that may need to be examined further or ways to improve the functioning of the NGO sector to promote positive population impacts.

Many factors could be related to NGO activity across space or in other words, could be related to the distribution of hotspots and blind spots of NGO activity within a given region, nation or worldwide. A literature search has identified those factors commonly cited as correlates of NGO activity distribution.

This literature is limited as few studies have examined NGO distribution in detail and even fewer have asked or attempted to explain why uneven geographies of NGO activity exist.

Poverty is by far the most commonly cited factor thought to be related to NGO activity (Fruttero & Gauri, 2005; Barr & Fafchamps, 2006; Lann, 2007; Raberg & Rudel, 2007). Bearing in mind the poverty reduction agenda that has become dominant within the NGO sector in recent years and the fact that NGOs are often defined as organizations that “promote the interests of the poor” (World Bank, 2001), it is not surprising that poverty would be highlighted as an important factor related to patterns of NGO activity. One would expect to see more concentrated NGO activity in poor nations/regions and limited NGO activity in nations/regions that are less poor. The few studies addressing this issue empirically have come to opposing results with respect to the relationship between poverty levels and NGO activity. Nancy and Yontcheva (2006) found that poverty levels appear to be the major determinant regarding NGO aid allocation from European funding bodies. However, Koch (2009) tested the hypothesis that NGO activity is related to the poverty levels of developing nations and showed that national poverty levels (indicated by per capita GDP) and NGO activity were not significantly related. The author concluded that the NGO sector does not target the poorest countries despite claims of doing so. Despite being a widely held and cited theory, this relationship has not been sufficiently tested at the national level.

A second commonly cited factor potentially related to NGO distribution is the health and development needs of a population as measured by social and economic indicators such as literacy rates, infant mortality rates, or life expectancy. Logic suggests that organizations that tend to work towards improving the lives of, reducing suffering of, and providing services to neglected populations, would target populations with the greatest need according to health and well-being outcomes. Along a similar vein, NGOs commonly focus their efforts on sectors of a population that are considered most vulnerable (Nancy & Yontcheva, 2006). Logic suggests that NGO distribution would be in part determined by the distribution of vulnerable populations. Across different settings, different populations might be considered vulnerable such as youth, the elderly or certain ethnic groups. In the context of Bolivia for example, indigenous populations are considered most vulnerable to poverty as well as poor health outcomes compared to non-indigenous populations (Martinez, 2005; Morales, 2005). It is reasonable to expect that NGOs in Bolivia would focus their efforts in regions with large indigenous populations. Although commonly described, the relationship between NGO distribution and population need or population vulnerability has not been empirically tested.

Another argument used to explain distribution patterns of NGO activity is related to urbanization. Mercer (2002) suggests that the proliferation of NGOs has occurred to a greater extent in urban compared to rural spaces. According to this argument, organizations and their projects tend to concentrate in regions that are highly urbanized rather than rural to facilitate access to economic,

infrastructural and human resources (Lui, 1999; Raberg & Rudel, 2007). What could be called an urban bias has been documented in several countries including Ethiopia (Campbell, 2001), Uganda (Dicklitch, 1998), Vietnam (Gray, 1999), and Tanzania (Lann, 2007).

Looking more specifically at the health sector, which is a primary focus of the NGO sector as a whole, it is commonly argued that NGOs tend to work in regions with limited health system coverage and service availability (Green & Mathias, 1996). This argument is linked to the broader claim that is common within the NGO literature, and in fact an argument fuelling the proliferation of NGOs in general since the mid-1980s, that NGOs are well-situated to fill in the gaps left by the contraction of the public sector under neo-liberal regimes. This argument suggests that NGO activity will be concentrated in those regions where the public sector is weak, or in the health context, where the health system is weak and the coverage poor.

Guided by the literature and the author's experience working in the NGO sector, the following null hypotheses regarding NGO activity have been generated:

*Null Hypothesis 1:* NGO activity is evenly distributed across regions.

*Null Hypothesis 2:* Regional NGO activity is not related to poverty level.

*Null Hypothesis 3:* Regional NGO activity is not related to levels of population need.

*Null Hypothesis 4:* Regional NGO activity is not related to the size of vulnerable populations.

*Null Hypothesis 5:* Regional NGO activity is not related to the extent of urbanization.

*Null Hypothesis 6:* Regional NGO activity is not related to population size.

*Null Hypothesis 7:* Regional NGO activity is not related to the level of health system coverage.

### **3. Case study: The distribution of NGO activity and related factors in Bolivia**

This section presents a case study that explores in greater detail the distribution of NGO activity in the context of a single country, Bolivia, and tests the hypotheses outlined above. The overriding question is: what factors are related to the distribution of NGO activity across municipalities in Bolivia?

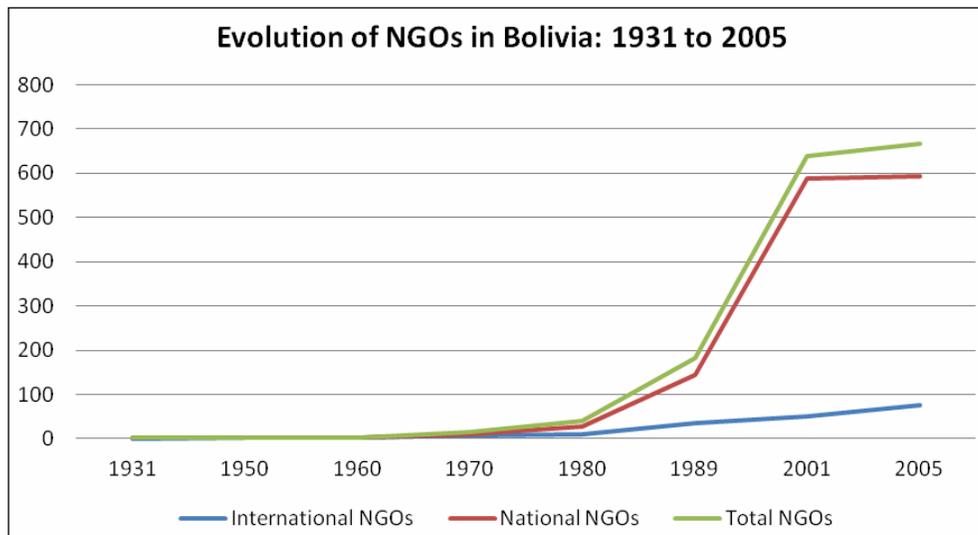
#### **3.1 The Bolivian Context: Health, development and NGOs in Bolivia**

Bolivia is a landlocked nation in South America with a population of nearly 10 million (CIA, 2010). It is the poorest nation in South America, with low health and social status compared to other countries in the region and countries with similar GDPs. According to most recent data, 23 percent of the population live below the poverty line, the maternal mortality rate is 290 per 100,000, and Bolivia has one of the lowest indicators of human development in the western hemisphere (ranked 113<sup>th</sup> out of 182 UN member nations) (WHOSIS, 2010; UN, 2008). The nation is plagued with widespread inequalities in resources and health outcomes. Although national poverty has decreased since 2000, inequalities have in fact increased as evidenced by the rising Gini coefficient. Indicators of health and well-being are substantially worse among poor populations. Looking at child mortality as an example, the absolute gap between the richest fifth of the population and the poorest fifth of the population is 82 child deaths per 1,000 births (Bargawi & Mckinly, 2009). In other words, the child mortality rate is 3.2 times higher among the poorest fifth of the Bolivian population highlighting significant inequalities in population health (PAHO, 2009).

Addressing inequalities, reducing poverty and improving health outcomes are primary concerns in Bolivia.

Bolivia attracts one of the highest volumes of aid per capita in South and Central America (Nickson, 2005). A significant proportion of aid and official development assistance is administered to and through NGOs that are working towards improving health, supporting development and addressing inequalities within the nation. According to the most recent data from 2005, there were 667 NGOs conducting projects in Bolivia (VIPFE, 2006). The evolution of the NGO sector in Bolivia has followed the four waves of progression described in the previous sections with reference to NGOs globally. NGOs were practically non-existent prior to the 1980s, after which the number of NGOs in Bolivia increased exponentially (see Figure 2). In 1980, government estimates suggest that there were only 39 NGOs working in the nation while there were upwards of 600 by the end of the 1990s. NGOs in Bolivia have expanded in scale, scope, and influence. The most dramatic increase occurred between 1985 and 1995. In 1986 Bolivia's newly elected president implemented a Structural Adjustment Program entitled *La Nueva Política Económica* (the New Economic Policy). This reform program was guided by neoliberal ideology and strongly (if not forcefully) encouraged by the international financial institutions (Spatz, 2006). Deregulation of product markets, liberalization of trade regimes, privatization of national industries, and a reduction of state spending were at the heart of the reform programme (Kohl, 2006). From the perspective of neoliberal economists, the international financial institutions, and international lenders, the Bolivian

reform process was considered a success as the national economy stabilized and the role of the government had been reduced; Bolivia was coined a star reformer and 'a model pupil' of the International Monetary Foundation and World Bank (Spatz 2006; Von Gleich 2000). However, the government restructuring and economic reform process benefited very few while undermining the livelihood and well-being of the majority of Bolivians. Poverty levels increased and health and well-being of the population declined; while at the same time, NGOs were hailed as the most appropriated alternative to state programs for the economic and social needs of the population (Arellano-Lopez & Petras, 1994; Edwards & Hulme, 1996). In this environment "NGOs were an attractive channel for international development assistance intended to reduce poverty and improve the well-being of the population" (Arellano-Lopez & Petras, 1994. p. 561). The increased space for NGOs in the absence of state programs and support, and the increased NGO funding from institutions like the World Bank and the WHO (as well as other donors), contributed to a dramatic increase in the intensity and coverage of NGOs and their projects in Bolivia. Since the millennium, it appears as though the rate of proliferation of NGOs in Bolivia has slowed.



**Figure 2: Graph of NGO evolution over time in Bolivia. Source: VIPFE, 2006.**

Of the 667 NGOs working in Bolivia, 75 (11.0 %) are classified as international NGOs and 592 (89%) as national NGOs. In 2005, the 667 NGOs working in Bolivia were conducting a total of 4482 projects. Data on NGO activity in Bolivia is from the national NGO directory (VIPFE, 2005) described in more detail in the following section. Figure 3 shows the proportion of NGO projects working in each of the eleven NGO sectors (sectors classified by the Bolivian NGO directory). The greatest proportion of NGO projects are working in the health and sanitation and agriculture sectors; each comprising 24 percent of the total of NGO projects and together accounting for nearly half of all NGO projects. Microcredit, legal assistance, advocacy and communication, and housing projects together account less than 8 percent of all NGO projects.

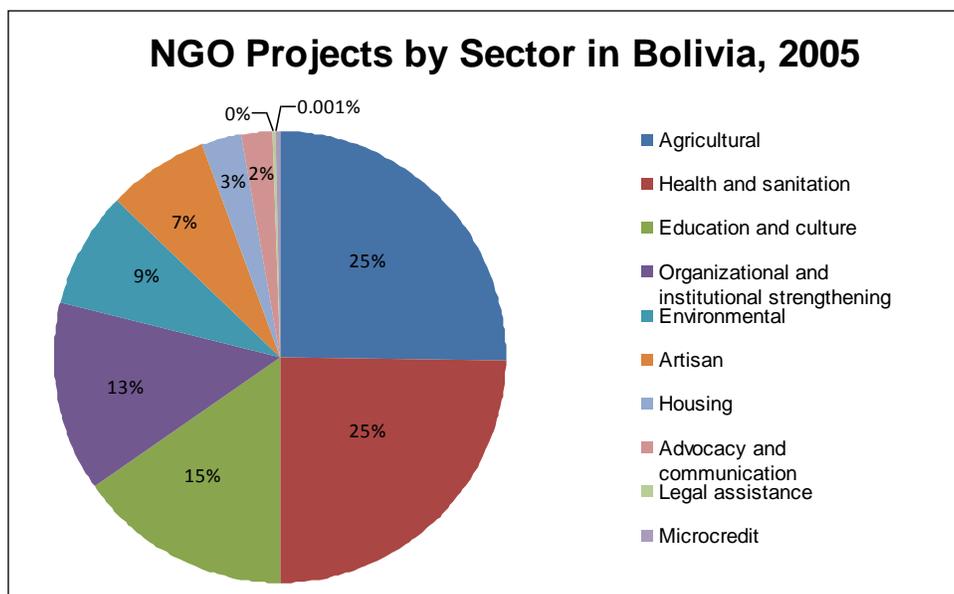


Figure 3: Graph of NGO activity by sector. Source: VIPFE, 2006.

## 3.2 Data and methods of analysis

### 3.2.1 Dependent variable

The dependent variable is NGO activity per municipality as indicated by the total number of NGO projects in each of Bolivia's 314 municipalities. This measure was selected as a proxy for NGO activity. The number of NGO projects gives a better indication of NGO activity than the number of NGOs, as discussed earlier (Boulding & Gibson, 2009). Additionally, information regarding the total number of NGO projects per municipality is publicly available and easily accessible through the NGO registry managed by the Bolivian Ministry of Public Investment and External Financing (Viceministerio de Inversión Pública y Financiamiento Externo- VIPFE). For testing the study hypotheses in the Bolivian context, municipality is a proxy for "region".

It should be noted that the term 'NGO project' is not defined in great detail in the NGO directory. What is and is not counted as an NGO project is related to the way in which the term NGO is defined; "any not-for-profit organization or group of people, both foreign and national, of religious character or not, that implements activities to improve well-being and development within the national territory" (translated from VIPFE, 2006). The term 'NGO project' includes all of the interventions, activities and programmes carried out by those organizations that fall within this definition of NGOs laid out by the Bolivian government. Since NGOs register their projects themselves, NGOs may self-define the term NGO projects when registering.

An important methodological note is that national and international NGOs and their projects are examined and modelled together. Although some sources suggest that there are important differences between national and international NGOs such that they ought to be examined as separate groups, Boulding & Gibson (2009) suggest that this is not the case for Bolivia. Boulding and Gibson (2009), have studied the Bolivian NGO sector in detail, and have found that national NGOs and international NGOs working in the country are similar in terms of the types of the projects they engage in, the number of projects they conduct, sources of funding, and employees. For example, nearly all national NGOs working in Bolivia in 2005 received part of their funding from international sources, and many national NGOs have staff of international origins while international NGOs commonly hire Bolivian staff. Drawing a firm line between international and national NGOs in the Bolivian context may not be appropriate

and therefore, national and international NGOs and their projects are considered as a single group rather than drawing a distinction between the two (Boulding, 2010). Similar conclusions have been drawn in other settings.

The municipality was selected as the unit of analysis because this is the smallest administrative unit with decision making authority and also the smallest unit for which economic, social and health indicators are consistent, accurate, and recent, and therefore appropriate for statistical analysis (Boulding & Gibson, 2009). Since decentralization in 1994, municipalities have gained greater decision-making power and access to resources and are responsible for service delivery such as health and education (World Bank, 2004). Also, using the 314 municipalities rather than the 9 departments or 111 provinces allows for a more precise estimation of the distribution of NGO activity across regions.

Data regarding the NGO sector and NGO activity have been extracted from the 2005 National NGO Directory (VIPFE, 2006). The Ministry of Public Investment and External Financing has kept a registry of NGOs working in Bolivia since January 1990 (VIPFE, 2006). The published registry has been updated a total of five times; the 2005 directory is the most recent (Boulding, 2010). The purpose of the registry is to disseminate information regarding NGOs and characteristics of the NGO sector in Bolivia that is accessible and reliable (VIPFE, 2006). The Bolivian government requires that all NGOs working in the country register as a legal entity; it is the responsibility of the NGOs themselves to register and information is recorded by the NGOs (Boulding, 2010). The level of detail and information collected has changed with each successive updates of

the registry; the 2005 directory (published in 2006) includes data regarding the number NGO projects per municipality disaggregated by sector (agriculture, legal aid, communication and advocacy, microcredit, education and culture, institutional strengthening, environmental, artisan, health and sanitation, and housing) allowing for analysis of a subset of NGO projects within a given sector. A subset of NGO projects working specifically within the health and sanitation sector will be examined and a secondary model will be fit to this subset of NGO projects to examine whether similar results are found when modelling all NGO projects as well as a more specific subset of projects.

For this study, the 2005 National Directory of NGOs was downloaded as a PDF document from the Bolivian Ministry of Public Investment and External Financing and used to create a database consisting of the total number of NGO projects per municipality as well as the total number of NGO projects per municipality disaggregated by sector, and fields regarding other independent variables of interest at the municipal level.

### **3.2.2 Independent variables**

Along with the dependant variable discussed above, the dataset also contains indicators for the primary independent variables of interest described in detail below.

1) *Poverty level*: Municipal poverty levels are measured by percentage of the population living in poverty according to the Unsatisfied Basic Needs (UBN) index. The UBN index is commonly used as an indicator for poverty level in Latin

America. It is constructed by combining census level household measures including adequate housing conditions, access to water and sanitation, and availability of electricity into a composite indicator representing poverty for small administrative units (Feres & Mancero, 2001). A large body of literature exists on the strengths and weaknesses of the UBN as an indicator for levels of poverty (see Gough & Thomas, 1994; Alkire, 2001; Feres & Mancero, 2001). For this paper, the UBN has been selected over other possible indicators for poverty level as it is more comprehensive and data were available for all 314 municipalities, which was not the case for other possible indicators of poverty such as income per capita or population living below the poverty line.

2) *Population need*: Two variables are used to measure population need: *population health* and *education level*. Population health is indicated by infant mortality rate (IMR) (total number of infant deaths per 1,000 live births) which is a commonly used indicator for population health. Although some scholars criticise the use of infant mortality rate as a proxy for population health, arguing that more comprehensive indicators such as the DALE (disability adjusted life expectancy) are superior, studies have shown that the much simpler and more readily available IMR is an adequate proxy for population health (Reidpath & Allotey, 2003). Percentage of the municipal population with a secondary school education is used to measure education level of the population. Although poverty could also be conceptually considered under the umbrella term population need, because of the poverty alleviation focus of the NGO, poverty level is considered and analyzed separately.

3) *Size of the vulnerable population.* In Bolivia, the indigenous population is considered highly vulnerable and therefore this variable is measured by the percentage of the population within each municipality that is indigenous (PAHO, 2009; CIDA, 2010). This variable will be referred therefore be referred to as *size of the indigenous population*. The term indigenous refers to all indigenous groups in Bolivia considered together; the largest proportion of the indigenous population in Bolivia of Quechua decent. Women and children are also considered highly vulnerable populations in Bolivia but, the percentage of women and children would be similar across municipalities and would not represent differences in size of the vulnerable population across municipalities; use of this variable would provide little insight (CIDA, 2010).

4) *Extent of urbanization.* The extent of municipal urbanization is measured by the percentage of the municipal population that live in settlements designated as urban compared to rural. The Bolivian government uses a very simple measure to define its urban areas; settlements with more than 2,000 inhabitants (O'Hare & Rivas, 2007).

5) *Population size:* This variable is simply indicated by the total population of the municipality.

6) *Health system coverage.* The percentage of women receiving antenatal care at least once during pregnancy is commonly used as an indicator of health system coverage within the field of public health (WHO, 2010). This indicator is also related to access to services but can be used as a proxy of public system coverage.

Data for the independent variables were taken from the 2001 national census (from the National Institute of Statistics -El Instituto Nacional de Estadística). Indicators measuring the independent variables of interest were selected for the year 2001 (about four years prior to the NGO activity data) rather than the most recently available. This was done for two reasons. Firstly, to ensure that this analysis examined how NGO distribution is influenced by the characteristics of the municipality and not the other way around. If data for both the dependent and independent variables were collected from the same year, it is possible that the identified statistical relationships were due to the influence of NGO activity on the independent variables rather than the influence of the independent variables on NGO activity. If, for example, a significant relationship was found between poverty levels and NGO activity using 2005 data for both variables, it would not be possible to say whether the poverty levels influenced NGO activity or vice versa. A four-year lag between the independent and dependent variables addresses this issue. Secondly, the 2001 data is rich and complete compared to more recent years such that there was no missing data.

### **3.2.3 Data limitations**

Limitations influence the reliability and validity of study findings and therefore influence interpretation and subsequent policy and research recommendations. The most important limitation is related to the definition, operationalization, and interpretation of the dependent variable 'NGO activity' as indicated by the total number of NGO projects in a municipality. First of all, the term 'NGO' comprises a myriad of organizations that may in actuality have

different characteristics and approaches to health and development. The group of NGOs working in Bolivia is no doubt a heterogeneous group but, given the detail of the data available, all NGOs are treated equally in this analysis. The same argument applies to NGO projects. Surely, qualitative and quantitative characteristics vary across NGO projects but, aside from the sector and location in which projects are working in, these characteristics are not captured in the data. Further, each NGO project is operationalized and counted equally (all weighted as 1) which ignores real differences in size, reach, scope, mission, and budget related to the project. As an example, consider the construct of project reach, an element within the RE-AIM evaluation framework defined as “The absolute number, proportion, and representativeness of individuals who participate in a given initiative, intervention or program (see the RE-AIM website for more details about this framework). Some projects may work with very small communities and only a small number of households while others may work with larger communities and more households and therefore having much larger reach. Due to the nature of the data available, it is not possible to comment on this concept of reach here and this project focused on modelling the number of NGO projects.

These are important limitations that are however, unavoidable given the level of detail and scope of NGO related data that is available.

Additionally, although efforts are made to register all NGOs working in the nation, accuracy of this data is unknown. A primary goal of the NGO directory, as stated by the Bolivian government, is to provide information that is reliable and

accurate (VIFPE, 2006). Since it is the responsibility of the NGOs themselves to register and the state does not actively monitor registration, it is likely that some NGOs have not registered. However, if NGO information is missing randomly rather than systematically, it would not influence the analysis towards significant but inaccurate results.

Finally, the independent variables have been extracted from national statistics databases and are based on national census data. Census data is always subject to potential bias related to sampling methods.

This exercise and the study itself is nonetheless valuable to promote inquiry, further knowledge regarding the NGO sector in Bolivia, and explore possibilities related to the NGO sector and NGO related research in a broader sense but, these limitations must be taken seriously when considering the results and their implications.

#### **3.2.4 Preliminary analysis**

Preliminary analysis included spatial analysis of the distribution of NGO activity across municipalities using a geographic information system (GIS), univariate and bivariate analyses on dependent and independent variables. The GIS was used to create maps that visually represent the spatial distribution of NGO activity in 2005 as well as the distribution of population size, poverty levels, population need, extent of urbanization, size of vulnerable population, and health system coverage (in 2001). Maps displaying both municipal NGO activity and

each of the independent variables were created to visually represent possible crude relationships.

Univariate analyses were conducted and descriptive statistics describing NGO activity and the independent variables were generated (See Appendix 2 and 3). A bivariate analysis employing Spearman's rank coefficient was used to examine pair-wise associations between the independent variables of interest and NGO activity per municipality. This indicated which independent variables were correlated with NGO activity without controlling for the effects of other variables and was also used to assess multi-collinearity among independent variables. Multi-collinearity occurs when two or more independent variables are highly correlated with each other which can lead to unreliable estimations for the standard errors of the regression coefficients and therefore confusing and misleading results. Multi-collinearity was not detected since no variables were strongly correlated to each other (no maximum or minimum correlation coefficients greater than 0.80 or less than -0.80). (See Appendix 2 for Spearman's rank correlation).

### **3.2 5 Multiple regression analysis**

A multiple regression analysis of count NGO project data was conducted to examine the relationship between NGO activity and multiple independent variables of interest, and to test the generated hypotheses. Regression models were built for 1) the total number of NGO projects and 2) a subset of NGO projects within the health and sanitation sector specifically. The purpose the latter, sector specific model, was to examine whether similar associations existed

within this subset of NGO projects and also to test the hypothesis that the coverage of the public sector, in this case specifically the public health system, is related to NGO activity.

Theoretical representations of the models used are outlined below.

**Model 1:** All NGO activity

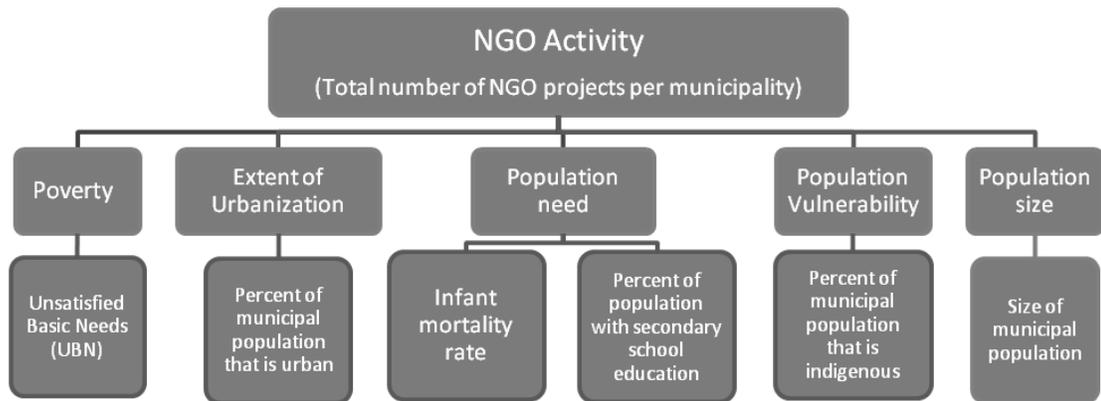


Figure 4: Theoretical representation of model 1 (All NGO activity)

**Model 2:** Health and sanitation NGO activity



Figure 5: Theoretical representation of model 2 (Health and Sanitation NGO activity)

Since NGO activity is indicated by count data and multiple independent variables are of interest, a multiple Poisson regression was selected as a starting

place for the model building process. The Poisson distribution is commonly used in the literature to model count and rate data (Osgood, 2000). If we let  $N_i$  indicate the number of NGO activities in the  $i$ th municipality and  $\lambda_i$  indicate the mean number of NGO activities in the  $i$ th municipality, and assuming that  $N_i$  follows a Poisson distribution with the following density:

$$P(N_i=n_i) = \frac{e^{-\lambda_i} \lambda_i^{n_i}}{n_i!}, \quad n_i = 1, 2, \dots$$

Then the independent variables are linked to the mean count  $\lambda_i$  through a log-linear regression model as follows:

**Model 1:** All NGO activity

$$\log(\lambda_i) = \beta_0 + \beta_1(\text{Poverty level}_i) + \beta_2(\text{Population health}_i) + \beta_3(\text{Education level}_i) + \beta_4(\text{Extent of urbanization}_i) + \beta_5(\text{Size of indigenous population}_i) + \beta_6(\text{Population size}_i)$$

**Model 2:** Health and sanitation NGO activity

$$\log(\lambda_i) = \beta_0 + \beta_1(\text{Poverty level}_i) + \beta_2(\text{Population health need}_i) + \beta_3(\text{Education level}_i) + \beta_4(\text{Extent of urbanization}_i) + \beta_5(\text{Size of indigenous population}_i) + \beta_6(\text{Population size}_i) + \beta_7(\text{Health system coverage}_i)$$

The regression coefficient  $\beta$ , represents the expected change in the log of the mean count of NGO projects per unit change in the independent variable.

An important limitation of the Poisson distribution is that the variance of the data is restrained to be equal to the mean (Osgood, 2000). When this is not true, the data is characterized as either over-dispersed (variance is greater than the mean) or under-dispersed (variance is less than the mean). Over-dispersion

is a very common problem when using the Poisson distribution and can lead to inaccurate estimations of regression coefficient standard errors which can influence the precision of the final results. Accordingly, it is important to examine Poisson regression models for over-dispersion.

In the initial model, all independent variables were entered into the model as continuous variables and the Poisson distribution was used for maximum likelihood estimations. The population variable was log-transformed since the variable was characterized by very large variance. The data was found to be over-dispersed as indicated by the deviance factor with a value much greater than 1 (deviance factor = 6.51) and therefore not appropriately modelled by the Poisson distribution. To address the identified over-dispersion (or extra variation in the data relative to the Poisson model) a negative binomial distribution was used. The negative binomial distribution can account for the over-dispersion of count data as it is not restricted to having the variance equal to the mean (Osgood, 2000). Over-dispersion was no longer an issue when using the negative binomial distribution as indicated by a deviance factor close to 1 (deviance factor = 1.14). Additionally, a formal test, the likelihood ratio test for significance of over-dispersion, was conducted which also supports the use of the negative binomial model (see Appendix 5 for likelihood ratio test results).

It is important to note that the interpretation of the regression coefficients when using the negative binomial model is the same as that for the Poisson model as described above.

The model was used to examine the relationships between the independent variables and the outcome and to test the outlined hypotheses. For the purpose of this study a p-value less than 0.05 is considered highly significant and a p-value less than 0.10 is considered weakly significant.

The same process and logic was used in the model building process for the model of all NGO activity (model 1) and the model for the health and sanitation sector NGO activity (model 2).

Goodness of fit of the final models was evaluated visually by comparing the estimated cumulative probability distributions from the negative binomial model to the observed cumulative probability distribution and comparing the value of the deviance factor statistic and the Pearson's chi-squared statistic to 1 (See Appendix 4 and 7 ). Both deviance factor statistic and the Pearson's chi-squared for model 1 and model 2 are close to 1 indicating goodness of fit of the models (see Criteria For Assessing Goodness Of Fit tables in Appendix 4). The model was also checked for outliers using plots of Pearson's residuals and the deviance residuals (which measure the relative deviation between the observed count data and estimated count data) against observation number (See Appendix 6).

Finally, Poisson and negative binomial regression models commonly have an offset variable which allows for modeling rates rather than counts. Offset variables are most commonly employed when modelling the count of events over a certain time periods where the time period varies across observations. Population size can also be employed as an offset variable to model count per

capita. Models were also built using the log of the population as an offset variable to examine whether modelling the rate of NGO projects per capita across municipalities rather than the count of NGO projects led to different results. The results did not change significantly when using the rate of NGO projects per capita rather than the total count of projects as the dependent variable.

All statistical manipulations and analyses were performed using the statistical software package SAS (version 9.2, SAS, Institute INC. NC, 2006) and all geographic analyses were done using ArcView GIS (version 9.3.1 Environmental Systems Research Institute, Inc. Redlands, California, 2009).

### **3.3 Results**

Characteristics of the 314 municipalities are summarized in Table 1. The average number of NGO projects across all Bolivian municipalities is 14 projects per municipality. Twenty-seven municipalities (8.0 %) have no NGO projects while the total count of NGO projects is greatest for La Paz (the capital municipality) with a total count of 313. The mean number of health and sanitation NGO projects per municipality is 3 projects. (See Appendix 2 for more descriptive statistics regarding the independent variables).

**Table 1: Descriptive statistics of dependent and independent variables**

<b>Indicator</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Total number of NGO projects, 2005</b>	314	14.27	28.82	0.00	313.00
<b>Total number of NGO projects in the health and sanitation sector, 2005</b>	314	3.44	6.72	0.00	74.00
<b>Percentage of municipal population with unsatisfied basic needs, 2001</b>	314	84.23	17.88	19.08	100.00
<b>Infant mortality rate, 2001</b>	314	76.50	22.38	20.00	170.00
<b>Percentage of municipal population with secondary school education, 2001</b>	314	67.71	15.24	10.16	98.79
<b>Percentage of municipal population that is indigenous, 2001</b>	314	45.00	31.00	0.00	87.00
<b>Percentage of municipal population that is urban, 2001</b>	314	19.00	28.00	0.00	100.00
<b>Natural log of municipal population , 2001</b>	314	9.17	1.24	5.40	13.94
<b>Percentage of women receiving antenatal coverage, 2001</b>	314	40.40	23.51	0.00	100.00

N= sample size; 314 indicates no missing data  
SD= standard deviation

Figure 6 shows a general map of Bolivia to highlight the location of the country in South America as well as the location of major cities and regional topography. Figure 7 illustrates the distribution of NGO activity across Bolivian municipalities as indicated by total number of NGO projects in 2005. The larger circles represent more NGO activity per municipality compared to the smaller circles. This figure clearly highlights those municipalities where NGO activity is concentrated compared to those where NGO activity is limited. Figures 8 through 13 display NGO activity and each of the independent variables of interest namely: poverty level (indicated by percentage of population living in poverty according to the percentage UBN indicator), population health need (indicated by IMR), education level (indicated by percentage of the population with a secondary school education), size of the indigenous population (indicated by

percentage of the population that is indigenous). Figure 14 and 15 illustrates the distribution of health and sanitation NGO activity and health system coverage respectively.

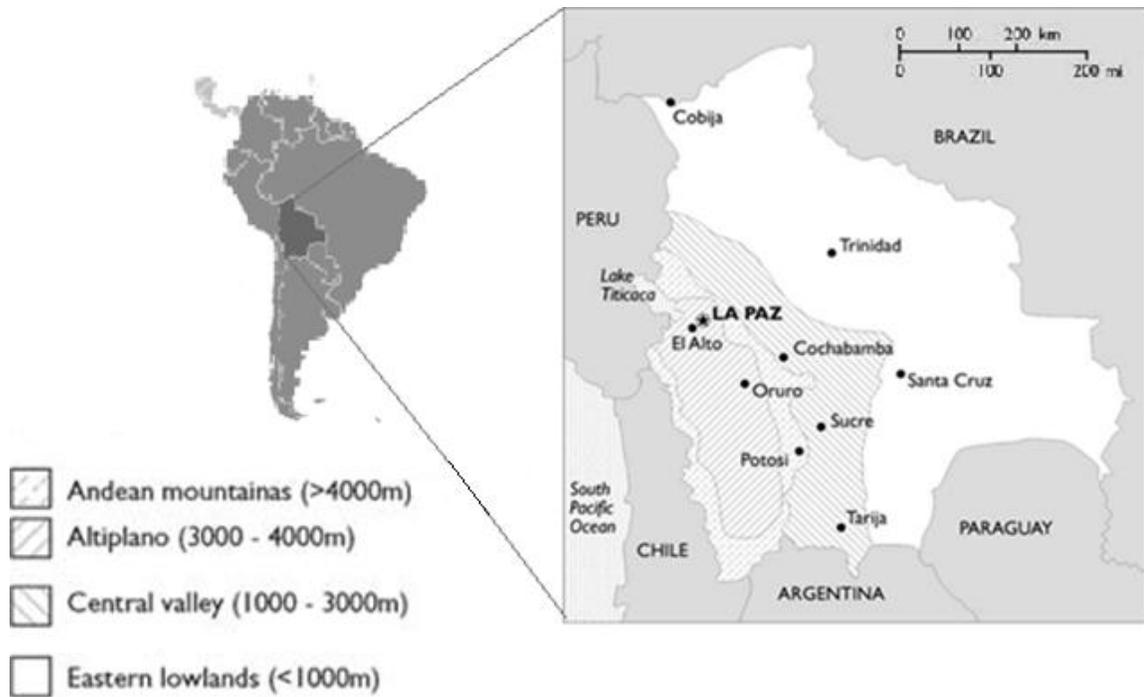
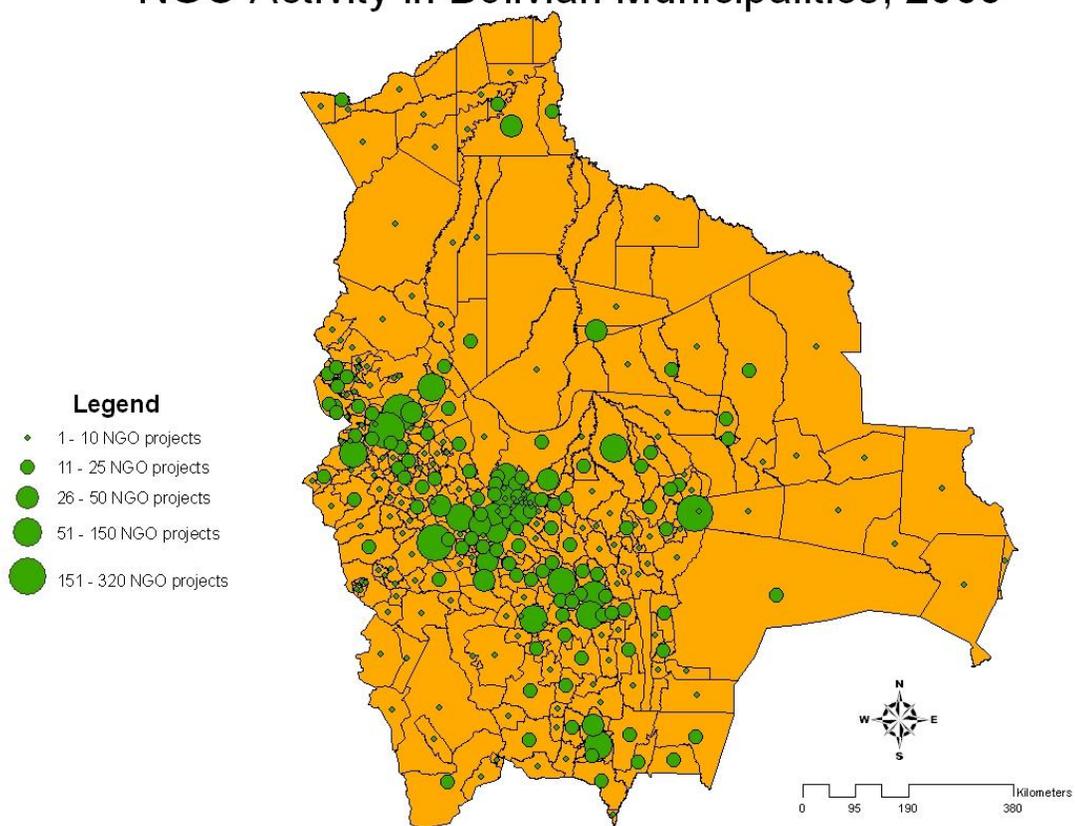


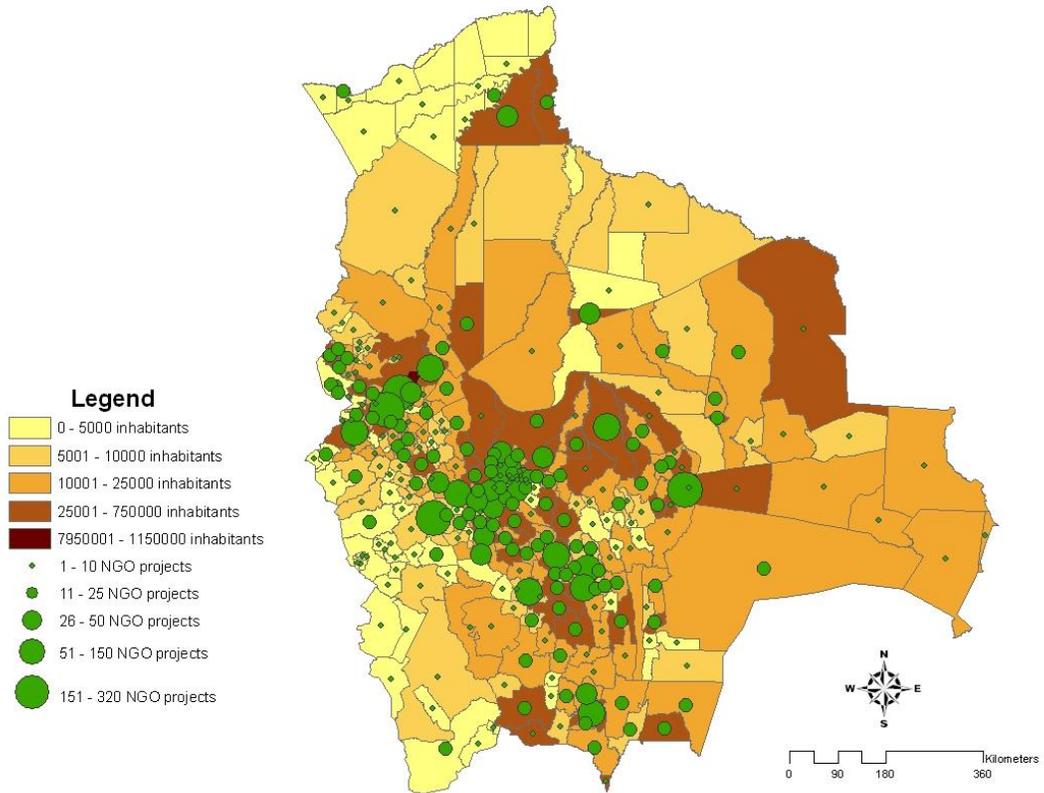
Figure 6: General map of Bolivia and regional topography (Adapted from: O'Hare & Rivas, 2005)

## NGO Activity in Bolivian Municipalities, 2005



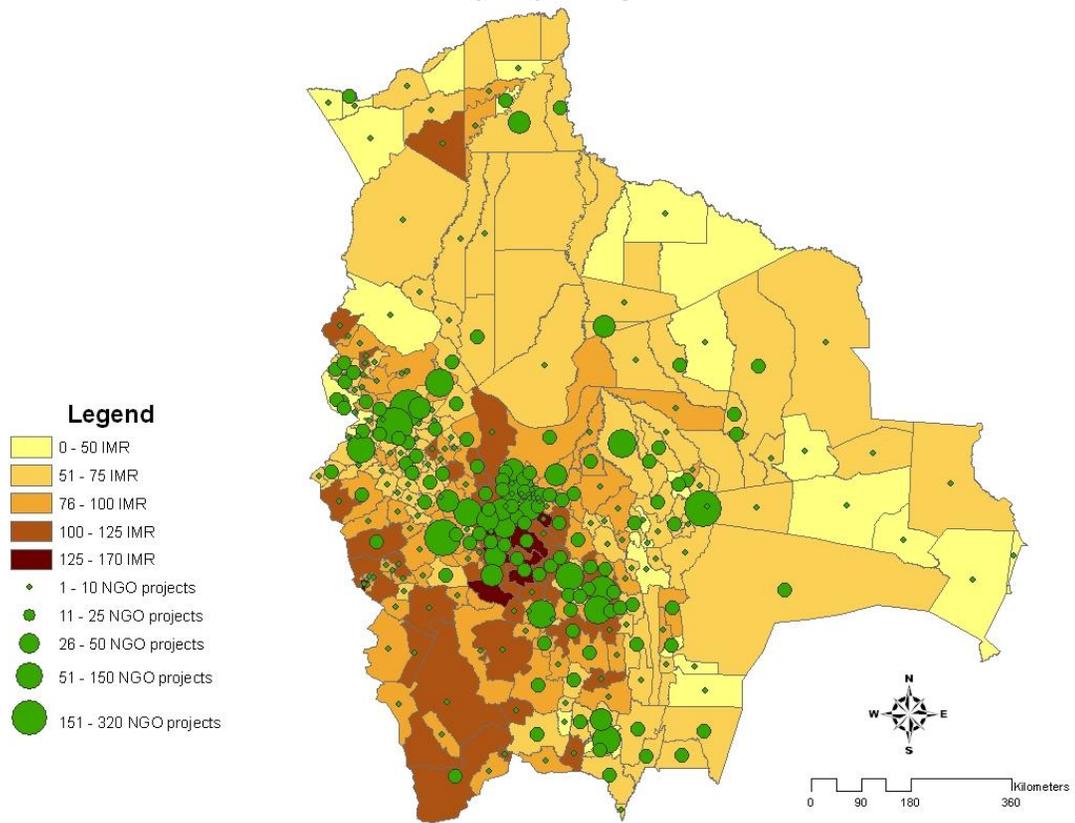
**Figure 7: NGO activity across Bolivian municipalities**

## NGO Activity by Population Size



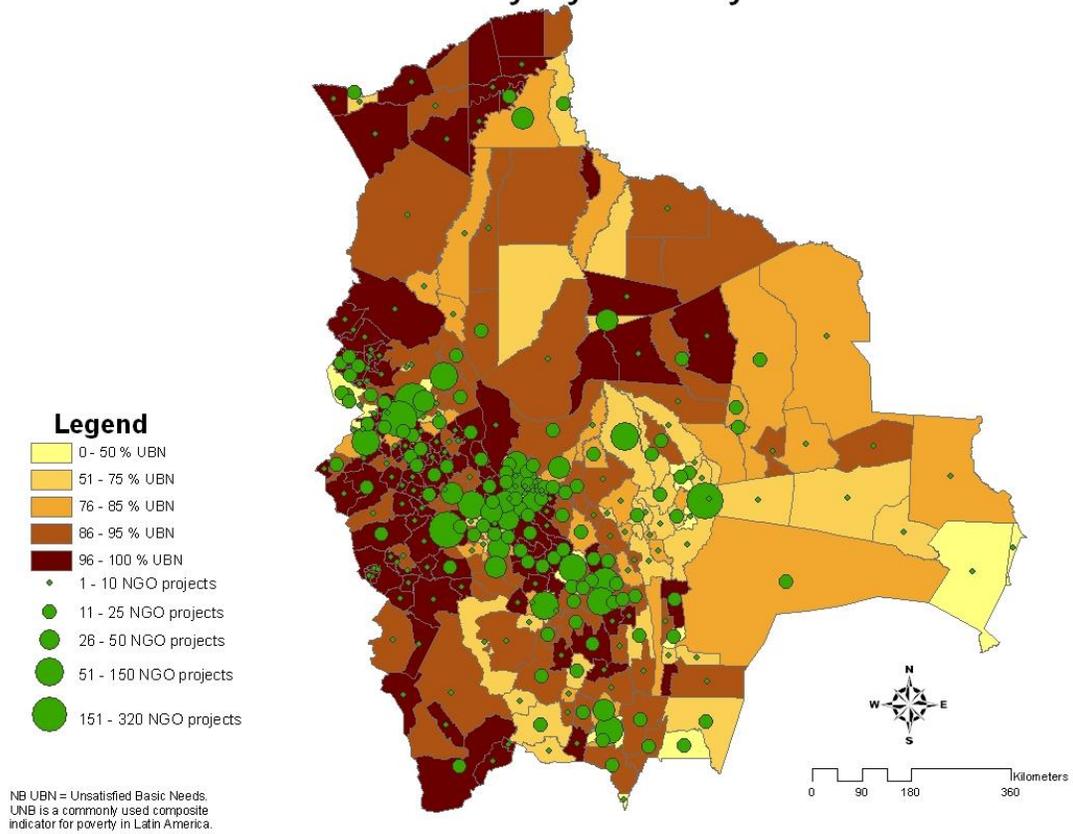
**Figure 8: NGO activity and Population size in Bolivia**

## NGO Activity by Population Health



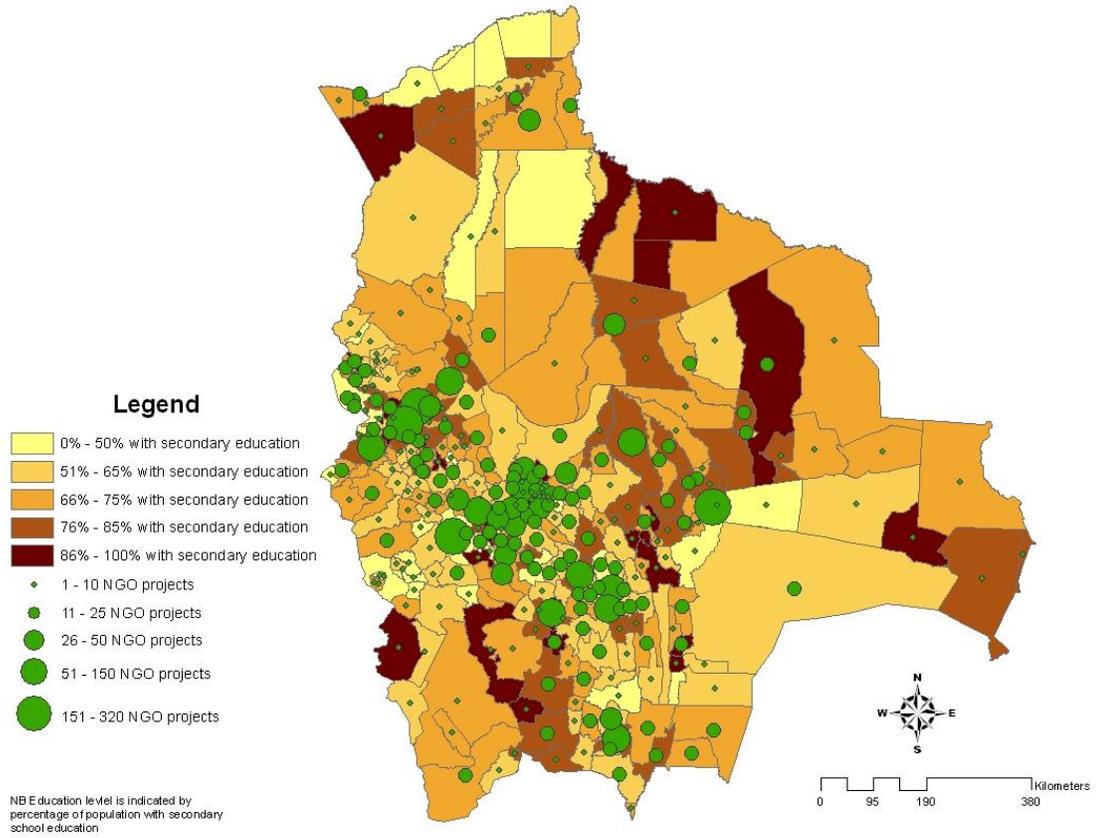
**Figure 9: NGO activity and population health in Bolivia**

## NGO Activity by Poverty Levels



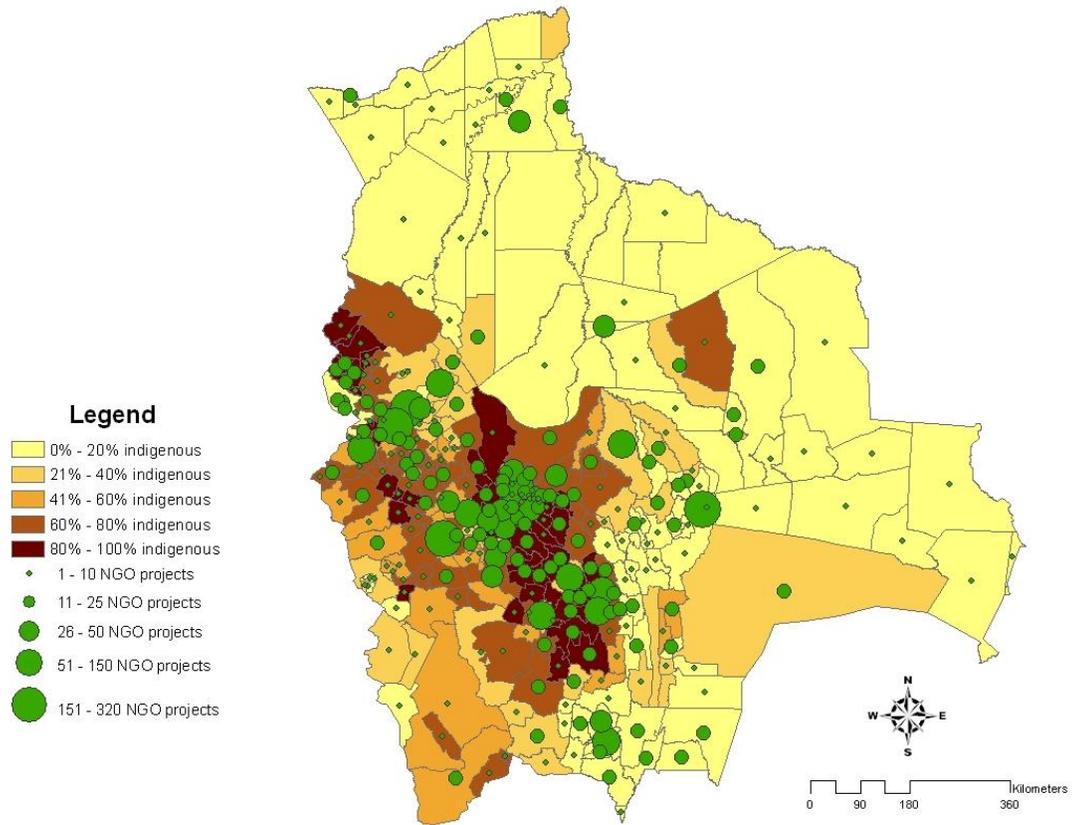
**Figure 10: NGO activity and poverty levels in Bolivia**

## NGO Activity by Education Level



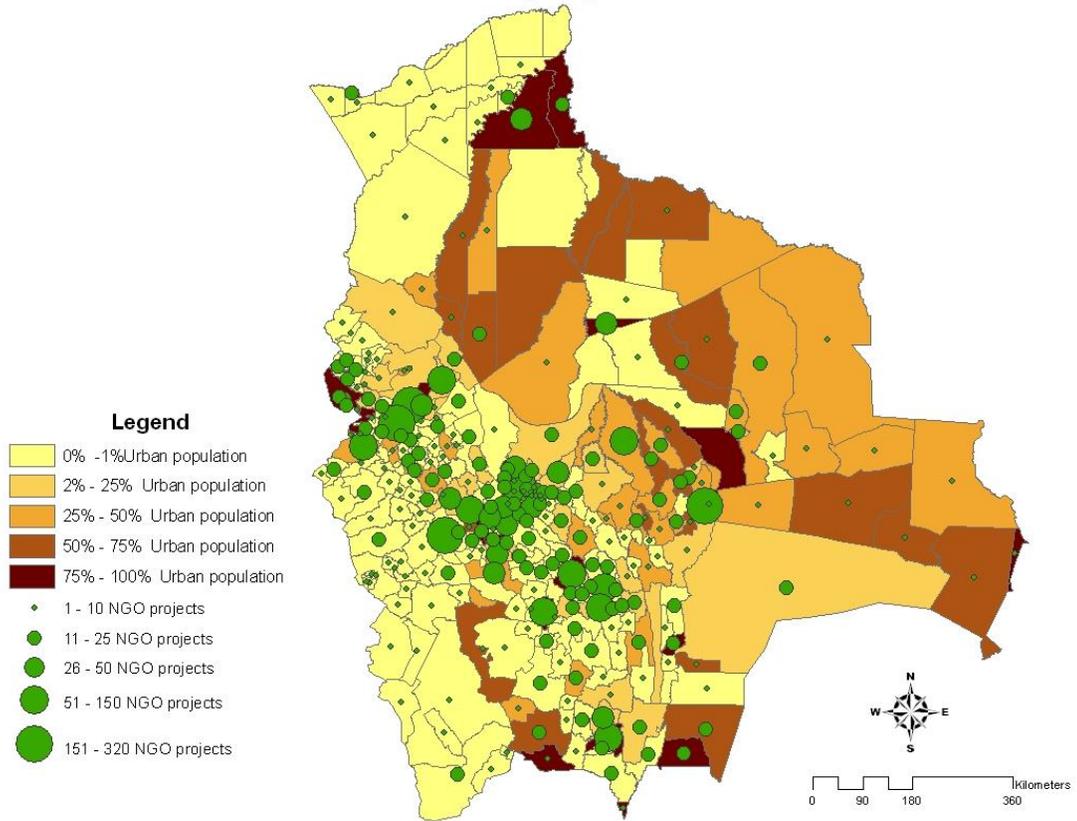
**Figure 11: NGO activity and education levels in Bolivia**

## NGO Activity by Size of Indigenous Population



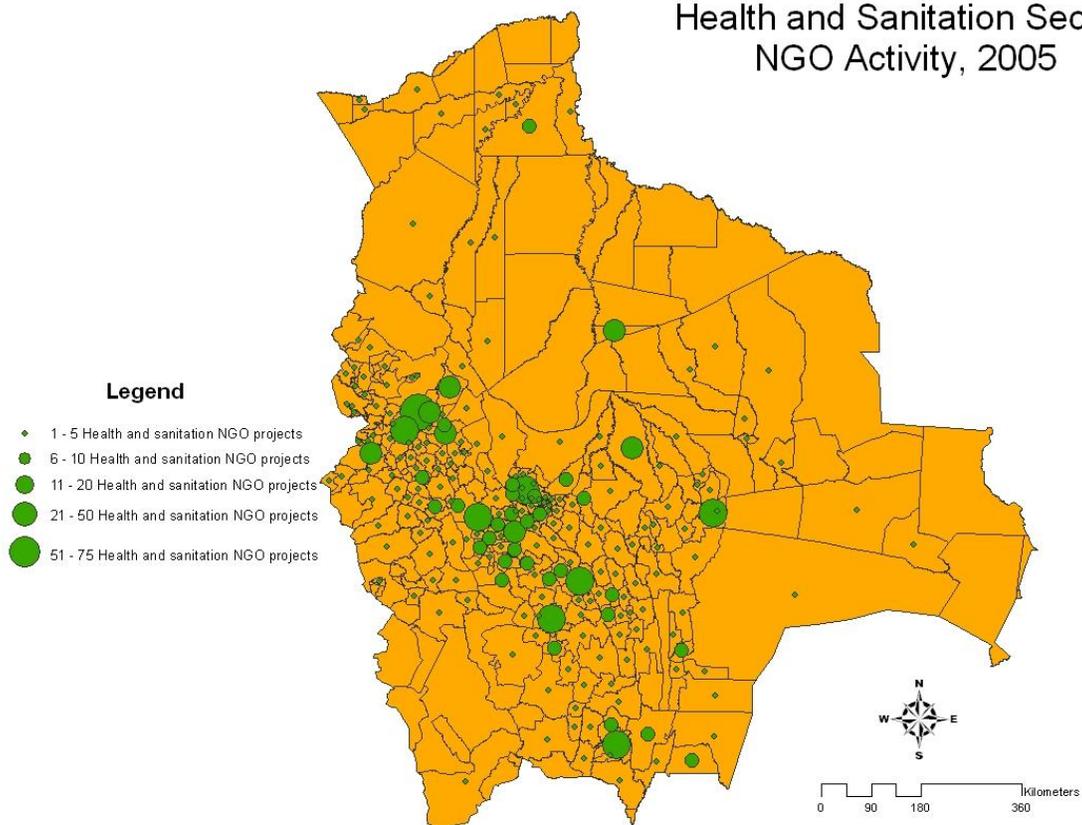
**Figure 12: NGO activity and size of indigenous population in Bolivia**

## NGO Activity by Urbanization

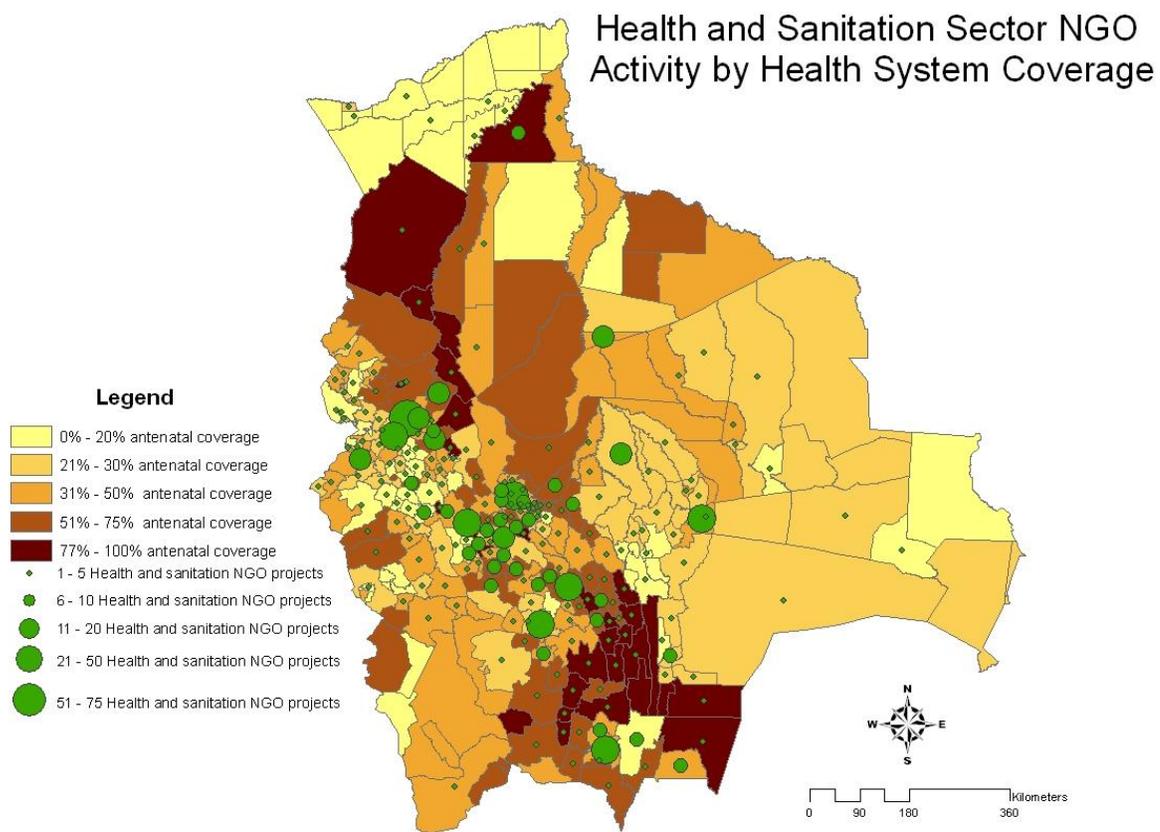


**Figure 13: NGO activity and urbanization in Bolivia**

## Health and Sanitation Sector NGO Activity, 2005



**Figure 14: Health and sanitation sector NGO activity across Bolivian municipalities**



**Figure 15: Health and sanitation NGO activity and health system coverage**

The multiple regression analysis identified those independent variables that are related to NGO activity across municipalities while adjusting for the effects of other variables in the model. Table 2 summarizes the results of the final negative binomial regression model 1, all NGO activity, and model 2, the subset of health and sanitation sector NGO activity. The model for all NGO activity (model 1) shows that when controlling for the effects of all other variables in the model, municipal population size, percentage of the population that is urban and percentage of the population that is indigenous are significantly related to municipal NGO activity while all other variables are not. Both population size and percentage of the population that is indigenous are highly and positively related to municipal NGO activity (0.7554; p-value= <0.0001 and 0.7214; p-value = 0.0003 respectively). The relationship between percentage of the population that is urban is significant and negative (-0.0054; p-value =0.067).

In the second model (health and sanitation NGO activity), population size (0.7058; p-value= 0.001), percentage of the population that is urban (-0.006; p-value= 0.08), and percentage of the population that is indigenous (0.8116; p-value= 0.0026) remained significantly related to NGO activity. Additionally, antenatal care coverage was positively and significantly related to NGO activity within the health and sanitation sector (0.0082; P-value=0.001).

The criteria for assessing goodness of fit (deviance and Pearson  $\chi^2$  statistics) are reported in Appendix 4. For both models, the deviance and Pearson  $\chi^2$  statistic are close to 1 indicating that the models fit the data well.

**Table 2: Summary of final regression models**

Variable	Model 1: All NGO activity			Model 2: Health and sanitation NGO activity		
	b	SEb	Wald p-value	b	SEb	Wald p-value
Poverty level	-0.0058	0.0045	0.1970	-0.0072	0.0052	0.1703
Population need	0.0004	0.0026	0.8937	-0.0018	0.0034	0.5842
a) Population health						
b) Education level	-0.0016	0.0036	0.6639	-0.0013	0.0046	0.7721
Extent of urbanization	-0.0054	0.0030	0.0673*	-0.0060	-0.0036	0.0890*
Size of indigenous population	0.0072	0.0020	0.0003**	0.0081	0.0026	0.0026**
Health system coverage	n/a	n/a	n/a	0.0082	0.0025	0.0010**
Population size	0.7554	0.0536	<0.0001**	0.7058	0.0665	<0.0001**

\*\*significant at 0.05; \* significant at 0.10 ; b= beta coefficient ; SEb =Standard Error of beta coefficient

### 3. 4 Discussion

This study provides one of the first comprehensive and empirical analyses exploring the distribution of NGO activity and related factors at the national scale. It is also one of the only studies examining NGO activity using quantitative methods in the context of Latin America.

NGO activity is unevenly distributed across the country. It is concentrated in some municipalities while limited or non-existent in others. Similar to what has been shown at the global level (Koch, 2009) as well as a handful of other LMICs (Barr & Fafchamps, 2006; Fruttero & Gauri, 2005; Lann, 2007; Raberg & Rudel, 2007), hotspots and blind spots can be identified on the map of NGO activity in

Bolivia. NGO activity tends to be highest or most concentrated in those municipalities located in the central highland region of the nation. The highland region is characterized by large indigenous populations that commonly rely on subsistence agriculture and seasonal migratory work for their livelihoods. On the other hand, NGO activity is quite limited in the north-eastern lowland region of the country which is more tropical and in certain areas involved in coca farming. This uneven distribution suggests a lack of co-ordination among NGOs working in Bolivia. Although a handful of NGO networks have been created and examples of sector level co-ordination initiatives exist, generally speaking, co-ordination of NGOs and their projects ought to be greatly improved. Co-ordination of NGO activity is even more relevant in those regions characterized by high NGO activity to avoid duplication of services and programmes and inefficient use of resources.

To understand those contextual factors that shape the spatial patterns of NGO activity across space, bivariate analyses and then a multiple regression analysis were conducted. As Bebbington (2004) points out, exploring NGO geographies and related factors can help us better understand why NGO related resources flow to one place and not another and thus broader implications for development and global health efforts. The multiple regression analysis examined those factors potentially related to the distribution of NGO activity while controlling for the effects of other variables in the model. This analysis allowed for hypothesis testing regarding those factors related to NGO activity and the

direction and magnitude of this relationship. Table 3 summarizes the null hypotheses and results.

**Table 3: Summary of hypothesis results**

<b>Null Hypothesis related to NGO activity</b>	<b>Result</b>
<i>Null Hypothesis 1:</i> NGO activity is evenly distributed across regions.	Visual uneven distribution. Reject null hypothesis.
<i>Null Hypothesis 2:</i> There is no difference in municipal NGO activity by poverty level.	No relationship. Fail to reject null hypothesis.
<i>Null Hypothesis 3:</i> There is no difference in municipal NGO activity by level of population need.	No relationship. Fail to reject null hypothesis.
<i>Null Hypothesis 4:</i> There is no difference in municipal NGO activity by size of vulnerable population.	Significant positive relationship. Reject null hypothesis; NGO activity higher in municipalities with larger indigenous populations.
<i>Null Hypothesis 5:</i> There is no difference in municipal NGO activity by extent of urbanization.	Significant negative relationship. Reject null hypothesis; NGO activity is higher in non-urbanized municipalities.
<i>Null Hypothesis 6:</i> There is no difference in municipal NGO activity by population size.	Significant positive relationship. Reject null hypothesis; NGO activity higher in municipalities with larger populations.
<i>Null Hypothesis 7:</i> There is no difference in municipal NGO activity by level of health system coverage.	Significant positive relationship. Reject null hypothesis; NGO activity is higher in municipalities with more health system coverage.

Evidence suggests that NGO activity is related to population size of the municipality such that there is more NGO activity in those municipalities with larger populations. It is not surprising that NGO activity is higher in more populated areas. Although the literature highlights an urban bias in NGO activity, the opposite was found in this study (Mercer, 2002). NGO activity is higher in those municipalities that are more rural compared to those municipalities that are more urbanized. This can be explained by the use of NGO projects as an indicator for NGO activity in this study rather than total number of organizations used in many other studies. As noted earlier, the head offices of NGOs tend to exist in urban centers; in Bolivia they are commonly located in La Paz, Cochabamba, and Santa Cruz while the projects they implement are outside of these urban centers in settlements characterized as rural areas. This highlights the importance of using NGO projects rather than organizations as a proxy for NGO activity particularly when spatial aspects of NGO activity are relevant to the question at hand.

This study has added to the current debate as to whether or not NGO activity is targeted towards those regions and populations characterized by high levels of poverty. This study did not find a relationship between municipal poverty levels and NGO activity in Bolivia, suggesting that NGOs do not target the poorest regions in the country. This might indicate that NGOs are reluctant to work in the poorest regions. If that is the case, they might be responding to their sense that it is more difficult to demonstrate measurable success to their funders when working in these environments and therefore the organization is also less

likely to secure financial (and potentially organizational) survival (Fruttero & Gauri, 2005; Lann, 2007). Many authors and practitioners have suggested that the 'marketization' of the NGO sector and recent focus on measurable impacts have had unfavourable side effects on the poorest regions by creating a bias towards those regions that offer relatively 'easier' work environments (Fowler 2000; Lewis & Wallace, 2000; Koch, 2009). As Koch (2009), points out, "The poverty orientation of NGOs and aid may be undermined by increasing pressure...to demonstrate project-related poverty impacts" (Koch, 2009, p. 20). Bebbington (2004) suggests that casual/observational evidence of this effect exists in the Andes. According to Bebbington and his colleagues, NGOs working in Peruvian and Bolivian Andes expressed concerns about losing funding if they were unable to demonstrate short-term poverty impacts related to the project implementation.

Findings also indicate that NGO activity is not related to population need, when defined as population health status and education level. This study thus does not find strong support for the 'article of faith' that the NGO sector targets the poorest and neediest regions within a nation. This realization is troubling considering that resources available for health and development efforts in LMICs are limited and may not be reaching the most disadvantaged populations. It is possible however that NGO activity is related to relative levels of poverty or population need within a municipality rather than absolute municipal levels. For example, NGOs may focus their work on the poorest communities or individuals *within* a given municipality that is itself not characterized by high levels of

absolute poverty. That being said, Fruttero & Gauri (2005) examined the NGO sector in Bangladesh and found that community level poverty was not related to the number of NGO projects. Unfortunately, the Bolivian data available for this analysis could not be used to test the relationship between NGO activity and poverty or population need at the community or individual level. When possible, future research should consider relative as well as absolute levels of poverty.

NGO activity was also found to be higher in those municipalities characterized by large indigenous populations. It may be the case that NGO activity is targeted towards populations considered vulnerable in a way that is easily identifiable namely, indigenous status, rather than towards poverty and poor health and social outcomes which are more difficult to assess and often require more advanced, technical, and resource intensive monitoring. Generally speaking NGOs do not have the tools, resources, or time to assess population health and well-being outcomes as guidelines for project implementation.

The uneven distribution of NGO activity and the finding that NGO activity is not related to poverty or population need introduce two questions that merit discussion. First, what does this uneven distribution of NGO activity tell us about the overall performance of the NGO sector in Bolivia? Secondly, a particularly important question within the realm of global health and development that is largely concerned with inequities, is whether the uneven distribution of NGO activity is *inequitable*. Unfortunately, it is difficult, if not impossible, to answer these questions without appropriate benchmarks, standards, and guidelines to structure an evaluation of NGO performance and possible inequities. Although

evaluation of the NGO sector was not the goal of this paper (as data limitations inhibiting such an endeavour were recognized at the onset of this project) this point does raise an important issue. The current lack of benchmarks, standards, and guidelines for the NGO sector in Bolivia is a practical concern. Such constructs are necessary in order to evaluate and monitor the performance and possible inequitable distribution of NGOs and their projects, and to ultimately enable context driven and evidence-based policy decisions.

Similar results were found when looking specifically at NGO projects working in the health and sanitation sector. In addition to being related to municipal population size, size of indigenous population, and rurality of the municipality, health and sanitation focused NGO activity is related to health system coverage. However, the direction of the relationship is opposite to what is expected; there is higher NGO activity in municipalities with more health system coverage when measured by antenatal care coverage. NGOs have historically been touted as useful vehicles to fill in the gaps in public sector coverage, this however, does not appear to be the case in the context of Bolivia with regards to the health system. This suggests that co-ordination is not only lacking among NGOs themselves, but also between the NGO sector and the public sector. To ensure efficient and appropriate resource and service allocation, the NGO sector and the public sector efforts should be co-ordinated to some extent. Additionally, there is a growing body of literature highlighting that NGOs, particularly in those regions where NGO activity is highly concentrated, must not simply fill gaps in the public sector but must take steps and implement

projects that work towards strengthening the public sector in general (Zaidi, 1999, Pfeiffer, 2002, Pfeiffer 2003). In the current landscape of health and development, donors, practitioners and scholars alike have begun to realize that state-less health and development efforts will fail (Lewis & Opoku-Mensah, 2006). This dialogue highlights that NGOs are not and should not be considered a third sector that exists separately from the public sector but rather, that NGOs and the public sector should build mutually beneficial relationships and work towards common and mutually identified national health and development priorities.

To summarize, five main points should be taken from this study and the study results with regards to NGO distribution and related factors in Bolivia. First of all, NGO activities in Bolivia are unevenly distributed across space and co-ordination efforts need to be improved to ensure that resources are appropriately and effectively allocated to populations in need. Secondly, counter to the commonly held and cited assumption, NGOs working in Bolivia do not target the poorest and neediest populations according to the methods and the data used. Thirdly, NGO activity may not be filling the gaps in public sector coverage suggesting a need for improved communication and co-ordination between NGOs and the public sector. Fourth, it is difficult to evaluate the performance and determine whether NGO activity is equitably distributed without benchmarks and guidelines outlining national priorities and satisfactory NGO conduct. Finally, the National NGO Directory, although a valuable data source that has enabled this unique and original analysis of the Bolivian NGO sector,

should aim to collect and publicly release more detailed data regarding the characteristics and reach of NGOs and their projects.

## **4. Recommendations for global health and development research and practice**

In order for research to be useful and contribute to positive change in practical settings and support theoretical and empirical progress in the realm of research, study findings and the research process itself should be used to guide recommendations. As noted at the outset of the paper, the Bolivian context was used as a case study to better understand NGO distribution and related factors in a particular context. However, the paper as a whole is meant to have wider purchase and contribute to broader discussions regarding global health and development research and practice in LMICs.

### **4.1 National NGO Code of Conduct**

Based on the general lack of benchmarks and standards aimed at the NGO sector, efforts are needed to create and implement national level guidelines that can be used as standards of appropriate operation and coverage for NGOs to follow and as evaluation benchmarks to assess the performance and equity of the NGO sector. Ultimately, such constructs will promote positive population impacts through NGO work. An NGO Code of Conduct that highlights priorities for NGO work, outlines standards of ethics and satisfactory NGO coverage as well as possible benchmarks for evaluation and monitoring purposes is recommended.

The concept of an NGO Code of Conduct has become more prevalent in health and development in the last decade. Several Codes of Conduct have been written, and, to varying degrees, adopted by organizations and nations. An example of a more prominent NGO code of conduct relevant in the current landscape of health and development is the '*NGO Code of Conduct for Health Systems Strengthening*'. This Code of Conduct is a response to the proliferation of international NGO presence and intended as a tool for service organizations – and eventually, funders and host governments (See Appendix 8 for more details). Generally speaking, the various codes of conduct that have been developed are focused on a particular sector (HIV/AIDS, disaster relief) or consequence of NGO activity (health system fragmentation and weakening). Due to the difficulties in developing and implementing international or pan-NGO strategies and guidelines, and recognizing the importance of context and country-specific needs, national level NGO Codes of Conduct are recommended. A handful of nations have created an NGO Code of Conduct as guidance for NGO activity (Mozambique and Botswana for example, see Appendix 8 for details). I propose that the state, in collaboration with the NGO sector and possibly other relevant stakeholders, is well advised to develop a national NGO Code of Conduct to guide NGO activity and the NGO sector. A national NGO Code of Conduct would promote population health and development and the efficient use of limited resources and could be used as a framework to evaluate the functionality of the NGO sector. For example, when analysing NGO distribution across space, priorities of the Code of Conduct could be used to assess whether or not NGO

activity is equitably distributed. Additionally, a National NGO Code of Conduct could be a vehicle to improve co-ordination and harmonization of NGO efforts. In this way, a national level NGO Code of Conduct could act like a small scale Paris Declaration on Aid Effectiveness (an international declaration focused on national ownership and improved harmonization and alignment of international aid) but directed at the NGO sector.

#### **4.2 NGO surveillance at global and national scale**

Surveillance, defined by the WHO as the ongoing, systematic collection, analysis, and interpretation of data essential to planning, implementation, and evaluation is a fundamental element of public health research and practice. The surveillance of NGOs and NGO projects should be improved to monitor NGO activity at both the global and the national scale to better understand the impacts of organizations and the NGO sector as a whole. Large institutions and organizations such as the Global Fund, the World Bank, or the Bill and Melinda Gates Foundation, which have become the primary funding bodies for NGO work, should consider the importance of NGO surveillance and support and work towards creating accurate and representative databases that monitor NGO activity at the international scale. At the national scale, NGO registries or databases similar to the one managed by the Bolivian government but with more detailed data pertaining to organizational and project characteristics should be encouraged and implemented. In countries such as Bolivia where an NGO registry does exist, efforts should be made to support and advance the current collection, evaluation and dissemination of NGO related data. Additionally,

registries would benefit from outlining what is defined as an NGO and as well as an NGO project, and making efforts to capture NGO and NGO project reach.

Another option for surveillance and monitoring of the spatial distribution of NGO activity is to utilize mapping technology. Mapping technology is rapidly improving and could be used as a tool to monitor NGO work in a given nation or region.

As many authors have pointed out, the continued survival of the NGO sector may rest upon our ability to show that NGOs are performing and producing positive population level impacts; this requires significant improvements in the surveillance and monitoring of the NGO sector (Edwards and Hulme, 1995 Barr & Fafchamps, 2005; Galef & Gauri, 2005).

### **4.3 Re-focus and re-orient NGO related research**

NGO related research must begin to examine broader implications of NGOs and the NGO sector beyond the organization and project level. This of course has been limited by data availability but, as data availability and reliability continue to improve in the coming years, the research community must begin to ask and answer 'big picture' questions about NGOs and the NGO sector, including questions about their reach and the appropriateness of their distribution within countries and communities. As well, the research should be re-oriented towards practical outputs.

## **APPENDICES**

### **Appendix 1: NGO Definitions from health and development institutions**

#### **A) World Bank definition of NGOs:**

NGOs are “private organizations that pursue activities to relieve suffering, promote the interests of the poor, protect the environment, provide basic social services, or undertake community development.”

#### **B) United Nations definition of NGOs:**

An NGO is “any non-profit, voluntary citizens group which is organized on a local national or international level. Task-oriented and driven by people with a common interest, NGOs perform a variety of services and humanitarian functions, bring citizens concerns to governments, monitor policies and encourage political participation at the community level. They provide analysis and expertise, serve as early warning mechanisms and help monitor and implement international agreements.”

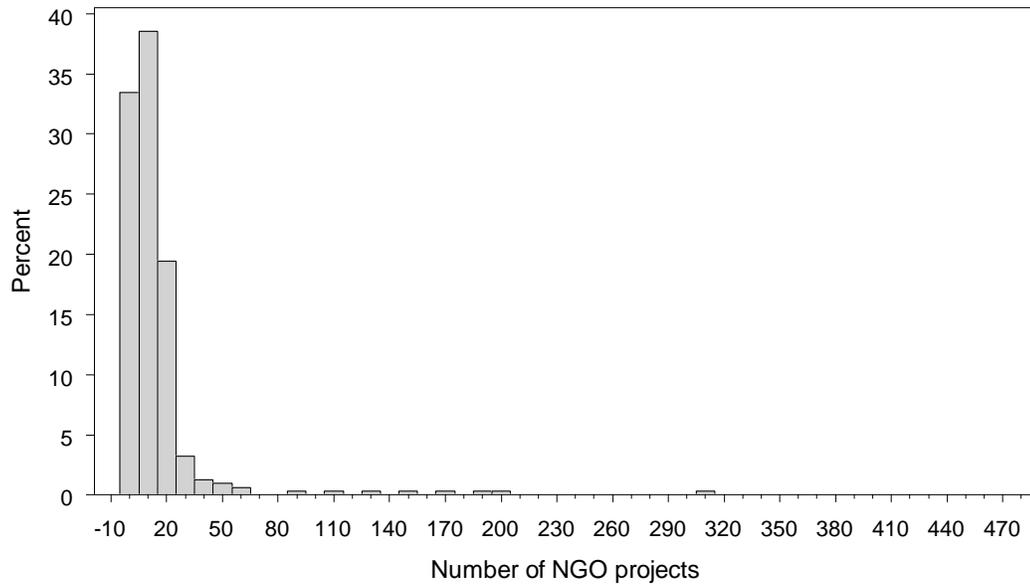
## Appendix 2: Spearman's Rank correlation

	# of NGO projects	% of population that is urban	% UBN	% of population with secondary school education	% of population that is indigenous	IMR
<b># of NGO projects</b>	1	0.24892 <.0001	-0.19694 0.0004	0.11669 0.0388	0.23193 <.0001	0.03969 0.4834
<b>% of population that is urban</b>	0.24892 <.0001	1	-0.69257 <.0001	0.3815 <.0001	-0.41351 <.0001	-0.45331 <.0001
<b>% UBN</b>	-0.196 0.0004	-0.69257 <.0001	1	-0.40453 <.0001	0.51171 <.0001	0.50019 <.0001
<b>% of population with secondary school education</b>	0.11669 0.0388	0.3815 <.0001	-0.40453 <.0001	1	-0.19504 0.0005	-0.30326 <.0001
<b>% of population that is indigenous</b>	0.23193 <.0001	-0.41351 <.0001	0.51171 <.0001	-0.19504 0.0005	1	0.60784 <.0001
<b>IMR</b>	0.03969 0.4834	-0.45331 <.0001	0.50019 <.0001	-0.30326 <.0001	0.60784 <.0001	1
<b>log of municipal population</b>	0.63114 <.0001	0.6006 <.0001	-0.4366 <.0001	0.234 <.0001	0.02509 0.6578	-0.12267 0.0298
<b>% of women with antenatal coverage</b>	0.303 <.0001	0.19492 0.0005	-0.1985 0.0004	0.0872 0.1231	0.05574 0.3249	0.12238 0.0301
<b># of NGO projects in the health sector</b>	0.83275 <.0001	0.15434 0.0061	-0.14625 0.0095	0.0662 0.2421	0.2181 <.0001	0.04471 0.4298

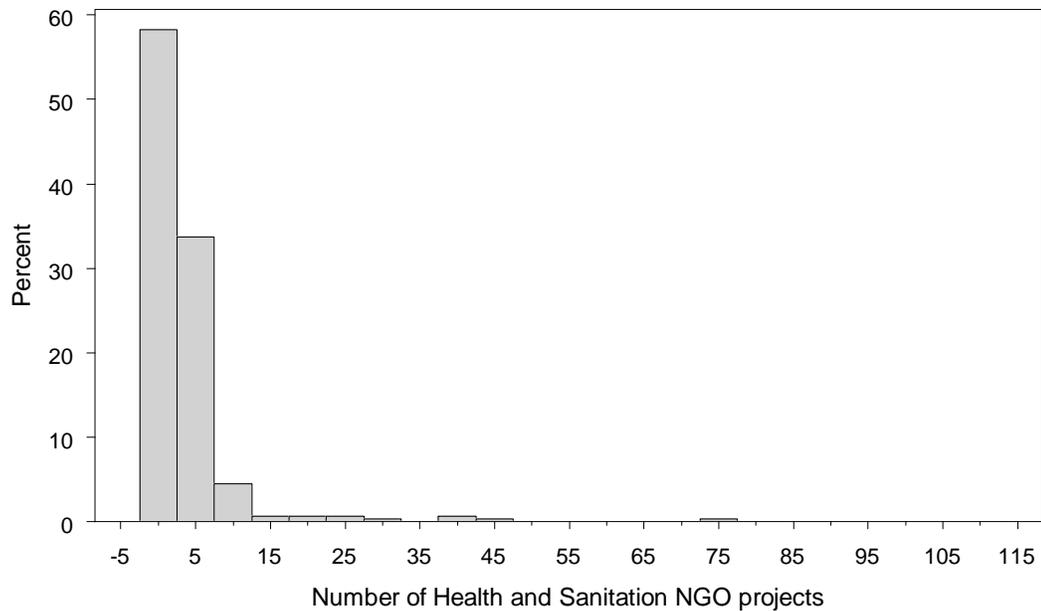
Spearman's Rank correlation (continued)

	<b>Log of municipal population</b>	<b>% of women with antenatal coverage</b>	<b># of NGO projects in the health and sanitation sector</b>
<b># of NGO projects</b>	0.63114 <.0001	0.303 <.0001	0.83275 <.0001
<b>% of population that is urban</b>	0.6006 <.0001	0.19492 0.0005	0.15434 0.0061
<b>% UBN</b>	-0.4366 <.0001	-0.1985 0.0004	-0.14625 0.0095
<b>% of population with secondary school education</b>	0.234 <.0001	0.0872 0.1231	0.0662 0.2421
<b>% of population that is indigenous</b>	0.02509 0.6578	0.05574 0.3249	0.2181 <.0001
<b>IMR</b>	-0.12267 0.0298	0.12238 0.0301	0.04471 0.4298
<b>log of municipal population</b>	1	0.27389 <.0001	0.48792 <.0001
<b>% of women with antenatal coverage</b>	0.27389 <.0001	1	0.27775 <.0001
<b># of NGO projects in the health sector</b>	0.48792 <.0001	0.27775 <.0001	1

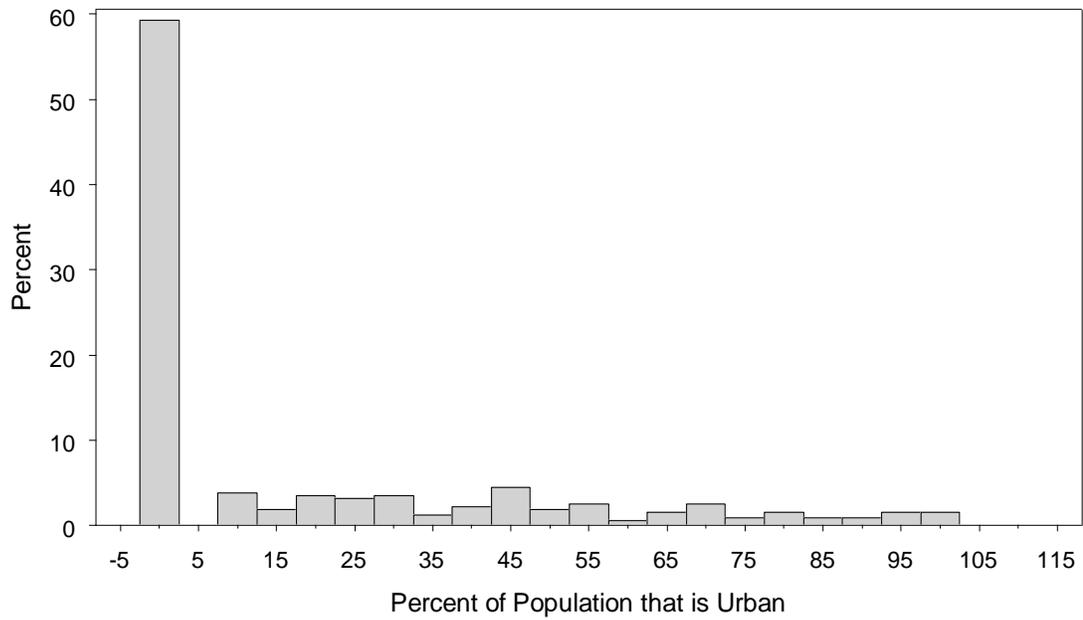
## NGO Activity by Bolivian Municipality, 2005



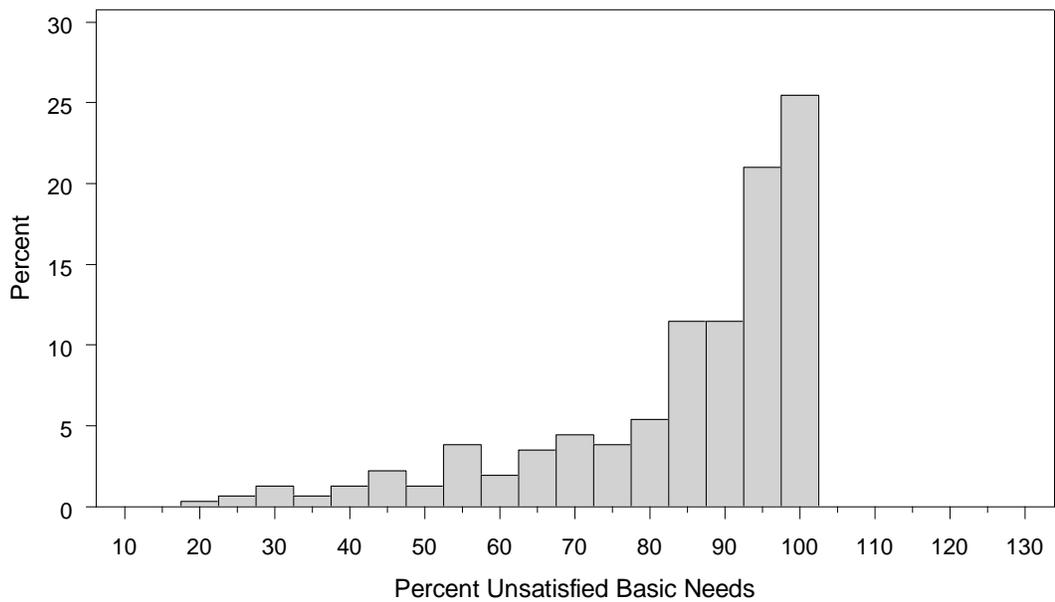
## Health and Sanitation NGO Activity by Bolivian Municipality 2005



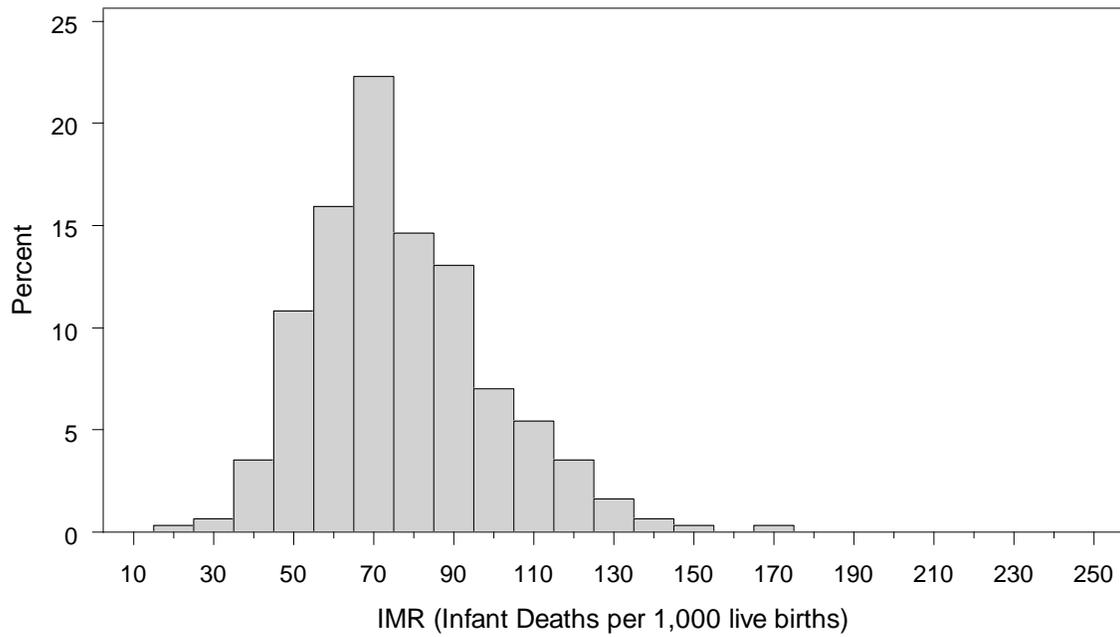
## Urbanization by Bolivian Municipality, 2001



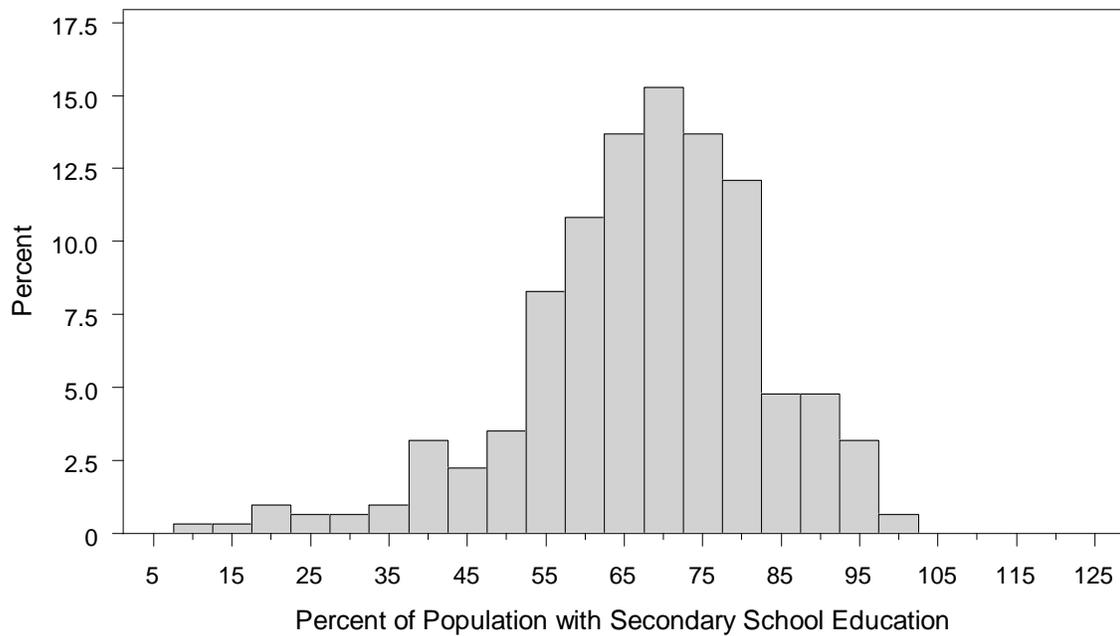
## Poverty Level by Bolivian Municipality, 2001



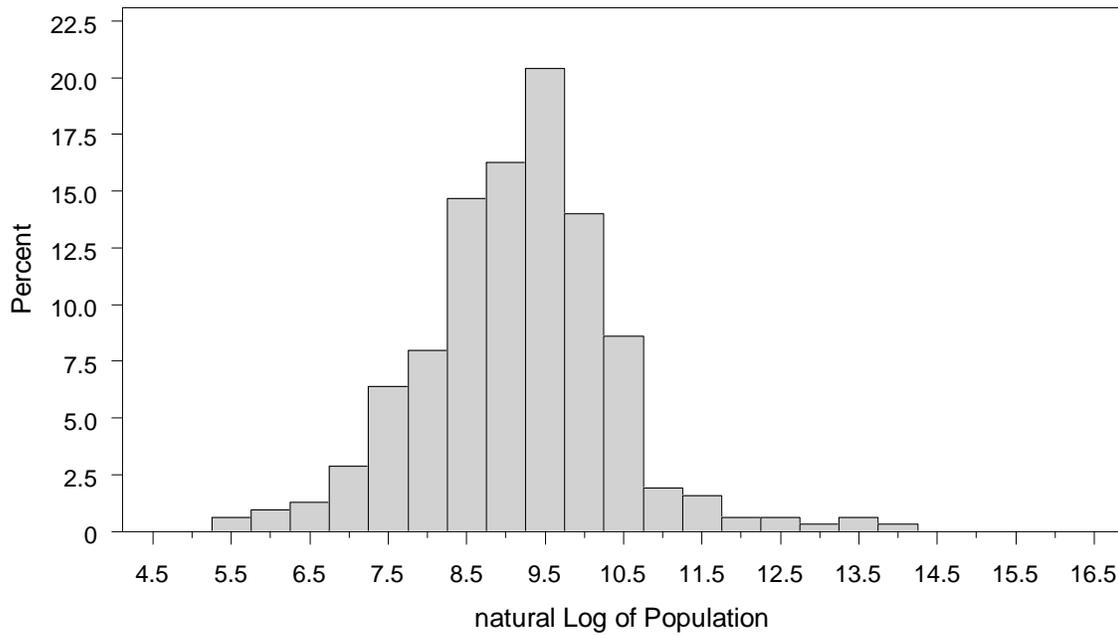
## Population Health by Bolivian Municipality, 2001



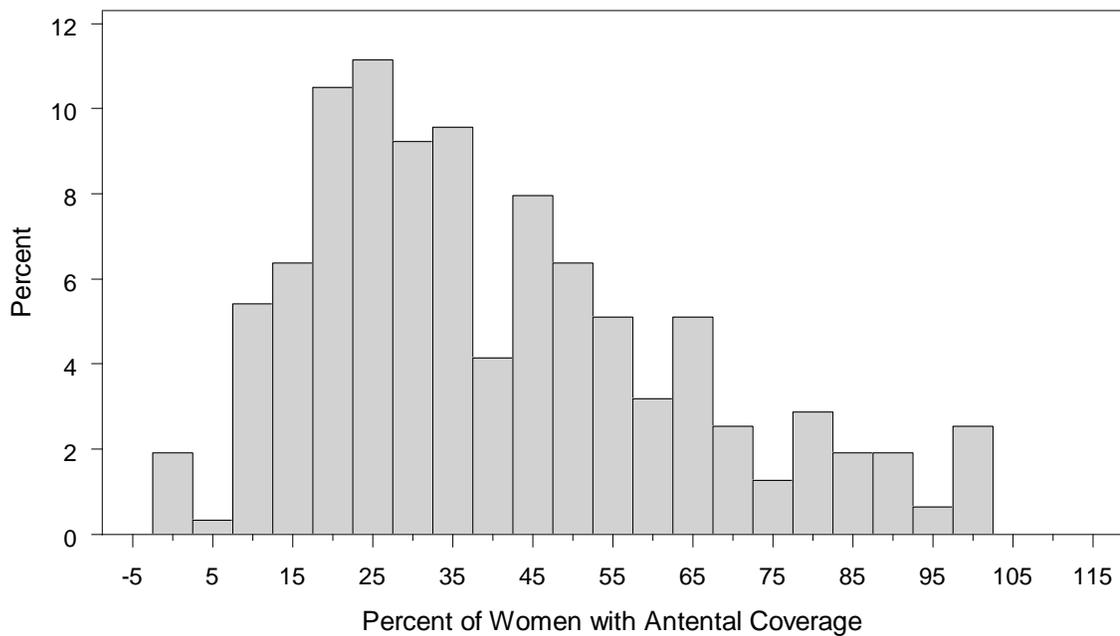
## Education Level by Bolivian Municipality, 2001



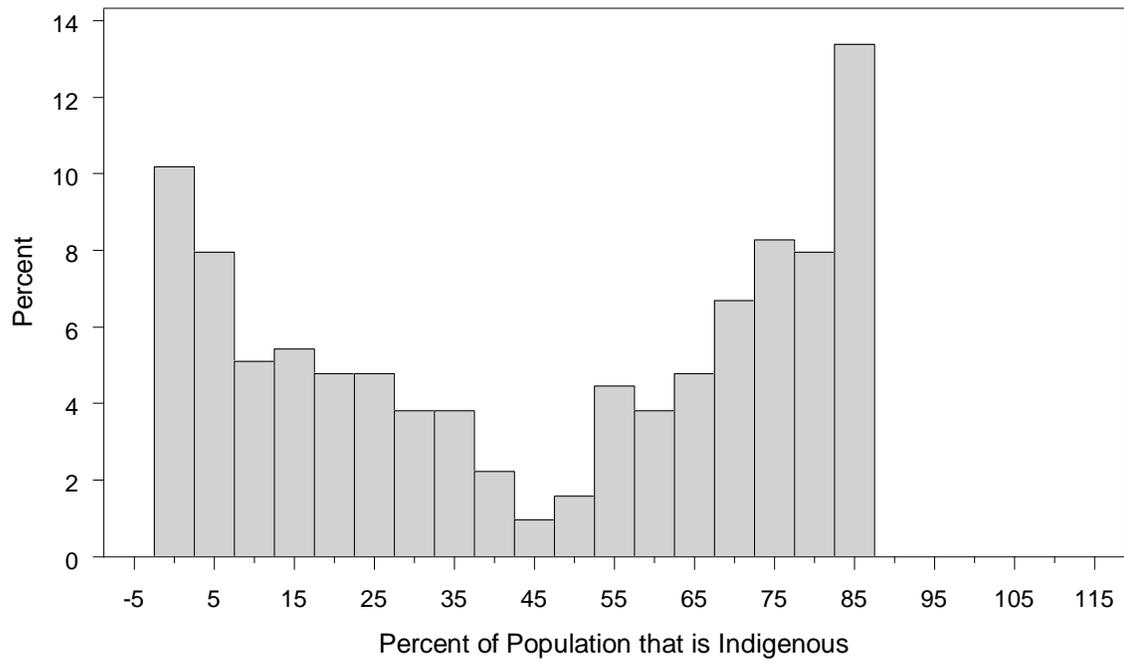
## Population Size by Bolivian Municipality, 2001



## Health System Coverage by Bolivian Municipality, 2001



## Size of Indigenous population by Bolivian Municipality, 2001



## Appendix 4: Model outputs

### A) Negative binomial model, All NGO activity (Final model 1)

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	307	351.1822	1.1439
Scaled Deviance	307	351.1822	1.1439
Pearson Chi-Square	307	325.1120	1.0590
Scaled Pearson X2	307	325.1120	1.0590
Log Likelihood		10732.5255	
Full Log Likelihood		-1001.3005	
AIC (smaller is better)		2018.6009	
AICC (smaller is better)		2019.0731	
BIC (smaller is better)		2048.5961	

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits	Wald Chi-Square	Pr > ChiSq	
Intercept	1	-4.4033	0.6869	-5.7495 -3.0570	41.10	<.0001	
% of population that is urban, 2001	1	-0.0054	0.0030	-0.0113 0.0387 *	3.35	0.0673	
% UBN, 2001	1	-0.0058	0.0045	-0.0145 0.0030	1.66	0.1970	
% of population with secondary school education, 2001	1	-0.0016	0.0036	-0.0087 0.0055	0.19	0.6639	
% of population that is indigenous, 2001	1	0.0072	0.0020	0.0033 0.0111	12.93	0.0003	
IMR, 2001	1	0.0004	0.0026	-0.0048 0.0055	0.02	0.8937	
log of municipal population, 2001	1	0.7554	0.0536	0.6504 0.8604	198.78	<.0001	
Dispersion	1	0.5006	0.0513	0.4001 0.6010			

\*NB: When the highly insignificant IMR and % of population with secondary school education are removed from the model the CI no longer crosses zero.

**B) Negative binomial model, Health and sanitation NGO activity (Final model 2)**

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	306	337.6908	1.1036
Scaled Deviance	306	337.6908	1.1036
Pearson Chi-Square	306	294.0581	0.9610
Scaled Pearson X2	306	294.0581	0.9610
Log Likelihood		937.5925	
Full Log Likelihood		-626.3045	
AIC (smaller is better)		1270.6091	
AICC (smaller is better)		1271.2012	
BIC (smaller is better)		1304.3536	

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept	1	-5.4443	0.8394	-7.0895	-3.7990	42.06	<.0001
% of population that is urban, 2001	1	-0.0060	0.0036	-0.0130	0.0009	2.89	0.0890
% UBN, 2001	1	-0.0072	0.0052	-0.0175	0.0031	1.88	0.1703
% of population with secondary school education, 2001	1	-0.0013	0.0046	-0.0103	0.0076	0.08	0.7721
% antenatal care coverage, 2001	1	0.0082	0.0025	0.0033	0.0131	10.85	0.0010
% of population that is indigenous, 2001	1	0.0081	0.0026	0.0028	0.0133	9.07	0.0026
IMR, 2001	1	-0.0018	0.0034	-0.0084	0.0047	0.30	0.5842
log of municipal population, 2001	1	0.7058	0.0665	0.5753	0.8362	112.51	<.0001
Dispersion	1	0.4727	0.0752	0.3254	0.6200		

### C) Poisson model, All NGO activity

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	307	1998.4823	6.5097
Scaled Deviance	307	1998.4823	6.5097
Pearson Chi-Square	307	2282.1265	7.4336
Scaled Pearson X2	307	2282.1265	7.4336
Log Likelihood		10164.2048	
Full Log Likelihood		-1569.6212	
AIC (smaller is better)		3153.2424	
AICC (smaller is better)		3153.6084	
BIC (smaller is better)		3179.4882	

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept	1	-5.2737	0.2281	-5.7208	-4.8266	534.44	<.0001
% of population that is urban, 2001	1	0.0004	0.0010	-0.0016	0.0024	0.16	0.6937
% UBN, 2001	1	0.0005	0.0013	-0.0019	0.0030	0.19	0.6639
% of population with secondary school education, 2001	1	0.0026	0.0014	-0.0002	0.0054	3.35	0.0671
% of population that is indigenous, 2001	1	0.0052	0.0008	0.0034	0.6009	34.79	<.0001
IMR, 2001	1	0.0007	0.0011	-0.0013	0.0028	0.48	0.4882
log of municipal population, 2001	1	0.7530	0.0170	0.7198	0.7863	1970.89	<.0001
Dispersion	0	1.0000	0.0000	1.0000	1.0000		

## D) Poisson model, Health and sanitation NGO activity

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	306	726.0130	2.3726
Scaled Deviance	306	726.0130	2.3726
Pearson Chi-Square	306	734.7478	2.4011
Scaled Pearson X2	306	734.7478	2.4011
Log Likelihood		857.7413	
Full Log Likelihood		-706.1557	
AIC (smaller is better)		1428.3114	
AICC (smaller is better)		1428.7836	
BIC (smaller is better)		1458.3066	

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept	1	-6.8012	0.4772	-7.7364	-5.8659	203.15	<.0001
% of population that is urban, 2001	1	-0.0011	0.0021	-0.0051	0.0030	0.27	0.6036
% UBN, 2001	1	0.0001	0.0026	-0.0050	0.0052	0.00	0.9652
% of population with secondary school education, 2001	1	0.0037	0.0029	-0.0020	0.0094	1.61	0.2044
% antenatal care coverage, 2001	1	0.0074	0.0015	0.0045	0.0102	25.05	<.0001
% of population that is indigenous, 2001	1	0.0048	0.0017	0.0013	0.0083	7.42	0.0065
IMR, 2001	1	0.0009	0.0022	-0.0034	0.0051	0.16	0.6879
log of municipal population, 2001	1	0.7326	0.0351	0.6637	0.8015	434.49	<.0001
Dispersion	0	1.0000	0.0000	1.0000	1.0000		

## E) Negative binomial model All NGO activity per capita

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	308	350.5126	1.1380
Scaled Deviance	308	350.5126	1.1380
Pearson Chi-Square	308	345.8335	1.1228
Scaled Pearson X2	308	345.8335	1.1228
Log Likelihood		10722.7883	
Full Log Likelihood		-1011.0376	
AIC (smaller is better)		2036.0753	
AICC (smaller is better)		2036.4413	
BIC (smaller is better)		2062.3210	

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits		Wald Chi-Square	Pr > ChiSq
Intercept	1	-6.5014	0.5265	-7.5332	-5.4695	152.49	<.0001
% of population that is urban, 2001	1	-1.1711	0.2738	-1.7077	-0.6346	18.30	<.0001
% UBN, 2001	1	-0.0033	0.0046	-0.0123	0.0057	0.51	0.4757
% of population with secondary school education, 2001	1	-0.0032	0.0038	-0.0106	0.0042	0.70	0.4031
% of population that is indigenous, 2001	1	0.0057	0.0020	0.0016	0.0098	7.64	0.0057
IMR, 2001	1	-0.0007	0.0027	-0.0061	0.0046	0.07	0.7876
Dispersion	1	0.5441	0.0543	0.4377	0.6505		

## Appendix 5: Log likelihood ratio test

### A) Model 1: Poisson model vs negative binomial model.

$$\begin{aligned}\Lambda &= 2*(\text{LogL}_{\text{negative binomial}}) - 2*(\text{LogL}_{\text{Poisson}}) \\ &= 2*(-1001.3005) - 2*(-1569.6214) \\ &= -2002.601 + 3139.2424 \\ &= 1136.64\end{aligned}$$

The test statistics follows a  $\chi^2$  distribution with 1 degree of freedom therefore;

$$\begin{aligned}\text{p-value} &= P(\chi^2_1 > 1136.64) \\ &= <0.001\end{aligned}$$

Therefore, conclude that negative binomial model fits data better than Poisson model .

### B) Model 2: Poisson model vs negative binomial model.

$$\begin{aligned}\Lambda &= 2*(\text{LogL}_{\text{Poisson}}) - 2*(\text{LogL}_{\text{negative binomial}}) \\ &= 2*(-626.3045) - 2*(-706.1557) \\ &= -1252.609 + 1412.3119 \\ &= 159.702\end{aligned}$$

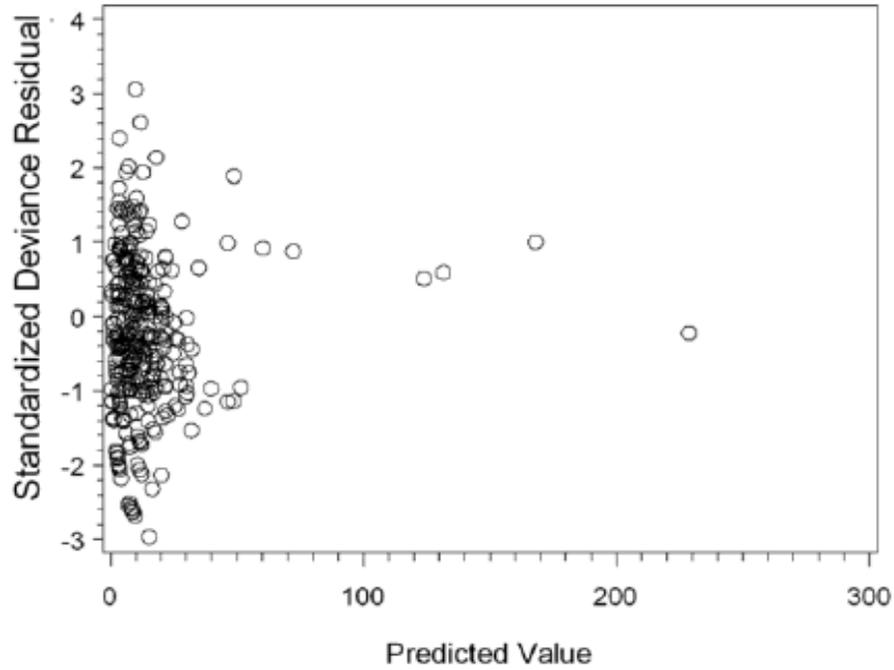
The test statistics follows a  $\chi^2$  distribution with 1 degree of freedom therefore;

$$\begin{aligned}\text{p-value} &= P(\chi^2_1 > 159.702) \\ &= <0.001\end{aligned}$$

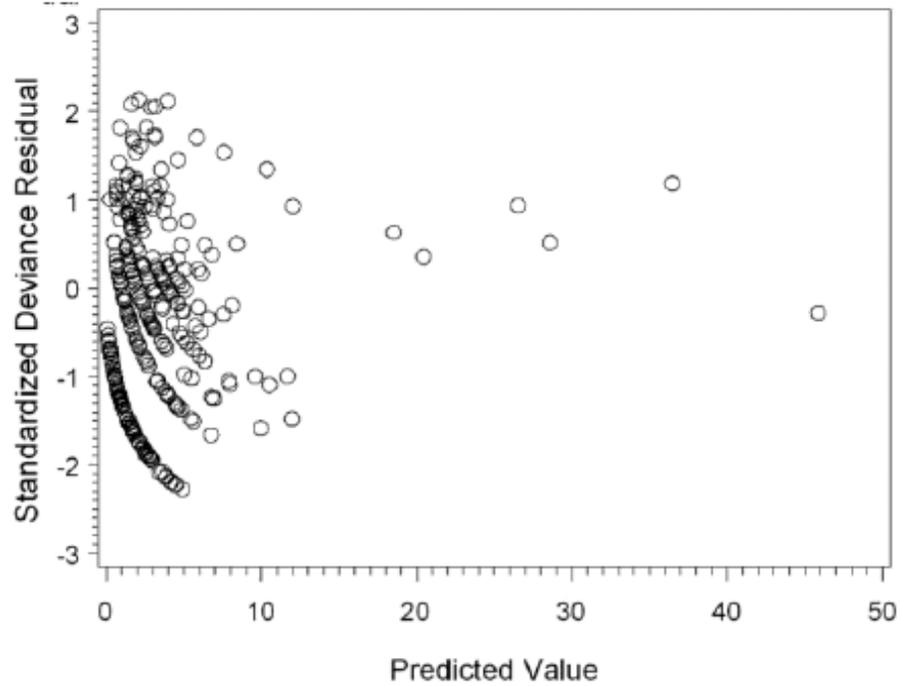
Therefore, conclude that negative binomial model fits data better than Poisson model.

## Appendix 6: Residual plots

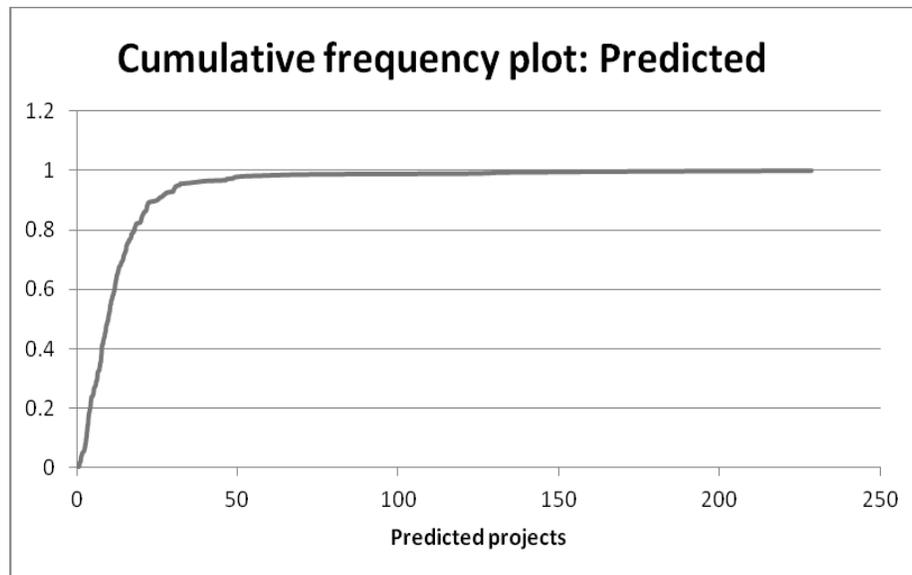
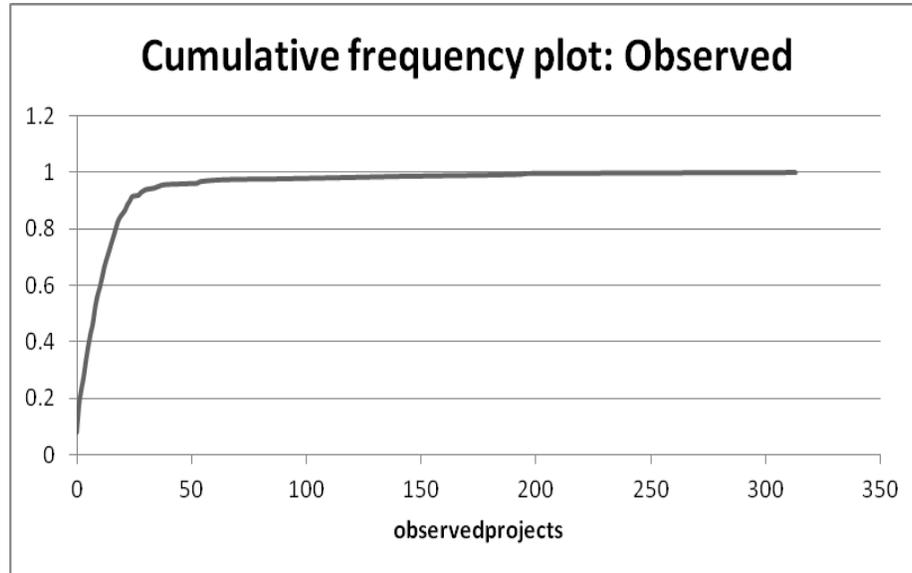
Model 1: Standardized Deviance Residual VS predicted values



Model 2: Standardized Deviance Residual VS predicted values



## Appendix 7: Cumulative frequency plots for final negative binomial model



## **Appendix 8: Excerpts from example NGO Codes of Conduct**

### **A) The NGO Code of Conduct for Health Systems Strengthening**

#### ***Preamble:***

The NGO Code of Conduct for Health Systems Strengthening is a response to the recent growth in the number of international non-governmental organizations (NGOs) associated with increase in aid flows to the health sector. It is intended as a tool for service organizations – and eventually, funders and host governments. The code serves as a guide to encourage NGO practices that contribute to building public health systems and discourage those that are harmful. The document was drafted by a coalition of activist or service delivery organizations, including Health Alliance International, Partners In Health, Health GAP, and Action Aid International.

The purpose of this Code of Conduct for Health Systems Strengthening is to offer guidance on how international non-governmental organizations (NGOs) can work in host countries in a way that respects and supports the primacy of the government's responsibility for organizing health system delivery.

The last decade has ushered in tremendous growth in political will, funding support and organizational structures to improve international health. While gains have been achieved in some areas such as the HIV epidemic, ground has been lost in basic primary care and maternal child health. It is now becoming clearer that NGOs, if not careful and vigilant, can undermine the public sector and even the health system as a whole, by diverting health workers, managers and leaders into privatized operations that create parallel structures to government and that tend to worsen the isolation of communities from formal health systems.

This Health Systems Strengthening code is intended specifically to address international NGOs and their roles in training, securing and deploying human resources in the countries where they work. There are six areas where NGOs can do better: 1) hiring policies; 2) compensation schemes; 3) training and support; 4) minimizing the management burden on government due to multiple NGO projects in their countries; 5) helping governments connect communities to the formal health systems; and 6) providing better support to government systems through policy advocacy. This code offers sustainable practices in each of these areas of concern.

Signatories to this Code of Conduct recognize the role of voluntary ethical codes and country-based codes of conduct that have come before us. Those codes, such as the Code of Conduct for the International Red Cross and Red Crescent Movement and NGOs in Disaster Relief (1992), the Code of Good Practice for NGOs Responding to HIV/AIDS (2004), and the Paris Declaration on

Aid Effectiveness (2005) offer practical ethical standards for NGOs and donors engaged in development work. These standards aim to improve the quality and impact of their work.

The original drafters of this code are representatives of international NGOs with implementation and advocacy experience in a variety of developing countries; we ourselves have made many of the mistakes that we address.

We hope that our Code of Conduct standards will prove useful for NGOs, governments, local institutions and donors by establishing principles to strengthen health systems. Our commitment helps ensure that “health for all” is not a thousand-year project, but well within our reach.

***Article I. NGOs will engage in hiring practices that ensure long-term health system sustainability.***

The role of international NGOs is to supplement — not supplant — the public policy role of host country governments and local institutions to strengthen and expand health systems. The NGO role is to provide research, support and expertise to strengthen civil society and local academic and research institutions in informing public health policy development. We, the signatories to this code, view our role as time-limited; that is, as communities, local institutions and Ministries of Health become stronger and build capacity, the role of the NGO should diminish or evolve.

***Article II. NGOs will enact employee compensation practices that strengthen the public sector.***

NGOs recognize their collective history in creating inequitable pay structures that favor expatriates at the expense of national employees. The signatories to this code pledge that they will attempt to create pay structures that acknowledge differences in expertise and training, irrespective of the employee’s nationality.

***Article III. NGOs pledge to create and maintain human resources training and support systems that are good for the countries where they work.***

NGOs embrace the goal of strengthening educational institutions that train health workers, while also providing on-the-job continuous education. Workshops and other short training programs for health workers already in service often divert health workers from their workday responsibilities, while providing minimal benefit to the system as a whole.

***Article IV. NGOs will minimize the NGO management burden for ministries.***

NGOs recognize the burden on governments that have insufficient resources to organize their own country’s affairs, while having to juggle the management burden of multiple and sometimes-competing aid organizations from a variety of other countries.

**Article V. NGOs will support Ministries of Health as they engage with communities.**

NGOs can play an important role as a bridge between civil society organizations and government agencies, especially (but not exclusively) in nations where populations or sub-populations are actively oppressed by their governments.

**Article VI. NGOs will advocate for policies which promote and support the public sector.**

NGOs will actively advocate with civil society, local institutions and donors for policies and programs that strengthen health systems overall. NGOs recognize that vertical programs and selective approaches exacerbate inequities in health systems and ignore underlying determinants of health. We also recognize that funding conditionalities can limit or distort government expenditures and priorities. These unnecessary limitations continue to create barriers to health and development and are unfair and inequitable.

From: <http://ngocodeofconduct.org/code-articles/advocacy-and-promotion/>

**B) Botswana code of conduct for NGO sector**

Code of Conduct drafted by the Botswana Council of Nongovernmental Organisations (BOCONGO).

**1. PREAMBLE**

We, the NGOs operating in Botswana, take cognisance that the social, economic and political transformation in Botswana and the process of globalisation are creating new opportunities and demands on the NGO sector. NGOs need to remain relevant and responsive to the needs and aspirations of the people they serve and to respect their cultural values and human rights. NGOs must be transparent in their actions and accountable for resources they use. In developing this Code of Conduct, the NGOs are guided by Botswana's Vision 2016, which states that (a) Botswana will be a society distinguished by the pursuit of excellency through a culture of discipline, (b) Botswana of the future will be a community oriented democracy, and (c) Botswana of 2016 will emphasise the accountability of all citizens from the state president down to community leaders for their actions and decisions.

The Code of Conduct will enable NGOs to respond to the challenges of sustaining democratic and participatory institutions and strengthening an enabling environment in which people can determine collectively or individually their destiny. In view of this, NGOs reaffirm their commitment to:

- i. Sustain and adhere to the basic principles of democracy, social justice, equality, human rights and good governance.
- ii. Protect the integrity of their independence and autonomy.
- iii. Remain responsive to the needs and aspirations of the people they serve.

- iv. Promote the application of best practices within the context of sustainable human development.
- v. Support and encourage people's participation in the development process as the norm or the policy and not an option or a privilege.

**2. From the above premise, NGOs commit themselves to achieve the goals set out in the preamble and implement the guidelines set out below in the Code of Conduct.**

*2.1 Establishing an Enabling Environment NGOs commit themselves to:*

- i. Promote an enabling environment that will facilitate the respect, protection and sustenance of the freedom of association, expression and conscience.
- ii. Promote and sustain an enabling environment in which communities can effectively participate in development issues that affect their lives.
- iii. Establish an enabling environment for staff to be creative and resourceful to the best interest of the organisation, their beneficiaries and for their own growth and development based on mutual trust, honesty, and personal commitment.

*2.2 Values*

- i. While NGOs will remain diverse entities pursuing different interests, they commit themselves to pursue and sustain institutional values that are based on the desire to improve the welfare of the people and enhance people's awareness of their development needs and rights.
- ii. Institutional values shall also be derived from the search for excellence, respect of culture and history of the people and promotion of people centred sustainable development.
- iii. Individual values of board members, staff, volunteers and partners shall not compromise the integrity of institutional values.

*2.3 Transparency*

The NGO sector commits itself to ensure that NGO management institutions including Boards of Directors, Boards of Trustees, Executive Committees, Councils and secretariats shall remain transparent in all their functions.

*2.4 Governance*

- i. NGOs shall ensure the existence of democratic management institutions and that the people who serve in them are democratically elected through a participatory process.
- ii. NGOs shall ensure that, once people are elected to positions of power or authority, they do not perpetuate their stay and should demonstrate high moral values and integrity.
- iii. Adequate political and social space shall be given to NGOs, staff and project beneficiaries for them to determine their niche, roles and responsibilities in society and development in general.
- iv. Management institutions shall be guided by basic principles of social justice, political wisdom and the ability to accept the shifting balance of power from institutions to people and communities.

- v. All NGOs shall develop clear policies and management guidelines as the basic foundations for best practices.
- vi. NGO leaders shall avoid potential conflict of interest between their political and NGO interests.

### *2.5 Accountability*

NGOs reaffirm their commitment to:

- i. Be accountable for their actions and decisions, not only to donors and governments but also to project beneficiaries and staff.
- ii. Be accountable for financial resources received from donors, government, members, other partner organisations or self-generated activities.

### *2.6 Fundraising and Resource Mobilisation*

NGOs take cognisance that resource mobilisation poses great challenges to the sustainability of NGO interventions. In view of this, NGOs commit themselves to:

- i. Be transparent in their fundraising practices to all stakeholders.
- ii. Involve communities in all fundraising being done on their behalf or in their names.
- iii. In the event that an NGO intends to raise funds from more than one donor and in the interest of being transparent, to provide the appropriate information to all interested parties of their intention to do so.
- iv. Avoid diverting funds to purposes other than that for which the funds were raised.
- v. Ensure that financial support does not compromise their independence, autonomy and hence their ability to speak for the people.

### *2.7 Financial Management*

NGOs commit themselves to adhere to professional standards of accountancy and audit procedures as stipulated in law and in particular to:

- i. Fulfil all statutory financial management and reporting requirements.
- ii. Establish proper and effective financial management policies, procedures and systems.
- iii. Establish an effective financial monitoring system through proper accounting systems.

### *2.8 Management of Human Resources*

- i. NGOs shall recognise and respect that staff are individually different, resourceful in their own way and display loyalty to the institution in different forms.
- ii. Staff rights, dignity and freedom of association, conscience and expression shall be respected and protected. It is these elements that make people different but bind them together by a common understanding of why they are pursuing common goals in the NGO sector.
- iii. NGOs shall develop and implement clear policies, guidelines and procedures that relate to staff welfare, development and safeguarding of their rights.
- iv. Staff recruitment, promotion and opportunities for development and training shall be given to all staff on the basis of merit and qualifications.
- v. NGOs will initiate, where possible and practical, incentives that will help them to retain professional and technically qualified staff.

### *2.9 NGO Management*

To be effective partners in the development process, NGOs shall ensure that they will take the initiative to:

- i. Define clearly management and staff roles and responsibilities to avoid conflicts within the organisation. Such roles shall be properly documented and communicated to all concerned.
- ii. Mainstream participatory management processes in all functions of the organisation to enhance ownership and the quality of decision-making.
- iii. Encourage the creation of new leaders and improvement of existing leadership.
- iv. Articulate their organisational vision, mission, values and objectives and have them understood by all stakeholders.

#### *2.10 Capacity Building*

NGOs commit themselves to build and strength their capacity given the increased demand for services, new and challenging roles and responsibilities and in particular:

- i. Focus on strategic priority areas such as project development and management, fundraising, human resource development and technology.
- ii. Ensure that programmes contain components of capacity building and strengthening, especially with regard to human resources.
- iii. Establish partnerships between and among them in order to tap into expertise that already exists within the NGO sector.
- vii. Empower their staff and project beneficiaries in decision-making by decentralising decision-making and skills training.

#### *2.11 Networking, Co-ordination, Co-operation and Communication*

Networking, co-ordination, co-operation and communication among and between NGOs is based on shared values, visions and objectives. NGOs commit themselves to improve co-operation and networking, especially through the sectoral networks and in particular to:

- i. Promote and support networking modalities that will facilitate the reduction of competition and duplication of activities.
- ii. Support and promote networking activities that facilitate information sharing and exchange of experiences among and between the various stakeholders. Information sharing should not compromise institutional confidentiality where necessary.
- iii. Improve communication with staff, project beneficiaries and other stakeholders as a strategy of ensuring that everyone has the right information on projects and other activities.
- iv. Take into account the principle of the right to know while considering access to information by stakeholders.
- v. Improve co-ordination among themselves, especially when dealing with common issues of concern and/or the same community groups. These will minimise competition, reduce duplication and increase efficient resource use.
- vi. Develop voluntary strategies to improve co-ordination among NGOs. However, improved co-ordination should not mean compromising individual institutional independence, rights and freedoms.

#### *2.12 Partnership*

Recognising the need to build and strengthen sustainable partnerships based on equality, trust and honesty, NGOs will:

- i. Respect individual institutional values, policies, visions and objectives and will work together to find solutions and to achieve agreed goals using their complementary but different skills and experiences.
- ii. Support and promote partnerships that facilitate the pooling of resources, sharing power in decision-making, planning, promoting effective co-ordination and being accountable to each other.
- iii. Sustainable partnerships should result in shared vision, responsibility and accountability.

#### *2.13 Representation at National, Regional and International Fora*

- i. NGO representation in national, regional and international fora will always be based on an organisation's primary mandate and programme focus.
- ii. NGOs will ensure proper consultations among the sector members on key issues in order to ensure a fair national representation of the NGO sector views.
- iii. NGO representatives to such forums have an obligation to report back to the NGO community on the outcomes of their mission.

#### *2.14 Programme Development and Management*

NGOs have a moral responsibility to ensure that projects they initiate are sustainable and economically viable, and in particular such projects will:

- i. Be responsive to community needs and aspirations and contribute to their overall development directly or indirectly. Such projects should not be donor driven.
- ii. Not be detrimental to the well being of the communities.
- iii. Promote and support effective community participation by empowering communities to take responsibility and ownership.
- iv. Provide enough political and social space for communities to determine the modes of implementation and project management relevant to them.

### **C) Code of Good Practice for NGOs Responding to HIV/AIDS**

#### **Executive summary**

##### *About the Code:*

The Code of Good Practice for NGOs Responding to HIV/AIDS was developed by non-governmental organisations (NGOs), for NGOs, drawing on the knowledge and experience gained since the response to HIV began. The Code sets out the key principles, practice and evidence base required for successful responses to HIV with the aim of:

- assisting NGOs to improve the quality and cohesiveness of our work and our accountability to partners and beneficiary communities
- fostering greater collaboration between the variety of NGOs now actively engaged in responding to the AIDS pandemic
- renewing the 'voices' of NGOs responding to HIV by enabling us to commit to a shared vision of good practice in programming and advocacy

The Code can be used to inspire organisational change; provide a framework for collaborative partnerships; and inform the development, implementation and evaluation of evidence-informed programmes and advocacy.

The Code's principles are aspirational. In endorsing the Code, NGO's commit to continuous improvement and accountability.

Overview of Principles:

Although we address different aspects of HIV and its impact, our programmes are guided by evidence and the meaningful involvement of people living with HIV (PLHIV) and affected communities. A commitment to human rights, public health and development provide the overarching framework for our response to HIV. While the impact of HIV is diverse and varies by context, we recognise that there are crosscutting issues and key population groups that need to be considered in our programming.

Good governance, the efficient management of our finances and human resources, and a sound system of monitoring and evaluation ensure that we are effective in our programming and accountable to our beneficiary communities and to each other. Our programmes are inclusive, accessible and equitable. We advocate for an enabling environment that protects and promotes the rights of PLHIV and affected communities, and supports effective programming.

We believe that good practice in HIV programming includes:

- providing an integrated approach to meeting the diverse needs of PLHIV
- ensuring that VCT services are voluntary, confidential and incorporate post-test support and referral
- providing multiple HIV prevention approaches
- providing comprehensive treatment, care and support
- advocating for the rights of PLHIV and fighting stigma and discrimination

Our response is strengthened by mainstreaming HIV through development and humanitarian work, and by creating an environment that not only works to reduce HIV

infection, but also addresses the underlying causes of vulnerability.

FROM: <http://www.hivcode.org/silo/files/executive-summary.pdf>

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