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Climate change, water, sanitation and energy insecurity: Invisibility of people with disabilities

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Abstract

The problems associated with climate change, energy scarcity, water and sanitation insecurity and severe natural disasters are at the forefront of both national and international policy agendas. Increasingly, people with disabilities are those most critically affected by these environmental challenges; however, literature addressing the implications for people with disabilities remains scarce. The well-being of people with disabilities is threatened by this invisibility. Here, we present survey results that suggest how women, children, people with disabilities, indigenous people, ethnic minorities, and industry in both high and low income countries are perceived to experience these environmental challenges. Respondents ranked people with disabilities between first and third in regards to experiencing climate change impact, energy scarcity and water and sanitation insecurity. Our results emphasize the need to make the impacts of climate change, energy scarcity and water and sanitation insecurity experienced by people with disabilities a priority for local and global discourses, public policy formation and academic research.

Climate change, water, sanitation and energy insecurity: Invisibility of people with disabilities

Introduction

A 2002 World Bank report acknowledges that climate change is impacting poverty reduction and development efforts, that climate change related problems are increasing and that the negative effect of climate change is severely felt by poor people and poor countries (Sperling Frank (Managing Editor) World Bank, 2002). Poor people also experience more energy insecurity (Kanagawa & Nakata, 2007; Oldfield, 2011; Sovacool & Brown, 2010), and diminished access to sanitation (Bosch, Hommann, Rubio, Sadoff, & Travers, 2001; Brooks, 2011)

According to UN Secretary-General Ban Ki-moon, "Persons with disabilities experience higher rates of poverty" (UN News Centre, 2011; See also Beresford, 1996; Elwan, 1999; Rosano, Mancini, & Solipaca, 2009; Stapleton, O'Day, Livermore, & Imparato, 2006; Biyanwila, 2011; Eide & Ingstad, 2011; Mont & Cuong, 2011). Wolfensohn, a former president of the World Bank, stated: "Eliminating world poverty and meeting the Millennium Development Goals is unlikely to be achieved unless the rights and needs of disabled people are taken into account." (James D.Wolfensohn, 2002). UN Secretary-General Ban Ki-moon stated the same in 2008 (United Nations Secretary-General Ban Ki-moon, 2008).

Citing a link between poverty and climate change, energy scarcity and water and sanitation insecurity, numerous documents (Confalonieri et al., 2007; United Nations Development Programme, 2007; Davis, Hansen, & Mincin, 2011; World Water Assessment Programme, 2006; World Water Assessment Programme, 2009; Dowell, Tappero, & Frieden, 2011; Nelson & Naa

Dedei Agbey, 2005; Boyd et al., 2008; Comim, 2008; McFarlane, 2010) acknowledge groups such as women, children, and indigenous people as uniquely affected by climate change. We also understand that people with disabilities are especially vulnerable to climate change, energy scarcity, water and sanitation insecurity (CARE International, 2008). However, literature on potential implications for people with disabilities remains scarce.

For more than a decade, climate change, disaster insecurity, water and sanitation insecurity, and energy insecurity have been acknowledged as salient public health issues (Jara, 2009; Haines, Kovats, Campbell-Lendrum, & Corvalan, 2006; Hartwell, 2010; McFarlane, 2010; Ebi, 2008; Morris, 2010; Sheffield & Landrigan, 2011; Bush et al., 2011; Longstreth, 1999; Noji, 2005; Dowell et al., 2011; Sorenson, Morssink, & Campos, 2011; Haines et al., 2007; Penn, 1990; Hanlon & McCartney, 2008; Gohlke et al., 2011; Teelucksingh & Poland, 2011; Oldfield, 2011). However disabled people remain, largely, unaccounted for in WHO reports on climate change; for example a 2009 report on climate change and vulnerable populations fails to include people with disabilities or disabled people. Instead, using a purely medical terminology that excludes many people with disabilities the report states: "Health effects are expected to be more severe for elderly people and people with infirmities or pre-existing medical conditions", (World Health Organization (WHO), 2009). Furthermore, a key goal for the 2011 *Durban Declaration on Climate and Health* is to "Actively include the participation and empowerment of youth, women and indigenous peoples in the climate change processes." (International health leaders, 2011). While these international assessments acknowledge certain demographic traits such as age, gender, and ethnicity they fail to acknowledge certain social groups such as people with

disabilities. Indeed, failure to acknowledge people with disabilities pervades the discourse on climate and health; a continued omission that threatens their well-being.

Numerous surveys and reports related to climate change, disaster, energy scarcity, water and sanitation insecurity have been written to inform government policies and to guide their implementation (Practical Action, 2010; Wolbring, 2009). However, consistent with the aforementioned international assessments these surveys fail to consider people with disabilities. Indeed, simply searching Google and Google Scholar we found no surveys aimed at ascertaining how non-disabled people perceive the situation of people with disabilities in regards to climate change vulnerability and access to energy, water and sanitation problems. One Canadian survey conducted in 2008 asked the open question: "What types of Canadians, if any, do you think might be most likely to experience the negative effects of climate change?" The group perceived to be the most vulnerable to the negative effect of climate change were the elderly (45%) followed by children (33%) and people with illness (14%) (Akerlof et al., 2010). However the survey was concerned with health risks of climate change and people with illnesses differ in many ways from people with disabilities, a group that includes many people who have no acute illness.

Excluding disabled persons from the climate and health discourse can obstruct well-intended efforts. For example, various attempts to implement water solutions for disabled people have repeatedly failed because disabled people were not consulted as to what the needs are and the solutions could be (Matsebe, 2006).

The omission of people with disabilities may be for the following reason: Firstly, decision makers or influential groups in a given discourse may simply decide that other social groups should be acted on first, whilst knowing that people with disabilities are impacted. Alternatively the lack of acknowledgment of people with disabilities within these discourses could stem from a lack of recognition that people with disabilities face unique problems.

In this article, we present findings from our survey on perceived impact of climate change, energy scarcity, water and sanitation insecurity on women, children, indigenous groups, ethnic minorities and industry in both high and low income countries and how this impact on people with disabilities may be disparately perceived.

Methods

Survey Instrument:

To generate data on perspectives of climate change, energy scarcity, water and sanitation insecurity for people with disabilities we used the online *Survey Monkey* platform to administer a non-probability, exploratory survey.

Survey Implementation:

We used convenience snowball sampling to recruit participants. Ethics approval was granted by the University of Calgary, Conjoint Health Research Ethics Board. The survey link was emailed to course instructors at Calgary, who notified students of the opportunity to participate. The survey was further distributed to the Eanth-l list serve, a mailing list dedicated to the scholarly

discussion of the field of ecological/environmental anthropology, and to NGO list serves relevant to the survey topic.

Survey Content:

The survey consisted of 43 Likert-scale questions, as well as opinion rating-scale questions that encouraged respondents to consider the following:

a) think about various aspects of energy generation;

b) think about various issues of water insecurity;

c) think about various issues of climate change;

d) what people think of ways to make hydrocarbon extraction (e.g. oil and gas) from oil sands and coal beds more environmental friendly by:

d1) minimizing the environmental impact of oil sands production;

d2) by decreasing the use of water, reducing greenhouse gas and hydrogen sulphide emissions;

d3) by enhancing the production of clean burning natural gas from coal beds.

The survey had five parts. Part A gathered demographic data; Part B covered energy issues; Part C covered water issues; Part D covered climate change issues; and Part E covered policy issues. Survey respondents were asked to rank people with disabilities, industry, women, ethnic minorities, children, and indigenous people in high and low income countries in the order the respondents felt they might be negatively affected by climate change, energy scarcity, and water and sanitation insecurity.

Data Compilation and Analysis:

242 respondents completed and submitted the survey between October 2010 and March 2011 of which 148 (61.2%) filled out the complete survey. Response rates to specific questions varied as it was not mandatory to answer every question. The majority of respondents were Canadians between the ages of 18-65 years. A database was automatically generated by Survey Monkey. Data were exported as csv and pdf files for subsequent analysis. Descriptive statistics were analysed for both demographic variables and content-related questions. Results were cross-tabulated based on respondents' occupation (University Student n=120; University Researcher/Teacher n=50; Technical Expert n=25; NGO/CSO n=25; International Organization n=12; Industry n=14; Government n=11, the three countries with the highest counts (Canada n=97; U.S.A. n=42; Iran n=18 (all of these respondents currently reside in Canada), gender (male n=83; female n=134) and age (18-30 n=109; 30-65 n=92; over 65 n=11) (table 1). As this is a non-probability sample no tests of significance were performed (The Advisory Panel on Online Public Opinion Survey Quality, 2011).

Results

Respondents (table 1) who believed that energy (n=135) (table 4), water and sanitation (n=109) (table 5) and climate insecurity (n=99) (table 3) exists were asked to rank the following groups in high-income countries (HIC) and low-income countries (LIC) (people with disabilities, industry, children, women, ethnic minorities and indigenous people) in accordance with being negatively affected by climate change and experiencing lack of access to clean water, sanitation and energy (table 2-5) with the first place ranking indicating being the most negatively impacted.

Results of survey: Difference between HIC and LIC

For all groups more respondents felt that the impact was more negative in LIC versus HIC (energy insecurity: n max of 40 for HIC and n=99 for LIC; water and sanitation insecurity: n max= 45 for HIC and n=93 for LIC) and the severity (weighted means of a 1 to 10 scale) and respondents felt that climate change insecurity was less an issue in HIC (5.x than LIC (7.x) (table 3). Absolute numbers obtained regarding people with disabilities for example reflect large differences between HIC versus LIC. For instance only 9.2% believed that people with disabilities have sanitation access issues in high-income countries versus the 56.9% who believed sanitation access issues exist for people with disabilities in low-income countries (table 5).

Results of survey: Ranking between groups

Group rankings of people with disabilities are as follows: related to problem with access to energy (energy Insecurity) (HIC/LIC) Third/First respectively (table 2 and 4); severity of climate impact (climate insecurity) HIC/LIC Fifth/second (table 2 and 3); problem with access to clean water (clean water insecurity) (HIC/LIC) Second/Third (table 2 and 5); problem with access to drinking water (drinking water insecurity) (HIC/LIC) Third/First(table 2 and 5); and problems with access to sanitation (sanitation insecurity) (HIC/LIC) Third/Second (table 2 and 5). Often people with disabilities tied with other groups for a given ranking, i.e. people with disabilities of HIC were tied for second spot in regards to clean water access problems with ethnic minorities and children of HIC (table 5). Indigenous people ranked first in most categories (table 3- 5).
In examining the ranking according to our different demographics of respondents (table 2) we see some variations in rankings, however the absolute numbers are often so close that there is not much of a difference in absolute numbers between various ranks. Of the groups from which the

respondents could choose, many were judged as similar in regard to the question and the ranking with 'industry' the only one ranked significantly below the others. Clearly, rankings alone only tell part of the story

Results of survey: Ranking of climate change, energy, water and sanitation insecurity

Water and sanitation related issues are seen as less pressing compared with energy and climate change (table 3-5).

Discussion

This study represents a preliminary tep toward a more detailed investigation of perspectives, experiences, and needs of people with disabilities in regards to climate change, water, sanitation and energy insecurity.

In regards to HIC, people with disabilities were mainly viewed as experiencing less energy insecurity (table 4), sanitation insecurity (table 5), as well as being less impacted by climate change (table 3) than indigenous people, ethnic minorities and sometimes other groups the respondents could choose from. This is troubling given that the accessibility to washrooms for people with disabilities in HIC is variable and disputable (see for example recent video presented at the Global Youth Assembly (Leopatra, 2011a; Leopatra, 2011b)). Disabled people are also disproportionately poor.

For LIC, respondents perceived the problems for people with disabilities in regards to climate change, energy, water, and sanitation insecurity on the level of other social groups such as

women and indigenous people often ranking them first or second on insecurity experience level (table 2-5). Furthermore, while disability has clearly been omitted from much mainstream discourse on climate change, recent statements by disabled people's groups demand greater visibility for people with disabilities. For instance, the International Disability and Development Consortium (International Disability and Development Consortium, 2008) calls for:

> 1. Full recognition and implementation of UNCRPD – specifically Article 32 on International Cooperation, to facilitate better links between climate change initiatives and persons with disabilities, their families, and their organisations.
> 2. Disability to be included in the United Nations Framework Convention on Climate Change (UNFCCC) work plan 2009
> 3. Support for the notion that new treaties under the UNFCCC umbrella should ensure that action taken in the context of adaptation, mitigation and technology transfer are in compliance with ALL existing human rights frameworks, including the Convention on the Rights of Persons with Disabilities.
> 4. Persons with disabilities to be included among the civil society actors contributing to the negotiation and review processes.
> 5. Disaster risk reduction methodologies and tools for scaling-up purposes, in particular for risk assessment and monitoring and early warning systems, are accessible and inclusive
> 6. Sufficient funding to support these mechanisms
> (International Disability and Development Consortium, 2008)

Regarding water and sanitation insecurity, again despite the omission of disability from mainstream discourses, there are important recent documents which have called for the inclusion of people with disabilities in water and sanitation policy discussions (Fisher & WEDC, 2009; Jones & Reed, 2005; Jones, Reed, & Bevan, 2003; Jones, Parker, & Reed, 2002; Pradhan & Jones, 2010; Reed, 2010; Water for all, 2006; WaterAid, 2008; WEDC, 2005) (OneWorld South Asia, 2008). However, the area of energy scarcity remains effectively void of any voice for disabled persons.

The World Report on Disability (World Health Organization, 2011) gives the following recommendations:

Recommendation 1: Enable access to all mainstream policies, systems and services

Recommendation 2: Invest in specific programs and services for people with disabilities

Recommendation 3: Adopt a national disability strategy and plan of action

Recommendation 4: Involve people with disabilities

Recommendation 5: Improve human resource capacity

Recommendation 6: Provide adequate funding and improve affordability

Recommendation 7: Increase public awareness and understanding of disability

Recommendation 8: Improve disability data collection

Recommendation 9: Strengthen and support research on disability

Given that the random sample of respondents in our survey acknowledged the challenges faced by disabled people in regards to impacts of climate change, energy scarcity, water and sanitation

insecurity, and acknowledged that disabled people should be included in local and global discourses on impacts of climate change, energy scarcity and water and sanitation insecurity, it is troubling that disabled persons remain excluded from high level public policy formation and academic research. Our results suggest that omission of disabled persons from global reports is not due to lack of awareness of vulnerabilities faced by disabled persons. So why does this vulnerable group remain excluded?

One possibility is that disabled people are considered marginal, and thus subject to limited degrees of accommodation provided by prevailing non-disabled people. In other words, the able world sets the social and physical parameters in which all people, including disabled people, are expected to navigate their way and to operate within. This is the dynamic that leads to the invisibility of people with disabilities in other discourses, namely the deployment of a version of ableism where the so called non-disabled people expect certain abilities from disabled people (Carlson, 2001; Finkelstein, 1996; Mitchell & Snyder, 1997; Olyan, 2009; Rose, 2003; Schipper, 2006; Fiona A.K.Campbell, 2001; Overboe, 2007) with the accompanying disablism (Miller, Parker, & Gillinson, 2004), the unwillingness to adapt to the needs of people that do not have certain abilities.

Arguments used to demand and justify the visibility of certain groups such as women in water and sanitation discourse (Wolbring, 2011) suggests that the same form of ableism and disablism is at play that plagues the involvement of people with disabilities in many other discourses. Further, this ableism and disablism, and the invisibility of disabled people in climate change, energy scarcity, water and sanitation insecurity discourse can actually serve to further impair

people with disabilities. Thus the conversation has to change to prevent further harm to disabled people.

Given that poverty amplifies the impacts of climate change, energy scarcity, water and sanitation insecurity, and given that people with disabilities experience higher level of poverty, and that poverty is uniquely experienced by disabled persons it is, therefore, necessary to push for comprehensive poverty reduction strategies (Barder, 2009; MargaretWazakili, Mji, Dube, & MacLachlan, 2011; Porter & Craig, 2004; Yeo & Moore, 2003; Eide & Ingstad, 2011). However these poverty reduction strategies have to be a product of extensive consultations with disabled people so that the strategies are of use to disabled people.

Limitations:

Our results are obtained from a non-probability, exploratory survey and, as such, are not generalizable. Furthermore, our study focused on water and sanitation, energy and climate change governance. Our main focus was not to examine issues pertaining to people with disabilities; only three of the 43 questions covered disabled people. As such the sampling strategy was focused on people who might have an opinion on the other 40 questions and not necessarily on the impact of climate change, energy scarcity, and water and sanitation insecurity on people with disabilities.

Due to the fact that the main objective of the study was not related to people with disabilities we did not set out to clarify non-disabled respondents' understanding of the term "people with disabilities", we did not differentiate in our survey between different groups of people with disabilities and finally we did not seek responses from people with disabilities.

Future research should examine why it is that disabled persons are not acknowledged in discourses on impacts of climate change, energy scarcity, and water and sanitation insecurity. Hence, we plan to focus on various categories of disabled people, and to include responses from people with disabilities regarding the impact of climate change, energy scarcity, and water and sanitation insecurity as we expect that the situation will be different for different groups of people with disabilities. This prospective research program will allow a more comprehensive picture of perceptions about the impact of climate change, energy scarcity, and water and sanitation insecurity of people with disabilities.

Conclusions:

Despite increasing awareness of issues associated with climate change, energy scarcity, and water and sanitation insecurity, literature assessing their potential implications for people with disabilities remains wanting. Our study acknowledges a gap in the literature on climate change impact on disabled persons, yet we suggest that respondents are aware that disabled people are among the most vulnerable to climate change, energy scarcity, and water and sanitation insecurity. We further submit that public policy and academic discourses be made more inclusive and comprehensive by considering studies that focus on the impact of climate change, energy scarcity, and water and sanitation insecurity on people with disabilities.

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Tables

Table 1. Respondent Demographics

	Number of confirmative responses	**Percent (%) of all responses**
Gender (n=218)		
Male	84	38.4
Female	134	61.5
Country of Origin (n=218)		
First Three n=157 Canada	97	44.5
United States	42	19.3.
Iran	18	8.25
Other countries	79	27.95
Age (n=217)		
below 18	5	2.3
18-30	109	50.2
30-65	92	42.4
over 65	11	5.1
Occupation (*multiple answers possible)* (n=215)		
University Student	120	55.8
University Researcher/Teacher	50	23.3
Technical Expert	25	11.6
NGO/CSO	24	11.2
Self Employed	23	10.7
Management	15	7.0
Industry	14	6.5
International Organization	12	5.6
Government	11	5.1
Other	29	13.3

**n values are indicative of the number of participants who answered the question. Refusing to answer and multiple answers to one question possible.*

Table 2. Respondent rankings of climate change, energy, clean water, drinking water and sanitation insecurity in high income (HIC) and low income countries (LIC)

Respondent Demographic	Energy Insecure (HIC/LIC)	Climate insecure HIC/LIC	Clean water insecurity (HIC* n=/LIC)	Drinking water insecure (HIC*/LIC)	Sanitation (HIC*/LIC)
All respondents	Third/First	Fifth/First	Second shared with two more/ Third	Third/First	Third/ Second
Students	Third/First	Fifth/First	Sixth/Third	Fourth/Second	Fourth/ Second
Academics	Second/First	Third/Second	Third/First	Second/Second	Third/First
Industry	Second (together with all the other groups)/First	Fourth/ Second	0 response /Second	0 response /Second	0 response /Second
Government	First/First	Sixth/First	Second/First	Second/First	Second/Second
International Organization	Second/Third	First/First	First/First	First/First	First/First
NGO	First/Second	Third/Third	First/Second	First/Second	First/Second
Technical Expert	Second/First	Third/Third	1response/ First	1response/ First	1response/ Third
Male	Third/First	Fifth/First	Second/First	First/First	Second/First
Female	Second/First	Fourth/Second	Fifth/ Fourth	Second/First with three other groups	Third/Second
Age 18-30	Third/First	Fifth/First	Sixth/Third	Second/ Second	Fourth/ Second
Age 30-65	Second/Second	Fifth/Fifth	Second/ Third	Third/Fourth	Third/Fourth
Age 65 and over	Third/Third	Second/Fifth	0 or 1 response/ Second	0 or 1 response/ First	0or 1 response/First
Respondent from US	Second/Third (N=14 in LIC with first place n=18 indigenous people)	Third/Third	Sixth/Fourth with the respondents between first and fourth only n=3 difference in LIC)	Fourth/Fourth with the respondents between first and fourth only n=3 difference in LIC)	Sixth/Second shared with various groups
Respondents from Canada	Second/First (for LIC n=57 with second spot indigenous people with n=47)	Third/First	Sixth/First (with four groups having a difference of 2respondents 35v37 in LIC)	Third/First	Third/Second

*overall low number of respondents causes the ranking fluctuation within the HIC of water related issues (see table 5 for non cross-tabbed total numbers)

Table 3. Respondent ranking of negative climate change impacts on marginalized groups

	No effect =0	**10= biggest effect**	**Weighted Means**	**N=**
People with disabilities in high income countries	6.7% (6)	22.2% (20)	5.6	105
People with disabilities in low income countries	2.0% (2)	46.9% (46)	7.9	111
Industry in high income countries	3.3% (3)	20.0% (18)	5.8	104
Industry in low income countries	2.1% (2)	34.7% (33)	7.2	109
Women in high income countries	5.6% (5)	20.2% (18)	5.4	103
Women in low income countries	1.1% (1)	45.3% (43)	7.7	103
Ethnic Minorities in high income countries	3.3% (3)	22.0% (20)	5.9	104
Ethnic Minorities in low income countries	1.0% (1)	46.4% (45)	7.6	108
Children in high income countries		21.5% (20)	5.8	109
Children in low income countries	1.0% (1)	47.4% (46)	7.8	111
Indigenous People in high income countries	2.2% (2)	24.4% (22)	6.4	103
Indigenous People in low income countries	2.0% (2)	49.0% (48)	7.8	109

**n values are indicative of the number of participants who answered the question. Refusing to answer and multiple answers to one question possible.*

Table 4. Participant perspectives of energy insecurity in the form of a lack of energy access (n=135=100%)

	Number of confirmative "do not have access" responses	**Percent (%) of total responses**
People with disabilities in high income countries	39	28.9
People with disabilities in low income countries	101	74.8
Industry in high income countries	4	3.0
Industry in low income countries	62	45.9
Women in high income countries	11	8.1
Women in low income countries	85	63.0
Ethnic minorities in high income countries	40	29.6
Ethnic minorities in low income countries	93	68.9
Children in high income countries	16	11.9
Children in low income countries	85	63.0
Indigenous People in high income countries	49	36.3
Indigenous People in low income countries	98	72.6
Other	11	8.1

***n values are indicative of the number of participants who answered the question. Refusing to answer and multiple answers to one question possible.*

Table 5. Participant rankings of lack of water access and water insecurity for various marginalized groups (n=109=100%)

	Clean Water	Drinkable Water	Water usable for other purposes	Water Sanitation	Response Count
People with disabilities in high income countries	12.8% (14)	11.9% (13)	10.1% (11)	9.2% (10)	29
People with disabilities in low income countries	64.2% (70)	67.8% (74)	48.6% (53)	56.9% (62)	92
Industry in high income countries	9.2% (10)	8.25 % (9)	8.2% (9)	3.66% (4)	22
Industry in low income countries	28.4% (31)	30.2% (33)	41.2% (45)	33.9% (37)	67
Women People in high income countries	11.9% (13)	10.1% (11)	9.2% (10)	7.33% (8)	25
Women People in low income countries	63.3% (69)	63.3% (69)	49.5% (54)	51.3% (56)	84
Ethnic Minorities in high income countries	12.8% (14)	12.8% (14)	13.7% (15)	11.0% (12)	32
Ethnic Minorities in low income countries	63.3% (69)	57.7% (63)	44.9% (49)	54.1% (59)	86
Children in high income countries	12.8% (14)	10.1% (11)	10.1% (11)	6.4% (7)	25
Children in low income countries	66.0% (72)	65.1% (71)	46.7% (51)	55.0% (60)	87
Indigenous People in high income countries	23.8% (26)	22.9% (25)	23.8% (26)	19.2% (21)	45
Indigenous People in low income countries	68.8% (75)	66.9% (73)	54.1% (59)	59.6% (65)	93

***n values are indicative of the number of participants who answered the question. Refusing to answer and multiple answers to one question possible.*

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