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Electronic Supplementary Material

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Title: The conceptual birth and troubled teenage years of Trapped Populations: A discursive review of the textual use of ‘trapped’ in environmental migration studies

Authors: Sonja Ayeb-Karlsson, Christopher D. Smith, Dominic Kniveton

Extract 2

- *The complex interactions of drivers can lead to different **outcomes**, which **include migration and displacement**. In turn, these types of outcomes can pose **more ‘operational’ challenges** or **more ‘geopolitical’ challenges**. There are **powerful linkages between them**. **Planned and well-managed migration** (which **poses operational challenges**) can **reduce the chance of later humanitarian emergencies and displacement**.*

- ***Environmental change is equally likely to make migration less possible as more probable**. This is because **migration is expensive** and **requires forms of capital**, yet **populations** who experience the **impacts of environmental change** may see a **reduction** in the **very capital required** to enable a **move**.*

- *Consequently, in the **decades ahead**, **millions of people will be unable to move away from locations in which they are extremely vulnerable to environmental change**. To the **international community**, this **‘trapped’ population** is likely to represent just as important a **policy concern** as those who do migrate. **Planned and well-managed migration** can be one important **solution** for this **population of concern**.*

(Foresight 2011:9)

Extract 3

***Cities in low-income countries are a particular concern**, and are faced with a **‘double jeopardy’ future**. **Cities** are likely to **grow in size**, partly because of **rural–urban migration** trends, whilst also being increasingly threatened by global environmental change. These **future threats will** add to existing **fragilities**, whilst **new urban migrants** are, and **will** continue to be, particularly vulnerable. Yet this report **argues against trying to prevent rural–urban migration**, as this could lead to **graver outcomes** for those who are **trapped in vulnerable rural areas**.*

(Foresight 2011:10)

Extract 4

*In summary, the **key message of this report is that migration in the face of global environmental change may not be just part of the ‘problem’ but can also be part of the solution**. In particular, **planned and facilitated approaches to human migration can ease people out of situations of vulnerability**. In light of this, **international policy makers should consider the detailed evidence from this report in a range of areas, with the following of particular priority**:*

1. **Many of the funding mechanisms for adaptation** to environmental change are currently under discussion. It is imperative that these mechanisms are **not developed in isolation from migration** issues and, furthermore, that the **transformational opportunities of migration** is recognised.
2. Whilst the **twin challenges of population growth and environmental change will pose an increasing threat** to urban areas in the future, **cities in many countries are already failing their citizens**. **Action is required before the situation becomes irreversible**, to **build urban infrastructure** that is sustainable, flexible and inclusive.

***The cost of inaction is likely to be higher than the costs of measures discussed in this report, especially if they reduce the likelihood of problematic displacement**. **Giving urgent policy attention to migration in the context of environmental change now will prevent a much worse and more costly situation in the future**.*

(Foresight 2011:10)

Extract 5

Proactively facilitated and managed migration should lead to **improvements** in each of the **future scenarios**, as it **will reduce** the chances of populations being trapped and/or being displaced in circumstances which **raise wider geopolitical challenges**. A **proactive approach** can also **capitalise on** and **maximise** the **benefits** from migration, **building resilience and transforming adaptive capacity**.

(Foresight 2011:17)

Extract 6

Reduced options for migration, combined with incomes threatened by environmental change, mean that people are likely to migrate in illegal, irregular, unsafe, exploited or unplanned ways. People are also likely to find themselves migrating to areas of high environmental risk, such as low-lying urban areas in mega-deltas or slums in water-insecure expanding cities.

(Foresight 2011:13)

Extract 7

Those with **lower wealth** or **capital** face a double set of risks from future environmental change: their **reduced level of capital** means that they are **unable to move away** from situations of increasing environmental threats; yet, at the same time, this very **lack of capital** makes them even more vulnerable to environmental change. These populations are likely to become **trapped** in places where they are vulnerable to environmental change.

(Foresight 2011:14).

Extract 8

Migration in the context of environmental change is likely to lead to increased rural–urban migration and city expansion. Cities will face a ‘double jeopardy’ future, in which this challenge is multiplied by increasing threats from environmental change. Yet the third challenge is perhaps the most critical, the fate of the new migrant arrival to the city, who will often be in the most vulnerable situation.

Cities will face compound future challenges, which will reinforce each other or ‘multiply’ the consequences. These challenges are:

1. *Cities are growing in terms of their populations as a result of natural population growth and increased rural urban migration.* For example, Dhaka’s population increased from 1.4 million in 1970 to 14 million in 2010, and is expected to rise to 21 million in 2025; similarly, Shanghai’s population increased from just over 6 million in 1970 to over 16 million in 2010 and is expected to rise to just over 20 million in 2025. In a ‘business as usual’ scenario this expansion alone would represent a huge set of operational challenges for cities, including housing provision and land-use planning, particularly for those in low-income countries.
2. *Cities are extremely vulnerable to future environmental change, particularly those located in vulnerable areas, such as drylands, low-elevation coastal zones or mountain regions, where inundation, reduced availability of water resources and threats to health will variously be experienced.* For example, the populations living in urban floodplains in Asia may rise from 30 million in 2000 to between 83 and 91 million in 2030, and then to 119–188 million in 2060 according to different scenarios of the future. The future expansion of cities needs to be understood in the context of this increasing risk.

(Foresight 2011:19).

Extract 9

Policies to avoid populations being trapped in conflict situations, where they are in turn vulnerable to environmental change. Where there is an endogenous and cyclical relationship between poverty, resources, conflict and the inability for people to move voluntarily (with humanitarian emergencies and displacement a likely outcome), an important set of policies should focus on reducing conflict and tension associated with natural resources. Environmental change is likely to affect these natural resources, potentially reinforcing this endogenous cycle; there is thus a clear requirement for policies to address the impact of environmental change on the resource–conflict relationship.

(Foresight 2011:21)

Extract 10

Conflict and poverty are two contributors to vulnerability within ‘poor and high-risk environments’, which include drylands²¹¹. Although there is disagreement as to whether

environmental change leads to conflict²¹², it is **clear that communities** which are **subject to increasing environmental variability and disruption are likely to become poorer**. The important point is that **poverty lessens their ability to respond in a planned and controlled way to threats**, whether they be **ecological, conflict related, economic or demographic** (prevalence of disease). This **includes planned migration**, which is **often an appropriate response to these threats**, but likely to be **curtailed by low capital** (social, political or economic) and **conflict**.

(Foresight 2011:73)

Extract 11

As noted in section 9.3.6, the **timing for actions relating to adaptation funding is important**. The **urgency of the issue in respect to cities** requires particular emphasis. Whilst trends of **global environmental change and population growth are likely to multiply the challenges faced by cities in the future**, it is important to recognise that these **challenges will add to existing fragilities**. **Many cities in low-income countries are already failing** in important respects, and **citizens, especially low-income groups such as migrants, are already extremely vulnerable**. **Future trends are set to exacerbate these challenges, and action is required before it is too late**.

(Foresight 2011:198-199)

Extract 12

The analysis also highlights that low mobility is **critical**— that **populations** may be, in effect, trapped in places where environmental **risks** are increasing (Black et al 2013). The **Foresight analysis demonstrates how migration is a well-documented and often effective adaptation to environmental risks** (Black et al 2011b).

(Adger et al. 2015:3)

Extract 13

Individual disasters and events also **negative economic impacts**—Hallegatte (2012) emphasizes the prospect of **people losing their assets and falling into poverty traps**. **A lack of capital** at the individual level is, indeed, **one of the principal causes of immobility** and potentially trapped populations (Black et al 2013).

(Adger et al. 2015:4)

Extract 14

However, without minimising the significance of the ‘right to stay’ even in places that are vulnerable to environmental extremes, it is also clear that **ability to move** is broadly **correlated with wealth, level of capital (financial, human, social)**, the availability of places to move to, and **fear of what would happen to property and assets left behind**, so that broadly speaking, **poorer people are generally less able to migrate** even if they wish to do so. In turn, **vulnerability** to extreme environmental events is **widely recognised to be inversely correlated with wealth**, such that **poorer people face a double risk**: they are more vulnerable to disasters, but less able to move away from them. This lack of choice for vulnerable populations is recognised in both behavioural accounts of vulnerability and by the pressure-and-release structural models of vulnerability (see Wisner et al., 2004). Fig. 3 therefore depicts **the two-dimensional space for populations** where **mobility potential and wealth are generally positively correlated** and where **vulnerability to stress is inversely correlated to wealth for individuals**. **Trapped populations are vulnerable to stress but without the ability or resources to move**.

(Black et al 2013:S36)

Extract 15

Similarly, **worse-off households** might be prevented from sending migrants following shocks to their **income and assets**, thus representing **“trapped populations”** (Black et al. 2011).

(Gray and Wise 2016:556)

Extract 16

The **Foresight report on Migration and Global Environmental Change** shed light on two relatively understudied issues in the literature on climate change and migration. First, it emphasized the importance of studying the specificities of mountain areas in order to understand the nexus between environmental change and migration in those areas (Kollmair & Banerjee, 2011). Second, it showed that **future environmental change** is equally **likely to lead** to an increase or a decrease in migration flows. In this context, those who might be willing but unable to move (“**trapped**”) **will** be extremely **vulnerable** (Foresight, 2011). However, the **Foresight report** did only refer to few empirical studies on **trapped populations**. This empirical article aims at presenting data and insights on four Guatemalan mountain communities whose **populations** are exposed to the **risk of becoming “trapped” in the near future** in a place where they are extremely vulnerable to climate change. In fact, **in case of future natural disasters** or climatic conditions which **threaten the sustainability of local livelihoods**, it is expected that **migration will be vital for the survival of these populations**.

(Milan and Ruano 2014:61-62)

Extract 17

The review above gives details of the changing hazardousness of Bangladesh; what we see is a decline in mortality over time but a **continuation of substantial economic losses** and in some cases a **substantial threat to food supplies**. What, then, are the related migratory effects? Have those parts of the population who have suffered from these disasters – and **will no doubt suffer again in the future** – sought to move away from the areas affected, or are they in some way “**immobile**” or “**trapped**” where they currently live (Foresight, 2011)?

(Penning-Rowsell et al. 2013:S49)

Extract 18

For example, in the case of Bangladesh, we have the outliers of **households** that do not even need to migrate, as they are already well off, whereas there are other **households** in **extreme poverty** and **vulnerability**, for which migration is not even an option, as they **lack the means** to move and are forced to stay ‘**trapped**’ *in situ*.

(Afifi et al. 2015:13)

Extract 19

In Vietnam, **HHs** that **suffer from poverty** and **do not benefit from the economic boom** are **often left behind (trapped populations)**.

(Warner and Afifi 2014:7)

Extract 20

Migration is a major **risk management/‘coping strategy’** to **address unfavourable economic** and unexpected environmental conditions, including the local implications of rainfall variability. Longer dry spells and frequent droughts are a ‘very important’ migration reason for 39% and 36% of **HHs**, respectively. **Landless, low-skilled** and **poor HHs** (depending on rain-fed agriculture for both their **livelihoods** and **food security**) are the most sensitive to rainfall variability. Also often **trapped due to lack of resources**.

(Warner and Afifi 2014:8)

Extract 21

The final profile of **HHs** includes those that have been described as ‘**trapped populations**’ in the literature: **HHs** that **do not possess the assets** necessary to migrate, even to cope with **food insecurity**, or who cannot access migration options. These are often **landless or land scarce HHs** in very **poor areas**. /.../ **For trapped HHs or populations**, repeated environmental shocks and stressors can continue to **erode their asset base and increase their food and livelihood insecurity**.

(Warner and Afifi 2014:13)

Extract 22

We suggest there are six major mobility outcomes:

- (1) migration within **states**;
- (2) migration between **states**;
- (3) displacement within **states**;
- (4) displacement between **states**;
- (5) choosing not to move;
- (6) being unable to move and **trapped**.

These outcomes cannot be understood simply as ex post **challenges to governance systems**. In the next section we develop a conceptual **understanding of governance** and then develop this insight to show how migration is constituted as a **governance challenge** by the effects of and interactions between five social and natural systems (economic, social, political, demographic, and environmental) that drive migration and also determine whether or not people move, as well as the scale, direction, and duration of movement.

(Geddes et al. 2012:953)

Extract 23

Tens of millions of people may find themselves **trapped** in vulnerable areas and unable to migrate.

(Geddes et al. 2012:962)

Extract 24

Thus the resultant **challenges** may be **more complex than first thought** and hold important **implications for SMPCs and for the EU**. First, **movement** may be **towards and not away from risk, particularly for economic reasons to large cities**. Second, environmental **change** may interact with other factors to reduce the ability to migrate and can lead to **situations where people are trapped in areas** in which they are **exposed to serious environmental risk**.

(Geddes 2015:488-489)

Extract 25

Political **upheaval** has been a key migration **driver** in SMPCs. **Conflicts** such as the **Gulf Wars** and in **Israel, Palestine, Libya, and Syria** have all led to **massive displacement**. **Conflict** can also cause **people to be trapped** in areas rather than for them to be displaced, thus making **conflict-related movements** particularly **unpredictable, dynamic, and hard to analyse**.

(Geddes 2015:481)

Extract 26

As **border security increases** and **borders become less permeable**, **cross-border migration** is becoming **increasingly difficult, selective and dangerous**. **Growing numbers of people** are becoming **trapped in their own countries or in transit countries**, or being **forced to roam border areas, unable to access legal protection or basic social necessities**.

(Humble 2014:56)

Extract 27

Even if migrants' circumstances fall within legal protection frameworks, strict border controls mean they often **cannot access protection** and are **trapped** on the **'wrong side' of the border**. *./.../* There are many **hotspots** where **concentrated groups of people** become **trapped due to border security** – such as in northern **France**, north-west **Turkey**, northern **Bangladesh** and **North Korea** – often congregating in **informal 'migrant camps'**, with **many similar scenarios worldwide**.

(Humble 2014:56)

Extract 28

These **trapped migrants** are **vulnerable, exposed to the violations and abuses** that are typical for those moving through countries irregularly, including: **not having access to basic necessities; discrimination and abuse** because of their **foreign origin and irregular status; human trafficking** (which exposes migrants to **coercion, deception and physical and sexual abuse**); **dangerous or forced labour**; and **organ theft**.

(Humble 2014:56)

Extract 29

The **transitory settlement of West Africans in Moroccan cities** has led to noticeable **changes** in the appropriation and **degradation of spaces and places** in the **absence of interventions by the Moroccan government to offer legal protection and institutional support** for most of **African immigrants**, while **Europe increases its measures to prevent them from entering**. **West African immigrants** become **trapped in this situation** and most often experience **hostility, racism and violence**.

(Sow et al. 2015:1)

Extract 30

To be **'trapped'**, **individuals** must **not only lack the ability to move** but also either **want or need to move**. The **ability to migrate** is clearly a **complex and multifaceted** indicator that includes a **range of potentially relevant policies** that may **impede movement** and **access to significant resources**.

(Black and Collyer 2014a:52)

Extract 31

To be **trapped**, **individuals** must **not only lack the ability to move** but also either **want or need to move**. **Ability to migrate** is clearly a **complex and multi-faceted** indicator that includes **access to significant resources or capitals** and a **range of potentially relevant policies** that may **impede movement**.

(Black and Collyer 2014b:298)

Extract 32

A striking **example** is New Orleans at the time of **Hurricane Katrina**. **Those with resources left in advance** of the approaching hurricane; those with **friends and family elsewhere**, with whom they could **go and stay**, were also more likely to leave. Those without resources (largely the poor, **African-American, elderly** or residents without private cars) remained, **trapped** as the floodwaters rose. The **dangers** of the crisis were **disproportionately** faced by the **most vulnerable**. Where mobility brings benefits, **trapped populations** are further **marginalised**.

(Black and Collyer 2014a:54)

Extract 33

It is **not necessary** for **trapped individuals** to have **always remained in one place**. **Conditions** that **trap** particular populations may arise at **any stage in their migration process**. Protracted **refugee situations** offer an obvious example of a **partially mobile yet trapped population**.

(Black and Collyer 2014b:298)

Extract 34

Thus **individuals** may **need to move, and be offered an opportunity** to do so, under **particular conditions** but **still refuse to leave**. Such **individuals must still be considered as trapped**.

(Black and Collyer 2014b:300)

Extract 35

There is only very **limited research investigating** the **situation** of those we have **called "trapped" populations**. **Much** of this has **focused** on immobility more **broadly**, rather than the specific difficulties of those **trapped** as a result of crisis situations. The additional consideration of **"needing" to move** introduced a specifically **humanitarian focus** to our **understanding of "trapped"**.

(Black and Collyer 2014b:300)

Extract 36

Research into the situation of those who are **trapped** in complete immobility presents the greatest difficulties. The **Foresight report considers their difficulties as largely economic**. As the **review of resource constraints** in the previous section demonstrated, **this can take many forms; constraints may not be directly financial and may include things such as access to geographically distant social networks**.

(Black and Collyer 2014b:301)

Extract 37

While we have such **limited information on trapped populations**, the **policy goal** should be to **avoid situations** in which **people are unable to move** when they want to, **not to promote policy that encourages them to move when they may not want to**.

(Black and Collyer 2014b:302)

Extract 38

The most **urgent issue** is to **identify how existing responses can reduce the likelihood of individuals being trapped** in crisis situations. At present **our understanding of the mechanics of trapped populations is too limited to suggest any clear policy measures to reduce their vulnerability or enable them to move when they feel they need to**.

(Black and Collyer 2014b:303)

Extract 39

Another ‘spatial perspective’ in the debate of migration and environmental change is put forward by *Black and Collyer (2014)*. The **authors claim** that today **“trapped populations” do exist**, people that – out of a **lack of resources or other restrictions** – are **unable to move** when confronted with an environmental shock situation.

(Hilman and Ziegelmayr 2016:122)

Extract 40

This **situation** hints to the **existence of a large proportion of the population** that the **recent literature has classified as “trapped populations” (Black and Collyer, 2014)**.

(Hilman and Ziegelmayr 2016:133)

Extract 41

In the Indonesian case **people** showed to be much more **attached to their place of residence by feelings of belonging** as well as **belief-systems**. Here the concept of **mental thresholds** as put forward by *van der Velde and van Naerssen (2007b)* seemed to be at work. Additionally, immobility and **“trapped populations” stood out** as a constitutional part of the nexus between environmental change and migration.

(Hilman and Ziegelmayr 2016:133)

Extract 42

Households that cannot migrate: The third group includes **trapped populations** that struggle to survive under adversity and cannot easily use migration to adapt to the negative impacts of climatic events. They may have **strong social ties** and are **emotionally attached** to their **resources** which **restrain them from moving even under adverse events**.

(Bhatta et al. 2015:14)

Extract 43

The **socio-economic, cultural and religious values** in the region have resulted in its **women and children** being **more vulnerable** to adverse situations in comparison to men. These **dynamics form the vicious cycles where women and their children get trapped**.

(Bhatta et al. 2015:15)

Extract 44

The trapped group has intermediate income including women who are generally less likely to move, due to socio-cultural and economic reasons, as are children and the elderly, and therefore local adaptation efforts should target these groups specifically. Given that men's migration could contribute to the further deprivation and risk that women face, the trapped population needs to be provided with greater social protection and opportunities for livelihood security.

(Bhatta et al. 2015:17-18)

Extract 45

This research focuses on the intermediate stage of migration decision-making between experiencing stress and migrating and seeks to determine what stops a person from relocating, even when they are dissatisfied. Therefore, this article brings behaviourist ideas to the trapped populations thesis in order to create a more diverse conceptualisation of trapped in the context of immobility. The article builds on insights from social and behavioural theories of migration decision-making (e.g. Speare 1974) and ideas of place attachment and social capital, applying these to the context of populations that decide to remain in location, despite exhibiting dissatisfaction with their present location and living under difficult environmental conditions.

(Adams 2016:431)

Extract 46

An understanding of the highly differentiated nature of mobility, residential satisfaction and place attachment illuminates some of the reasons why rural populations continue to persist across the globe, even in the face of difficult conditions. This expanded view of what it means to be "trapped" suggests that such rural populations will continue to persist even under a climate-changed future.

(Adams 2016:445)

Extract 47

Material as well as subjective dimensions of the decision to migrate (both in the ways people experience impacts (e.g. Massey et al. 2010) and their capacity to respond through migration) is likely to be highly differentiated across the population, yet authors discuss a single "trapped" population.

(Adams 2016:431)

Extract 48

I would argue that this form of immobility can be interpreted as the individual being "trapped". This contrasts with the current definition of trapped populations as people or households without the means to escape a dangerous natural disaster, for example those without transport who could not leave New Orleans during Hurricane Katrina or without the resources to overcome barriers during agricultural decline or environmental degradation (Warner and Afifi 2014).

(Adams 2016:443)

Extract 49

Therefore, just as it is accepted that migration under environmental change exists on a continuum from forced to voluntary (Hunter 2005), a similar continuum exists for trapped populations. At one end, is the traditional definition of trapped, where people are physically unable to leave a risky location and their lives are under threat.

(Adams 2016:443)

Extract 50

Common responses were: "Lack of money, everything is money in Lima, and if you don't have a property you've got to pay to rent a place" or "I don't have a house, nor work [in Lima], that's why I don't go". This group most closely fits the description of "trapped" which is currently used in the environmental migration world: low income households that are not able to use migration as a

strategy to improve well-being for their family (Box 2 in Fig. 2).

(Adams 2016:440)

Extract 51

Of those who have experienced dissatisfaction with location, only 26 % are “trapped” by the current definition, that is to say, unable to migrate because of resource barriers. Even then, these responses may reflect a low perceived self-efficacy on the part of the potential migrant, rather than an actual lack of resources to migrate. Forty per cent of the population is in location because of social and affective attachment to place, “trapped” by their own internal attachment or fear of the outside world. This represents 74 % of the dissatisfied population.

(Adams 2016:442)

Extract 52

Not to put too fine a point on it, the promotion of migration as adaptation strategy is consistent with the neoliberal practice of constituting a new global reserve army of labour (Taylor, 2009). Indeed, the promotion of migration as adaptation is not only justified with regard to the fate of ‘trapped’ or poor populations, but is also presented as having important benefits for the receiving states. The report is not advocating a policy of open borders but, instead, one in which migrations are encouraged as well as monitored and managed. This is especially the case with the seemingly uncritical promotion of “temporary and circular migration schemes”.

(Felli and Castree 2012:3)

Extract 53

In this last part the report encourages policy makers to promote migrations (both internal and international) that can benefit both potential and actual migrants by allowing them to ‘escape’ areas that are suffering adverse environmental change (with a special focus on ‘trapped’ populations), to bring developmental benefits for their territory or community of origin (notably through remittances), and to have a positive impact on the countries of destination [by introducing a younger and more entrepreneurial workforce than the domestic on].

(Felli and Castree 2012:2)

Extract 54

Obstacles to migration remain extremely important, and large vulnerable populations remain trapped in highly vulnerable regions. In the absence of a global solution, it is likely that most policy responses will remain regional and humanitarian in nature.

(Baldwin and Gemenne 2013:265)

Extract 55

But for our purposes, the Foresight Report is important because it functions as a kind of security apparatus; it installs an affective infrastructure through which climate change comes to be conceived as a problem of racial management, albeit in a way that obscures any obvious racial connotations. The text advances the desirability of adaptive migration, the benefits of which ought to be ‘maximised’. But it also stipulates that maladaptive migration (migration into areas of high environmental, social and political risk, such as urban informal settlers; and so-called trapped or immobile populations) requires new forms of intervention. Maximising adaptive migration in the interest of capital circulation and planetary well-being, while containing maladaptive migration bears striking resemblance to Foucault’s biopolitical formulation ‘making live and letting die’. And as we saw earlier, this is an unmistakably racial formation – a ‘break into the domain of life that is under power’s control’.

(Baldwin 2016:87)