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Migrant destinations in an era of environmental change☆

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ABSTRACT

Which destinations will be most impacted by environmental migration? Most research on environmental migration examines the drivers of mobility, identifying the locations that are most affected by environmental change. By contrast, little attention is paid to where migrants might move to in response to these changes. The paper argues that much can be learned from applying established knowledge from the migration research literature to the specifics of environmental mobility. Migration destinations of environmental movers are examined in two different contexts. First, research is reported relating to the migration destinations of populations affected by drought and food insecurity. Second, Europe is studied as a destination region for migration flows. The paper concludes that, in place of estimates of the number of environmental migrants, a more productive focus of research would be to achieve deeper understanding of the destinations selected by current environmental migrants, and to appreciate why immobility is as great a problem as movement to new locations for those concerned with climate adaptation planning.

1. Introduction

Much has been written about the potential scale of human migration stimulated by environmental change (Myers, 1993; Stern, 2007). While the debate over numbers will no doubt continue to attract much attention, it is important that academic investigation is evidence-based and that it examines rigorously how environmental change is linked to forces favouring human mobility to particular destinations. This paper seeks to offer original insights by focussing specifically on the factors that help explain which locations are most likely to pull environmental migrants towards them, thus offering insights into the uneven migration destination map that will be produced by future environmental change.

There are two contrasting approaches to analysing environmental migration destinations. The standard approach in the research literature to estimating environmental migration has been to map the areas most affected by climate change, calculate the populations living there and then to assume that all or a proportion of the population will be forced to migrate. An interesting feature of this approach is that the researchers (actually most are simply commentators) who follow this approach seldom provide details of where the assumed environmental migrants will go, but stress instead the numbers of people who will be displaced. The approach does not offer insights into how migration systems will operate to distribute displaced people away from locations with significant environmental stress. Examples include Myers (1993), Warren et al. (2006) and Stern (2007). Stern (2007, 129), for example, reports that 'millions of people could be compelled to move between countries and regions in order to seek new sources of water and food…' as well as a result of sea level rise.

By contrast with the standard approach, some researchers have analysed the issue from the perspective of their knowledge of existing migration systems and have attempted to advance understanding of environmental migration based on research evidence about observed mobility patterns (Black et al., 2008; Kniveton et al., 2008; Piguet, 2008; Black et al., 2011; Pecoud and Piguet, 2011). For the purposes of clarity, I term this the 'evidence-based' perspective, since unlike the standard approach it has emerged from direct observation of environmental migration. Arguably the most significant large scale piece of work undertaken from this perspective has been the European Commission-funded *Environmental Change and Forced Migration Scenarios* (EACH-FOR) Project (Warner et al., 2009).

The paper does not claim to be present empirical findings based on new field research in on the subject of environmental mobility. Instead the significance of the paper arises from the way that it synthesizes different kinds of evidence (from migration theory, from the research literature on environmental migration, from web site analysis, and from the examination of expert opinions on migration forecasts). Each of these have a bearing on providing the first-ever attempt to develop generalisations about which kinds of places, countries and regions will attract flows of people moving either directly or indirectly for environmental reasons. The paper

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also seeks to apply the same logic to assess the extent to which one region (Europe), which is currently an important destination for a range of different types of migration (King et al., 2010), will be affected in the future by human mobility associated with environmental change.

The paper commences by identifying from the general migration literature the key factors attracting migrants to specific places, before investigating whether these factors are relevant to thinking about future patterns of environmentally linked mobility. The review then shifts to considering the evidence for particular destinations being selected by migrants moving because of food insecurity in Africa. In the penultimate section of the article the reader has the opportunity to consider whether inter to or intra-regional mobility within Europe is more probable as an outcome of future environmental change. These different evidence bases it is argued, provide good reason to question the pre-occupation with the numbers of people that will be affected in regions that are especially vulnerable to climate change, and to focus instead on a more nuanced understanding of how climate change may interface with existing and emerging migration systems to produce a very uneven global pattern of environmental migrant destinations.

The definitions of environmental, social and economic change used in the paper are those provided by the *Intergovernmental Panel on Climate Change 2000 Special Report*, in terms of their 'A1 storyline' with other standardised data being drawn from more recent IPCC research reported by Solomon et al. (2007) and Parry et al. (2007). Finally, by way of introduction the reader should note that the term 'environmental migration' is used in preference to other vocabulary and is taken to represent population moves that either directly or indirectly may have been triggered (at least in part) by 'physical' environmental change.

2. 'Drivers' of mobility and the effect on destination patterns

While there is a growing literature problematising the links between environmental change and human mobility (Black, 2001; Black et al., 2011; De Haas, 2008; Piguet, 2008), much less has been written on the destinations chosen by people moving either directly or indirectly as a consequence of environmental change. Before it is possible to ask either 'what forces shape the destination choices of environmental migrants?' or 'what are the environmental factors that pull people to certain locations?' it is useful to widen discussion to identify how the 'attraction' of places to migrants (in general) is understood.

It is possible to identify six general principles from the research literature that govern migrants' destination decisions. These are listed in Table 1. There is a long-established research literature on these principles that is not repeated here. A quick examination of Table 1 runs the risks of giving the impression that migration can be explained by a single reason or that 'individuals' make destination 'choices' that can be understood in terms of one dominant attraction. The social science research literature contests this, showing instead that the meanings of migration are socially and culturally constructed. While migrants are intentional agents, the meanings they attach to their moves are deeply rooted in the broader social, cultural and environmental contexts within which their biographies have been shaped and so-called 'individual' decisions are in practice usually derived from values embedded in the family, the community and wider social networks. Although quantitative migration surveys often require respondents to identify why they moved, intensive qualitative research has shown that the most decisions concerning major life issues such as relocating from one country to another, are not only complex and multi-dimensional, but involve decisions that often do not relate to circumstances at the time of moving (Findlay and Li, 1997; Brettell, 2008).

What do the six principles of attraction mean for environmentally linked mobility? First, even in adverse environmental circumstances that may be undermining livelihoods and producing lower standards of living, the first principle suggests that the majority of people will seek to remain immobile. This reflects the fundamental observation that most migration 'decisions' are taken in relation to the value systems shared by family, friends and community, and these value systems tend to favour immobility for most people.

Second, where movement occurs (with environmental factors being one of many possible contributory drivers) relocation is most likely to be over short distances. Since most impacts of environmental change over the next 50 years are expected to be in the global south, it seems probable that the destinations of most movers will also be in the global south. This conclusion is supported, for example, by research by Black et al. (2011, 440) in Ghana which reported that the migration systems that were most sensitive to climate change were those likely to send more migrants to other parts of Ghana. State immigration policies also mean that, even where migrants seek to cross to another state, this will often be impossible, since few states have immigration regimes that recognise 'environmental migration' as either a legitimate mode of entry or an acceptable reason for resettlement across state boundaries. Indeed most countries' immigration policies specifically seek to restrict such cross-border moves, as for example between Bangladesh and North East India.

Third, even if longer distance moves are contemplated, intervening livelihood opportunities such as large urban labour markets located *within* an individual's or household's country of origin are more likely to be attractive on social and cultural grounds than longer distance moves to other countries where a migrant has poorer social ties. Potts (2010) reports that many people involved in this kind of move to the larger cities of the global south also continue to engage in circular migration linking them back on a frequent basis to their environments of origin. And Beauchemin (2011), in the context of West Africa, has noted that

Table 1
Six principles governing the attraction of places to potential migrants.

1. Most potential migrants want if at all possible to stay in their current place of residence, even although economic and social metrics might suggest that there are external gains to be achieved by moving. This is sometimes referred to as 'the immobility paradox' (Fischer and Malmberg, 2001; Malmberg, 1997).
2. Once a decision to move has been taken, there is an almost immutable law that most people move over short distances rather than longer distances. And places with large populations have greater interaction with each other than those with fewer people (Boyle et al., 1998).
3. Potential migrants often do not move to the most attractive possible destination but if they move (given principle 1) they end up working or living at a nearer rather than more distant place simply because it represents an 'intervening opportunity'
4. The relative attraction of a range of destinations can be interpreted in economic terms, such as the increased income that it offers (in terms of wages) or benefits (in terms of returns to 'human capital') that can be derived from moving there. Chiswick (2008) has argued that the human capital model explains why migration is positively selective with those commanding high levels of human capital most likely to move, and with the same group more likely to move to more distant destinations. There is certainly much evidence from the global south that the poorest members of society are least able to migrate
5. The selection of migrant destinations is to some extent shaped by pre-existing social and cultural connections, which some researchers have used to explain the uneven attraction of places within a 'transnational social field' (Carling, 2007; Brettell, 2008; Vertovec, 2007)
6. It is increasingly recognised that places are viewed as attractive because of the 'social' and 'cultural capital' that they may offer, and not only because of possibilities for immediate financial gain (Bourdieu, 1984; Brooks and Waters, 2010)

internal rural to urban migration also has the advantage over international migration in allowing an easy reversal of the migration decision when economic recession hits the precarious labour markets of cities in these countries.

Fourth, economic inequalities at various scales could be associated with livelihood changes linked to environmental processes. These could favour some south to north population mobility, but only if immigration policies in wealthier countries permit it in relation to their labour market needs. These seems unlikely given the current trend in more advanced economies to source labour from within trading blocs of the wealthier nations (e.g. within the EU) and to raise barriers to labour immigration from outside these blocs. There also seems no sign of the wealthier countries of the world introducing new immigration channels to accommodate so-called 'environmental refugees'. This matter was tested at the Copenhagen climate change summit in 2009 when Bangladesh invited the wealthier countries to help the majority world by accepting a quota of environmentally displaced persons. The UK Development Minister at the time, Douglas Alexander, responded by encouraging the international community to offer more aid to facilitate the adaptation in situ of populations whose livelihoods were threatened by climate change, but ruling out any possibility of a change to UK immigration policy (Findlay and Geddes, 2011). A similar stance seems to be held by most of the wealthier countries, who have a lack of appetite for either national or international recognition of a category of mover that might be defined as 'environmental refugees' (Black, 2001).

Fifth, international linkages established for historical, cultural or other reasons will be powerful in patterning those moves that do involve international migration in relation to the networks connecting people within complex transnational fields. Research has yet to establish that environmental drivers have had much impact in terms of increasing transnational flows of people from the global south to western economies (Piguet, 2008). Economic factors combined with the concentration of transnational networks in large urban agglomerations have meant these cosmopolitan locations are especially attractive to international populations for social and cultural reasons. Where environmental drivers have contributed to the complex array of factors producing international mobility, it is also highly probable that urban destinations will be the main destinations for such moves, as has been the case in the past with those who have fled for fear of persecution Laczko and Aghazarm (2009).

Sixth, moving internationally to increase social capital may increase as socially powerful groups become wealthy, but this is an improbable outcome for the most vulnerable and marginalised groups in relation to climate change. It may be a significant driver of future international mobility, for example from India to destinations such as the UK and the USA, which are perceived to be desirable locations for the accumulation of cultural capital (Findlay et al., 2011) but it will not be a big player in shaping the destination patterns of future environmental mobility.

The six principles discussed above point to the conclusion that where future international migration does take place from environmentally precarious locations, it will be mostly limited to those who have resources, or the skills to become upwardly mobile or who are able to deploy their cultural capital effectively. This is not to say that there will no international mobility of very poor peoples moving under conditions of extreme hardship. There are plenty examples of political refugees and economic migrants taking extraordinary risks (Jimenez, 2009) to enter richer countries as irregular migrants (often paying with their lives) and one might expect environmentally driven migrants to take similar risks (Robinson et al., 2001). However, this will not be the dominant pattern.

The six principles of attraction would seem to have most relevance to environmental mobility where people have had some opportunity to evaluate the possibility of making a move to another location (defined in terms of the GOS project as 'mobility' as opposed to 'displacement' move). With sudden onset environmental disasters, such as volcanic eruptions resulting in agricultural land being buried by ash or lava, and in cases of environmental change (such as sea level rise), thus removing any possibility of return by the migrant to their original home at some point in the future, the concept of migrants having any 'choice' seems dubious. This does not mean, however, that some of the principles do not apply. When temporary displacement occurs usually those seeking to accommodate forced movers seek a location as close as is safe, relative to the point of origin. With longer duration displacements, there is much evidence that migrants seek out locations where their social and cultural networks provide opportunities for social support, as for example in the preference by Vietnamese asylum seekers for destinations close to other Vietnamese (Robinson, 1993) in preference to a more dispersed settlement.

There are several risks in seeking to forecast future migration simply from a mapping of the principles underpinning past trends. The most important of these is that areas that have not attracted migrants in the past (or that do not act as magnets to current migration systems) could potentially become attractive in the future. For example, climate change might result in northern lands in Canada, Russia and Greenland that are currently sparsely populated, becoming more hospitable environments. Enhanced environmental circumstances could favour a northward spread of agricultural practices and intensification of some pastoral systems. It should be noted of course that improved soil formation in these areas will take time, and in the short run the cost of raising soil fertility to permit enhanced cultivation will be significant. There may, however, be a northward-shift in fish stocks, resulting in some limited new employment opportunities in northerly latitudes. Attractive as are such ideas, they need to be set against the evidence of human migration in the late 20th century. There are few recent cases of major net migration gains to areas opened up to primary sector agricultural and fishery activities. The more dramatic net migration patterns of the 20th century associated with immigration to previously sparsely populated areas were associated with locations where major natural resource exploitation suddenly emerged (as for example in some parts of the Arab oil economies) but even here the main foci of growth were the urban service centres supporting these developments. Environmental change might produce some possible migration of this kind associated with tertiary sector developments. One example would be migration responding to the future employment gains driven by the opening of possible new trade routes such as the North West Passage.

Even if major future net migration flows to current low-density locations seem improbable, it is interesting to note that some governments see future environmental change as a positive influence that will help tip demographic change in their favour. One example would be Scotland, where the Edinburgh-based parliament has noted that 'climate change may lead to migration to Scotland from other countries where climate change has led to a shortage of sustainable water or food supplies' (TSG, 2007, 130). However the statement is not evidence-based and needs to be understood in the context of the Scottish Government's desire to counteract the effect of ageing in their population. By contrast other commentators remain sceptical about the suggestion of climate change producing any significant flows to the UK and indicate that any such migration will be minor in comparison with population flows driven by other forces (Barnett, 2009).

3. Recent research (2000–2010) on the destinations of environmental migrants

In the previous section, principles that govern the destination patterns of migration flows were examined in relation to environmental migration. In this section, the argument turns specifically to the destinations that have been identified by researchers studying selected environmental migration flows during the decade, 2000–2010. As noted earlier, the evidence-based research literature points to very different conclusions on this topic from the comments of environmental commentators (Stern, 2007).

From the literature four specific points can be identified of relevance to understanding the destinations of environmental migration. First, the literature emphasizes that environmental change stimulates *a wide range of forms of mobility* from short-term and short-distance moves (Renaud et al., 2007; Pachauri, 2009), involving temporary absences, through seasonal migration to longer-term and longer distance relocation. The vast majority of displacements associated with natural hazards such as floods and droughts (Bassett and Turner, 2007) are short-term with the motive of the movers being to return as soon as possible to their homes and communities. As a consequence, the decision about where to move to is shaped predominantly by a desire for proximity to the point of origin, so that return visits can be made to retrieve items from their former homes and to guard against looting.

To some extent moves of this kind can be thought of as 'forced' environmental migration in as far as the main motive for initial movement is to preserve life and to flee from an immediate threat. However, even in these circumstances not everyone moves – the immobility paradox, once again. For example, in the case of Hurricane Katrina and the population of New Orleans, Landry et al. (2007) reported that up to 70,000 mainly poorer black residents were either unable or unwilling to move. In sudden onset disasters such as the Boxing day tsunami of 2004 the pattern of environmental moves, of those who did escape, were predominantly short distance with populations returning to their areas of origin as soon as they were allowed, although some governments did not allow a return to precisely the same location. The Indian government for example insisted that new housing to provide shelter for fishing communities along the Indian Ocean be placed several hundred yards inland, creating new tensions for these communities who naturally saw living as close to their boats as possible to be highly desirable. Another interesting feature of research on so-called 'forced' environmental mobility is that once a move has taken place, there is a selectivity in who returns with the poorest people least able to do so (Black et al., 2011).

The EACH-FOR Project reported mainly on what some might think of as 'voluntary' environmental mobility (in the sense that people were not moving to flee for their lives). The project found that in cases where livelihood systems were being undermined by environmental change, the most usual mobility response was for one member of the household (rather than the whole household) to seek seasonal employment in another location. The choice of location in these instances is governed dominantly by the desire for the person migrating to find an independent source of livelihood that is separate from the agricultural, herding or fishing systems supporting the other members of the family. A usual outcome in these circumstances is for the temporary migrant to seek work in an urban area (although not always) either within the same region or in the same state. Research shows that it is invariably the slightly better-off families that adopt this migration strategy. To quote Warner et al. (2009, iv) 'migration requires resources...that the most vulnerable simply do not have'. The mover often has to be supported by the rural household in the early phases of the move, and only later with the migrant helping to support his or her family through remittances. Research shows these migrants often return to their household after a period of employment in the city using their earnings to start a small business. The two key points from the literature on this first point are then:

(a) permanent out-migration is only one of many mobility forms associated with environmental change, and

(b) *destination choice is dependent on the reason for relocation*, with short-distance moves being the most normal outcome.

Second, the social science literature overwhelmingly points to *environmental change as being just one of a complex array of drivers of mobility*. The implication of this for understanding the factors shaping choice of destination of environmentally linked moves, is that normally it will be other factors and not environmental ones that are dominant in the choice of a migrants destination. Henry et al. (2004, 204) note 'unfavourable environmental conditions are unlikely to be the 'unique' cause pushing people to migrate'. The EACH-FOR Project concluded that most often the timing of migration of movers who were in some way responding to environmental change was related more to immediate political, economic or demographic circumstances. And the choice of destination made by these movers reflected their position in information networks structured by their social environment. To paraphrase Warner et al. (2009) once again, if one wishes to understand whether people in a particular context decide to move or not, the key is to study the social system characteristics including social networks that inform mobility decisions. Perceived wisdom of where is a suitable place to move to is socially constructed and so it is no surprise that where mobility is selected as an adaptation strategy that it usually produces migration flows to well tried and tested destinations. This conclusion justifies the approach suggested by Black et al. (2008) to focus research on environmental mobility on existing migration systems, since environmental factors may best be seen as a multiplier effect contributing to existing migration regimes. The critical points from this literature for understanding which locations may attract environmentally linked moves are:

a) destination choice is likely to be determined by the non-environmental factors driving most mobility, and

b) decisions are seldom truly individual, but emerge instead from the values accepted by people as a result of social interaction with others in their household and community.

Third, where there is no significant history of out-migration, environmental change seems unlikely to produce much long-term population mobility, even where quite extreme events such as cyclones occur (Kniveton et al., 2008). *Rootedness and immobility* are dominant features of the mobility literature, linking back to the 'immobility paradox' principle. Research findings show that people are very strongly anchored in their social networks (Warner et al., 2009). Only where local social and cultural forces are positively disposed towards migration is it likely that people experiencing adverse effects from environmental change will even begin to consider contemplating out-migration (Findlay and Geddes, 2011). If social and cultural rootedness is a feature observed at the local level, it is also an anchoring influence at the level of ethnic and religious groups within a country. It is this that heightens the likelihood that, where mobility occurs, in the vast majority of cases it will be limited to the social or cultural territory within which a community is based (this may stretch across international frontiers to a neighbouring country in some cases as a result of the imposition of socially artificial borders during colonisation) but very seldom will it occur internationally over long distances.

Finally, Henry et al. (2004) make the important *distinction between the first and later movements* of a household or person. They found a decrease in long distance migration in Burkino Faso

during drought periods, because during these times households did not have the funds to invest in a household member migrating to a distant location. They found, however, that once environmental change has produced dislocation, the people who move are less tolerant of poor environmental circumstances at their destination. Hence if a group is forced to look for a permanent site for relocation they are unlikely to settle unless they are sure that the new site offers the kind of favourable economic, social and environmental circumstances that will permit longer-term settlement. This means that where the type of move is perceived as a longer term one, it is unlikely that the migrant will choose a location that is similar to the one they have left.

In summary, the 'evidence-based research literature' on environmental migration confirms the relevance of the six principles of attraction discussed earlier. This perspective goes further, however, offering an understanding of the interface between 'migration as process' and 'migration as outcome'. From the perspective of policy makers in western economies the key finding is that evidence-based research continues to uphold Hugo's (1996, 118) claim of 15 years standing that 'the bulk of migrants displaced by environmental disruption move within national boundaries and international migration has been very limited'.

4. Destinations of environmental migrants in areas threatened by food insecurity

Attention turns now to the destination patterns observed from web-based sources reporting on environmental impacts on livelihood systems. The source used by the author is US AID's Famine Early Warning System Network (FEWSNET). FEWSNET operates in 25 countries to provide early warning and vulnerability alerts to those responsible for the welfare of populations who might face food insecurity as a result of either deterioration in their livelihood system, or because of adverse market circumstances. Not only does the website offer agro-climatic monitoring at a detailed spatial resolution, but it also provides briefings about the coping mechanisms adopted by local populations threatened by food insecurity.

For many agricultural societies, mobility to find casual labour opportunities to earn additional income during the most food insecure part of the year is a long established coping mechanism. It forms only one of many coping strategies to reduce malnutrition during the lean season. Other coping strategies observed by FEWSNET in 2010 included selling assets such as animals, withdrawing children from school to undertake local casual labour, stealing cash crops from commercial plantations, cutting wood for sale as firewood, and in some cases prostitution.

Analysis of data for the 25 countries covered by FEWSNET revealed high food insecurity or extreme food insecurity in 11 countries at some point during 2010. Upholding the arguments made above about the underlying causes of migration, in no situation where there was reported food insecurity was it due solely to environmental factors. For example, in Malawi (where the author visited six sites across the country in 2008 and 2010 to study efforts to increase human resilience in the face of food insecurity) the other underlying causes of food insecurity in 2010 included fragile rural livelihood systems, chronic vulnerability to poverty, limited purchasing power to compensate for crop failure, soil erosion, high transport costs and poor food utilization. During the dry season of 2010 some 1.1 million people (or 8.4% of the Malawi population) were declared food insecure. It is in these circumstances that some of the poorest households in southern Malawi were observed as sending a family member to nearby Mozambique for spells lasting between a week and two months, simply to seek casual work to supplement household income and to allow for the purchase of food.

Examination by the author of the detailed country reports provided by FEWSNET, revealed that population mobility was not listed as a coping strategy in all countries, despite many facing food insecurity. Table 2, based on website analysis by the author, lists the 9 African states recorded as suffering high or extreme food insecurity in 2010. For each the extent of the challenge and whether population mobility was recorded as a coping mechanism is shown. In some countries like Somalia and Sudan, most mobility was reported in relation to ongoing conflicts that had produced significant populations of displaced persons. Some of these flows were associated with environmental resource disputes (e.g. in Sudan).

The diversity of mobility forms is one of the striking features of Table 2. In the case of Kenya and Niger it is interesting that environmental hazards were considered to have resulted in a decline in population mobility (in line with Henry et al., 2004), because of reduced demand for casual labour. It should be remembered of course that in many societies pastoral nomadism is a normal livelihood form and that observers may not have recorded changes in pastoral mobility (such as longer distance moves to find grazing), simply because stock mobility is an expected social practice reflecting long established human adjustments to scare grazing resources.

What destinations were selected by those choosing mobility as a coping mechanism? Where mobility occurred, short distance moves to higher ground (in the case of flooding in Ethiopia and Niger) and to nearby agricultural areas for short-term casual labour was the most normal response. In the areas worst affected by drought (but often also by conflict) population movement was recorded to towns for work or resettlement (Chad, Somalia) and in the cases of Chad and Malawi cross-border mobility was mentioned in relation to short-term work opportunities.

The evidence from this research is therefore that mobility is a coping response, which offers vital income support via remittances to households adversely affected by food insecurity, but that movements are overwhelmingly to proximate destinations. Only in the case of Somalia did FEWSNET observers suggest a permanent rural to urban transfer of population was taking place as a result of the total collapse of a rural livelihood system. These empirical findings provide supporting evidence for the generalizations reached earlier from reviewing the literature. The analysis does not support the alarmist prognostications of some environmentalists about environmental change stimulating large scale population displacements across international frontiers.

5. Plausible environmental migration outcomes for Europe

Having considered in the previous section recent evidence relating to destinations of environmental migration in terms of current mobility linked to food insecurity in Africa, the analysis now turns to a second case involving a generally wealthy destination area: Europe. Two questions are asked: first, is there any basis for anticipating environmental migration will be attracted to particular locations in Europe? Second, with what degree of certainty have experts been able to forecast future Europe migration systems in general? Reference is made to four types of migration as defined by the UK Government Office for Science:

M1: Mobility that poses 'technical' or managerial challenges.

M2: Mobility that poses political challenges

D1: Displacement that poses technical challenges

D2: Displacement that poses political challenges

Table 2
Food insecurity and population mobility as recorded by FEWSNET, 2010 for selected African states.

Country	Number of regions with extreme food insecurity in 2010/specific months	Location and record of population mobility
Chad	6 of 14 regions/July–September 10 and January–March 2011	*Northern transhumant herders*: 'poor households dependent on transhumant animals will step-up their temporary migration' to large urban areas or to the cross-border trade area with Lake Chad in search of gainful employment to temper the effects of the food deficit and to pay off their debts. *Western agropastoralists*: 'out-migration in the middle of the growing season in search for work and the abandoning of weed-choked fields for lack of family labour' families of migrant workers unable to meet their food needs (January–March 2011) solely with remittances of migrant income. . .will resort to food rationing selling livestock to cover payments on term-loans' *Eastern zone*: stepped-up migration and selling off of productive assets. Long-term migration to more distant areas 'migrant remittances will be the main source of financial support'
Niger	All 7 regions/May 2010; 3.2 million – 20.9% of population facing food insecurity	*Riverine area*: 'Less demand for labour in cropping areas and lower wage rates for seasonal migrant labour'
Nigeria	3 of 37 regions/July–September 2010	*North east states*: Pastoral transhumance will move herds south two months earlier than usual. Agropastoralists will meet food needs from remittances from migrants
Malawi	1 of 3 regions/July–September 2010 1.3 million – 8.4% of population facing food insecurity	*Lower Shire* province: 'increasing cases of families going to look for *ganyu* (casual labour) in Mozambique, taking more than one week before returning'
Sudan	9 of 25 regions/July–September 2010	*Darfur:* Return of refugees from Chad *Western Flood Plains*: 10,000 households displaced by floods to higher ground *Eastern Flood Plains*: 'Tribal/land-related conflicts. . .displaced many people in August . . .to Malakal town' *Jonglie state*: Floods (August/Sep) displaced households to higher ground *Lakes state*: 6000 households displaced by civil insecurity
Somalia	10 of 17 regions/July–September 2010 '27% of population in need of emergency' humanitarian aid'	*Southern region:* Fighting threatens food insecurity. Internally Diplaced People in all parts, especially Mogadishu (372,000) and Srabelle Hoose (496,000) *Central region:* '22,000 destitute pastoralists have abandoned pastoral livelihoods due to significant loss of livestock assets. . .and exhausted coping mechanisms over 2007–2009. These drop out pastoralists are resettled in shanty towns around main towns in search of alternatives sources of food and income'
Kenya	2 of 8 regions/July–September 2010, and 3 of 8 regions/January–March 11	*South East:* 'The oft employed coping strategy of labour migration to farms . . .will be limited by the expected widespread failure of the short rains in the region'
Ethiopia	9 of 11 regions/July–September 2010	*Gambella:* 14,525 people displaced by floods and 24,000 by cross-border conflicts with Sudan. *Somali and Oromia lowlands*: 'conflict over resources (water and pasture) caused displacement'
Djibouti	4 of 5 regions/July–September 2010	*Southern:* Rural population moving to towns for casual labour. Remittances reported as very important to rural areas.

Source: Author's analysis of FEWSNET. Available at http://www.fews.net/Pages/country.aspx?gb=mw&l=en (accessed 18–24.11.10 and 09.05.11).

The so-called standard approach to environmental migration to Europe has been presented by Parry et al. (2007) and Metz et al. (2007). Most anticipated impacts from environmental change do not link directly to current European migration systems. Climate change in the Arctic is reported as affecting infrastructure and ecosystems, but because the populations of Arctic Europe are quite small, one might anticipate that any migratory adjustments in these countries will be numerically limited. It would appear that the vast majority of M1 flows will be intra-state and accommodated relatively easily.

Potentially the greatest impact on Europe could be because of crop failures and desertification in neighbouring world regions. North Africa, for example, it is noted 'could be expected to cause climate-induced migration' Warren et al., (2006, 9) with southern Europe providing a range of attractive proximate destinations. North Africa's international migration flows to Europe, which have also included sub-Saharan transit migrants (Collyer and de Haas, in press), have historically been dominantly with France and Spain because of their colonial history. More recently Italy has experienced major net immigration, involving both legal and illegal flows from the southern shores of the Mediterranean (Bredeloup, in press). This mobility might be thought of as belonging to the M2 category, because in the current political and economic climate the concentration of migrants from North African countries represents an inflow of people who are in general not perceived to be well matched to the labour market needs of European host countries and they pose a political challenge for the government of Italy (and to some extent also France and Spain). There is a likelihood that a significant part of the flow may take place outside legal frameworks, and irregular mobility may increase if the EU in general, and national governments in particular, become more restrictive in their immigration policies towards less skilled migrations from outside the EU, and especially from Africa (Kultalahti, 2006).

A second regional impact of potential importance to Europe, as a migration destination, is the effect on livelihoods of those at risk of flooding and salinisation living near to the coasts of South Asia. The UK, more than other countries in Europe, has strong linkages with India and Bangladesh, relating to its colonial heritage. This accounts for the significant inflows of people from South Asia to the UK over the last 50 years, many of whom have become legal residents of the UK. Findlay and Geddes (2011) note that the

mobility effect of flood-related disasters in Bangladesh has been limited almost exclusively to short distance displacement within the country and that there has been little record of environmental change driving up international migration to countries like the UK. Most of those who have come recently from South Asia to the UK are either students or more skilled workers with backgrounds in IT or health and have come on short-term visas. Very few migrants to the UK from the Indian subcontinent are people whose previous employment was in agriculture of fishing (i.e. the livelihood categories that are under most threat). Given the much greater constraints now placed on permanent immigration from the region to the UK, and given the stated policy position in the UK favouring adaptation in situ of populations threatened by climate change (Grant, 2009), it seems highly improbable that environmentally induced mobility from this region will impact significantly on the UK in terms of M2, D1 or D2 flows over the next two decades.

For European countries like the UK, the single most probable effect of environmental change on long-run immigration from South Asia would be increased pressure for access from family members of ethnic minority populations already based in Europe. However, as noted above, few of the UK's current Bangladeshi community are drawn from populations recently engaged in primary sector activities in regions of the country most affected by coastal inundation. Most come from the Sylhet area, which has experienced some riverine flooding, but this has not been the catalyst behind past international mobilities (Findlay and Geddes, 2011). There is no precedent to imagine that future crises in the region will stimulate major flows. For example, the civil war that saw the creation of Bangladesh (in place of East Pakistan) resulted in significant local population displacement, but it did not convert into major international flows to the UK.[1]

The third potential regional environmental impact worthy of further discussion relates to small islands in the Pacific and Indian oceans which are reported as highly threatened by flooding and submergence due to sea level rise. Would Europe be a likely destination over the next 50 years for migrants from these locations? In the IPCC A1 scenario for climate change these islands face a sea level rise of approximately 0.1 m by 2030 and 0.2 m by 2060 (Solomon et al., 2007). While increases of this level are serious (and higher than average sea-level rise is projected for the Pacific Ocean along a ridge about 30 degrees south), the likelihood of the population of these islands being displaced permanently by 2030 is low. The risk increases towards the end of the century, with discussions about putting disaster risk reduction plans in place now involving neighbouring states such as New Zealand. While there is a need for global responsibility over the causes of climate change, it seems likely that the impact on migration systems in Europe will be minimal, since Europe neither borders the region, nor has strong cultural ties with Oceanea.

Given the improbability of any European nations legitimising the entry of 'environmental refugees' over the next few decades, environmentally linked migrants will need to seek other migration channels to succeed in achieving international relocation. The very small number of people from South Asia or Oceanea (moving even partly for environmental reasons) and capable of achieving access to these other migration channels are not only likely to from the economically better-off elements the population, but are also more likely to seek to move to more prosperous labour markets. It is therefore salient to note that changes in the relative economic prosperity of countries such as the UK relative to other major economic regions such as China, Pacific Asia and North America will be very important in determining their attractiveness as migrant destinations. Most economic forecasts do not anticipate that the UK will in 50 years time be at the forefront of EEA or even world economic growth (World Bank, 2010). More significantly the World Bank anticipates that Europe will fall behind the economic powerhouses of Pacific Asia by the second half of the 21st century. Consequently, those environmental migrants who are able to relocate over longer distances within established migration channels, are much more likely to choose destinations in other regions of the world by 2060 which offer better economic prospects than the UK.

In addition to the forecast economic regional effects on migration systems listed above, should be added the possible impacts on intra-regional mobility within Europe. If as the IPCC predict (Parry et al., 2007), environmental change makes crop productivity increase in northern Europe and decline in the south (and similarly for forests), this may result in some redistribution of economic activities in these sectors. While primary production is a minor player in the overall attraction of labour migrants to particular countries compared with other sectors, this is not to say that there will be no effects. The current free mobility of workers within the EU has seen significant flows of migrants workers from Poland and other post-2004 accession countries moving in large numbers to the UK and Ireland. A significant number of these migrants have been engaged in employment in agriculture and food processing, contributing a high proportion of all labour in these sectors (Findlay et al., 2010). Not only is intra-regional mobility within the EU protected under EU legislation (and is likely to continue for the foreseeable future), but intra-European economic contrasts may result over the next 50 years in further significant intra-regional migration flows. Some of these may be linked to environmental change in northern and western Europe, although economic rather than environmental factors will continue to be represented as the dominant reason for mobility.

For example, in the UK intra–EU moves are not constrained by national immigration policy. They seem likely to be a much greater influence on the scale and destination of migration flows to the UK in the decades ahead than will be immigration from outside the EU. It is this source that has seen the greatest increase in general immigration to the UK over the last 35 years and it seems highly probable that it will be the main source of migrants in the future. Findlay et al. (2010) have shown that the patterning of these flows is particularly interesting in terms of the concentration of migrant workers in intensive agricultural production (Rogaly, 2008). It seems probable that intra-regional labour mobility within the EU will continue to be protected in the foreseeable future, and this combined with the prospect of environmental changes that may be positive for agricultural productivity in the northern parts of the UK (TSG, 2010), it seems plausible that current migration from eastern to northern Europe will be sustained or grow over the next two decades. This seems the most likely source of any environmentally linked mobility towards the UK in the near future.

The analysis of this section of the paper has rested mainly on applying migration principles and a careful reading of the evidence-based literature on environmental mobility in and to Europe. The conclusions that have been reached are, however, underpinned by primary research by the author and other colleagues (Abel et al., 2010; Bijak and Wisniowski, 2010; Findlay et al., 2011). This latter body of research evidence is based on Delphi surveys of expert opinion by demographers and others concerning the nature of future migration trends taken as an input to Bayesian forecasting of environmental migration trends to 2060. Forecasting international mobility is of course just one of the many problematic tasks facing migration researchers (Novok and Willikens, 2011) and it should be noted that previous attempts to make accurate forecasts have nearly always tended to underestimate the actual level of population movement relative to what has been witnessed in subsequent years (Shaw, 2007; White, 2010).

[1] I am very grateful to Professor P. Rees (University of Leeds) for alerting me to this point.

Despite this health warning, the research by the author and his colleagues on international migration forecasting are useful in providing quantitative support for the other claims made in this paper. In the UK for example, a 2011 multi-round Delphi survey of 27 experts supported the view that the UK will not become a major future destination for environmental migration from other parts of the world by 2060. Where flows do take place they will be more likely to come from other parts of Europe rather than from the developing nations. Interestingly, the experts in the UK Delphi survey who were most confident in their forecasts, were the ones who gave the lowest estimates of future environmental migration (Findlay et al., 2011, 34) with hardly any of this flow to 2060 being made up of environmentally displaced people (D1 and D2). However, more important, and in line with Bijak and Wisniowski (2010, 794), the research notes that 'the uncertain and barely predictable character of migration flows may be their inherent, more general feature', and points to the need for policy makers to shift attention from populist obsessions about the ballpark numbers that may, or may not, be involved in future environmental migration streams (Tickell, 1991; Myers, 1993; Stern, 2007) towards establishing a more sophisticated understanding of how environmentally linked migration may appear as part of existing and emerging migration systems (such as the mobility of agricultural workers that already exists within the EU labour migration system).

6. Conclusions

This paper commenced by identifying six principles defining how a range of forces operate within migration systems to favour certain destinations. Immobility and very short distance relocation were shown to be normal. It was also argued that these six mobility principles were also relevant to understanding which locations are attractive to migration flows associated with environmental change.

A review of evidence-based research on environmental migration (by comparison with what was termed 'the standard' environmental approach) leant no support to suggestions that environmental change was resulting in mass migration from the global south to the global north. Rootedness and immobility are dominant features even where adverse environmental circumstances prevail as shown by Landry et al. (2007) and by the author's primary review in this article of mobility in Africa driven by food insecurity. Rather than being concerned with forced environmental mobility, perhaps a greater concern for policy makers should be the inability of the most vulnerable populations to adapt to climate change in situ. The resistance of wealthier nations to consider international mobility alternatives for these groups is in many ways very problematic. Political opposition to recognising the category of 'environmental refugees' is understandable (Black, 2001), but one consequence of this is 'forced immobility' of many people in environmentally vulnerable areas of the global south.

Where movement occurs in relation to environmental change, it is most likely to be short distance, with decisions about destinations being strongly influenced by the social networks of all those involved. As a result of existing social networks the most likely destinations for those environmental migrants who seek to engage in new livelihood forms will be the cities of the global south, especially those that are proximate to zones experiencing major environmental stresses. The movement will often be only by one member of a household, in the first instance at least. It is to these cities in the global south that policy makers should direct their attention in relation to the challenges presented by M2, D1 and D2 type flows of environmental migrants.

Focussing on Europe as a possible destination region for future environmental mobility, the paper assessed the risks posed by a standard approach to environmental migration in relation to an evidence-based understanding of immigration systems to and within Europe. It was concluded that, apart from irregular immigration from North Africa if the region becomes affected by future food insecurity, it was moderately unlikely that large flows of environmentally induced migration would enter Europe in general and the UK in particular over the next 20 years. Where environmentally linked migration occurs, the evidence-based approach suggests that it will either be associated with the transnational social fields of ethnic minority populations already living in Europe, or else with intra-European migration of people moving to northern Europe because of the economically attractive opportunities that may emerge in agriculture and forestry because of longer growing seasons and greater crop diversity at a time when environmental change in certain other parts of Europe may be less favourable.

The paper has argued that too much attention has been given to thinking about the potential number of people living in regions that may be adversely affected by climate change. The paper has provided some evidence to refute the suggestion that environmental change will result in mass migration from many different parts of the majority world towards the wealthier countries in the decades ahead. Instead, it has suggested that the most likely effect of environmental change over the next 50 years will be to amplify and modify pre-existing migration channels, and that it is these that will shape the pattern of migration destinations selected by future environmentally linked movers. A stronger focus on the factors determining, on the one hand where environmental migrants are likely to select as destinations, and on other hand on how migrants' intentions interface with restrictive government immigration policies will be more helpful to policy makers concerned to mediate the potentially negative consequences of these processes. Amongst some of the most vulnerable populations this approach will lead to new thinking about how to overcome both people's general unwillingness to move and also about the consequences of restrictive migration policies that reinforce natural tendencies to population immobility in some of the environmentally insecure locations. In the wealthier parts of the world the evidence-based approach to studying migration that has been advocated in this paper will lead to a recognition that intra-regional mobility of people involved in the primary sector of the economy may be the main driver behind future migration destination patterns, reflecting the way in which local environmental change often amplifies existing intra-regional variations in social and economic variables.

Finally, the paper has hinted at the need to use migration forecasts in a different way. A wise use of migration forecasts will involve more attention being given to planning for a range of different and uncertain migration futures. A pre-occupation with forecasting a single number of environmental movers has diverted attention from thinking more creatively about uncertainty, and about how to plan for the impacts at different migration destinations in relation to the multiple and complex ways in which environmental migration is, and will be, produced.

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