

The background of the cover is a photograph of the Dublin City University building, a grand neoclassical structure with multiple stories, arched windows, and a balcony. In the foreground, a large, dark, reflective globe sculpture sits on a dark, geometric base. The globe shows a map of the world and is surrounded by water. The building's facade is light-colored, and the sky is a pale blue. The overall scene is brightly lit, suggesting a sunny day.

# Atlas

Volume 13  
**2015**

**Dublin University Geographical Society**

# Atlas

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## Acknowledgements

*Luke Scully*

To begin I would like to thank all of the contributors towards the publication of Atlas, without them we would have nothing to publish for the 55<sup>th</sup> anniversary of the founding of the Geographical Society. All of the essays found in this edition of Atlas were written by both undergraduate and postgraduate students of Trinity College Dublin who found time to submit them voluntarily.

I would like to thank Dr Martin Sokol for the inspiration to revive Atlas, as well as volunteering to write the foreword for this edition, continuing Atlas's long tradition of staff contributions.

As no current member of the Geographical Society was involved in the last edition of Atlas, published five years ago, Dr Gayle McGlynn, a past editor, proved to be a great source of experience and knowledge about the editorial and publication process. I would like to extend thanks from the whole team to Gayle for making our jobs easier.

Ms Gillian Marron, and the complete collection of past volumes of Atlas housed in the Freeman Library proved invaluable in the publication of volume 13. Gillian was always on hand to locate the previous volumes, which allowed the team to continue the traditions of the publication.

I would like to thank Stephen McLoughlin, Rachel Gallagher and Niamh Ryan for the extraordinary amount of time and effort that they put into this volume of Atlas. Without them and their sacrifices, this volume of Atlas would never have been completed.

Finally I would like to say that without the financial assistance of the TCD Association and Trust this volume of Atlas would never have gotten off the ground. The Trust covered the cost of printing in full and I would like to express the sincere gratitude of the Geographical Society to the Alumni of Trinity College Dublin who donated to this generous fund.



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## Foreword

*Dr Martin Sokol*

It has been a tremendous year for the Trinity *GeogSoc*. Some old traditions have been revived, some new ones have been founded, a string of successful events were held, and membership soared. Fifty-five years from its establishment (in March 1960) the Society is as youthful as ever and playing an important role in the life of Trinity College Dublin.

I would like to thank all those who kindly supported the Society this academic year: my own colleagues in the Department of Geography, School of Natural Sciences, for their fantastic support and encouragement; alumni, who joined the Society en masse, donated generously and offered help; Trinity's Central Societies Committee (CSC) for providing vital support; and last but not least to all members without whom there would be no society.

The great achievements we saw this academic year would not have been possible, of course, without the dedicated *GeogSoc* Committee. It was my great pleasure and honour to work with an extremely capable team of Committee members and volunteers whose energy and dedication made unimaginable things possible. I congratulate Stephen McLoughlin, the Chairman of the Society, for receiving the 'Best Committee Member' Award, for leading the team and for moving *GeogSoc* forward. I also would like to congratulate Professor James Killen who was awarded an Honorary Life Membership for his life-time contribution to the Society, thus joining Professor Des Gillmor on the list of people with this highest award.

Finally, I would like to congratulate the members of the Editorial Team for their tremendous effort in reviving *Atlas*, the Journal of the Dublin University Geographical Society, and for securing funding from the Trinity Foundation. Putting together such a remarkable collection of essays, editing it and getting it published, is a hard work – and I would like to thank the Editor-in-Chief, Luke Scully, for successfully managing the process. This volume of the journal is yet

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another testimony of Geography students' skills, abilities and potential.

## **55<sup>th</sup> Anniversary Greeting**

*Stephen McLoughlin*

As the current Chairman of *Dublin University Geographical Society*, it is my true honour to be leading the committee and members in the society's 55<sup>th</sup> year. I am extremely grateful to the editorial committee for putting *Atlas*, the long established society publication, back under the spotlight for this special anniversary.

*DU Geographical Society* has had an extremely successful year in 2014/15. We faced an initial financial hurdle, however this was quickly overcome and the society is now back on track. I owe much credit to the tremendous work of this year's treasurer, secretary, PRO, Librarian, Year reps, OCM's and Field trip Coordinator. All of these individual committee members have helped in the continued success and existence of *DU Geographical Society*.

The society had an incredibly successful fresher's week with over 140 members joining over the four day period. In October we decided to welcome Alumni member's for the first time in the society's history. The postgraduate position on the committee was assumed by Niamh Cullen while Professor Martin Sokol, from the Department of Geography, inherited the role of Honorary President.

In late November forty members ventured to the Latvian Capital, Riga, on the society's annual international field-trip. We were treated to a special lecture by the Geography Department in the University of Latvia on the landscapes, demographics and culture of Riga and Latvia. Our annual fresher's welcome social, Christmas pub quiz, the infamous Earth Ball and many other social events took place on a monthly basis throughout the year. Many lifetime friendships were made during such events, a core aspect of the society in my opinion! We concluded our great year with the 55<sup>th</sup> anniversary party and award ceremony where two past members were awarded lifetime membership.



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I hope that you, the reader, enjoy this latest edition of *Atlas* and I hope that its publication will remain a core aim of *DU Geographical Society* in years to come.

Happy Reading!

## **Understanding the Scalar Nature of Environmental Governance.**

*Matthieu Chateau*

### **Introduction**

Environmental governance is characterised by its transnational nature and growing saliency. The environment is a global commons that requires action from a range of actors in order for change to occur. Indeed, states, institutions and non-state actors have been interacting with each other in increasingly non-defined scales. For the purpose of this essay, governance will be defined as the policies and actions undertaken to manage a body.

This essay will highlight that although there has been an increase in blurring of distinct scales, a certain hierarchy is still present. This essay will first examine the position of environmental interests compared to financial ones in international governance. Then attention will be turned towards the EU and the US's role in national and international governance. These two bodies were chosen because of their prominent role as economic actors and the stark differences in their approach to environmental governance. Thirdly, emphasis will be placed on the blurring of territorial lines and sovereignty in environmental governance. This will be exemplified with a case example on waste regulation. Fourthly, this essay will explore the rise of independent, non-state actors which have caused a shift in the balance of information and power in governance. Finally, this essay will examine regional actors' dependence on multi-level governance. This essay will conclude that environmental governance is mostly

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defined by network politics and still requires continuous dialogue and action from actors in each scale of governance.

## **Economic Interests and Global Environmental Politics**

Environmental issues have become accepted as trans-boundary topics that require a global solution. Vogler (2003) highlights the need for international cooperation rather than singular action. However, international cooperation has been “*structured by economic globalisation*” rather than the pursuit of environmental concerns (Paterson et al, 2003: 4). This means that current global governance is shaped by values that are born out of neo-liberal philosophies. Rational actors are also likely to defect from environmental policies in order to maximise their potential economic outcome, in a classic case of free riding (Paterson, 2000). These actors’ actions are best explained through liberalism. This theory of international relations focuses on state actors and their interdependence in the global sphere. It notes that their behaviour in international governance will create new norms and rules. But interdependence does not always facilitate cooperation (Moravcsik, 1997). This is one of the reasons why organisations like the UNEP have been struggling to implement real change. Indeed, with a distinct lack of authority, low saliency compared to economic issues, and little potential retaliation if a state fails to comply there is a clear argument that environmental governance will always be limited by its nature (Vogler, 2003).

Economic interests tend to be much more salient in global governance. Conca (2000) attributes slow environmental governance to economic actors like the WTO’s reluctance to create environmental policy which may be at odds with free trade. He denounces their continuous emphasis on neo-liberal policies. Indeed, environmental governance is not even a first-order policy in most scales. However, during the GATT, the United States’ national legislation on Marine Mammal Protection demonstrated that economic interests could be used to further environmental governance. This act had been passed in the US after heavy lobbying by environmental groups. This legislation

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created an embargo on the trade of yellow-fined tuna. This is because the methods employed in fishing yellow-fined tuna were a key cause of dolphin deaths. This sparked huge debates as “*domestic environmental legislation [had for the first time] extraterritorial effects*” on free trade (Mayer & Hoch, 1993: 189). Environmental legislation was therefore altering trading regulations. The late GATT and WTO tolerated the US’ national regulation and effectively put a halt these fishing methods and conserved maritime biodiversity. However, Mayer and Hoch are careful to note that the US’s privileged position as an economic actor gave it a unique chance to change free trade policy.

## **National and Supranational Politics**

The European Union is an ideal example of the inter-connection between scales. The EU has consistently been a prime leader on the international level as a singular actor while implementing policies on the national and local level (Vogler, 2005). Indeed, Elliot (1998, 93) describes that: “*unilateral action by states is ultimately ineffective in the face of transboundary and global problems*”. The EU is the perfect response to that statement as it strives to harmonise its policies on a supranational level and influence other actors on the international level (Vogel et al, 2001). It was a key actor in the Stockholm conference and in Bonn where it convinced other countries to still enact a treaty after initial shortfalls. Nonetheless, Vogler (2003) is careful to mention that on the international scene the EU’s preferences do not always prevail and it is often forced to lower its initial demands.

Individual efforts are crucial in defining the EU’s environmental governance on both a supranational and global scale. The prime environmental actor in the EU is Germany. Germany has embraced renewable energies and emissions regulation since the 1980s (Hatch, 2007). It has since then been heavily influential in the EU policy process and has lobbied for tighter regulations. It gladly accepted its role as a leader during the Boon and Kyoto Protocol negotiations

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(Bohringer, 2001). In 1997, the EU agreed on a “15% reduction in emissions by 2010” and Germany “committed to reductions that would cover [...] 80% [of that] target” (Hatch, 2007, 11). Borzel (2011) notes that Germany’s national air pollution regulations were later replicated at a EU level. This demonstrates that successful regulations are rarely limited to one scale but rather influence each other and leak onto other scales through a spill over process. A leader like Germany is thus involved on every possible scale of governance and has been successful in reflecting its preferences on each of these scales.

Individual states will also limit the European Union’s influence. Indeed, the EU’s legitimacy on the international level will be defined by the success of its supranational policies. Borzel (2011) notes that member states’ own institutional regimes will be defining factors in determining the EU policies’ success. He notes that Greece has been struggling in implementing EU emissions, waste and energy policies. What is surprising is that even Germany has experienced difficulties implementing European directives, notably in waste management (Borzel, 2011). Therefore, paradoxically, both powerful and weaker national actors can limit the actions of a supranational actor. The states keep some of their sovereignty although they undermine supranational cooperation. Liberalism highlights that all actors’ actions, although independent of scale, will still have repercussions on other scales of governance through “*multi-level governance*” (Volger, 2003: 27) (Moravcsik, 1997). Nonetheless, the EU remains an actor at the forefront of environmental governance (Vogel et al, 2001). Its Europe 2020 program is still set to reach its goals and represents an unprecedented supranational effort in emissions reductions. EU governance has had a consequential impact on member states as it provides them with incentives to pursue their own policies while creating supranational directives.

On the other hand, the US’ environmental governance offers a distinct contrast in that it has no overarching policies and regional actors must take voluntary action. The US’ highly decentralised

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system and loose guidelines leave states to their own means. California has thus taken the helm in terms of regional of policy in the US. Its policies on automobile regulations in 1965 were revolutionary. Oregon has also been active in waste regulations (Vogel et al, 2001). California has even lobbied the federal system to try to harmonise its policies. Whereas the actions of a single actor, Germany in the EU, have been influential in the EU's actions on other scales, California has had a limited impact on the US's actions. There is no spill over process. Due to the federal nature of the US system, state implementation of federal guidelines is not always equal. Furthermore, it is often the lowest possible outcome that will be reached in Congress with southern states like Texas staunchly opposing propositions that could limit growth (Stewart, 1977).

Stewart (1977) explains that the federal government's reticence to act on environmental issues has been problematic for both regional and international level governance. The most infamous example is the US' refusal to ratify the Kyoto Protocol. Considering the fact that in 2008 the US accounted for 19% of global CO<sub>2</sub> emissions, there is a consequential problem of free riding (EPA, 2008). Liberalism theory states that powerful agents often have no incentives to ratify treaties without sufficient international pressure or personal benefits (Paterson, 2000). But the problem of a global commons like the environment is that the defection of a dominant actor can undermine the actions taken by all the others. Indeed, the treaty was close to being scrapped until the EU took the lead for further negotiations in Bonn (Bohringer, 2001). The US's defection led to a subsequent lowering of Kyoto standards to make sure that it would still be adopted by other countries. Even when a powerful national actor is not present it can still affect global negotiations.

These are two completely opposed and unique governance systems that both confirm that environmental governance can occur at any scale in any regime and influence scales that could be thought to be "higher" or "lower" hierarchically speaking. The actor's own

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institutional framework and political makeup will also be determinant in defining its actions. Each actor's actions will also have immediate consequences on the other's thought process. Karkkainen (2004: 73) describes this as the "*shift from government to governance.*" This shift implies that actors are no longer limited to their scale but rather have created larger, multilateral processes. These processes may not be clearly defined by institutions and rules, hence potentially limiting the negotiation process. These examples depict a clear global evolution of governance that encompasses a multitude of actors with a few powerful key ones.

## **State Sovereignty and Network Politics**

Theorists have been keen to describe international governance as the gradual erosion of state sovereignty. These concerns are born out of the rise of network politics Ward (1997) explains that networks have created participative models of cooperation between every scale. International institutions tend to facilitate these networks. Evans (2012) notes that this network governance will only further the interconnectivity of states and provide non-state actors with more opportunities. Ward (1997) adds that the strengthening of these bonds also allows for greater legitimacy while cutting costs meaning that soft policies may be sufficient for action to take place. Legitimacy could motivate actors to comply with environmental regulations. Moravcsik (1997: 520) even goes to note that this configuration of "*interdependence state preference [could] determine state behaviour.*" However, actors on every level of governance will have widely different preferences. Secondly, seeing that environmental governance is not a salient topic, there this a risk that the network's original values will be undermined. Powerful state actors may also exert sufficient pressure to only see their interests represented or simply refuse to comply. Therefore it is vital to have actors that will cooperate together. These networks will also require a central authority to guide them and take necessary action.

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International institutions have created unique network politics where actors can act independently from their original scale. This confirms this essay's thesis that actors have transcended any scalar boundaries and created political networks through which they interact. A notable example was the court case of California against Methanex, a Canadian firm specialising in methanol production. In 2002, California banned the import of methanol on its territory and Methanex considered this to be against NAFTA free trade policy. (McCarthy, 2005) But here the case was taken to NAFTA court and won by the state of California. This created a situation in which a regional actor faced off against a foreign private firm in a supra-national setting, effectively ignoring any national actors. Bulkeley (2003: 27) notes a pattern of "*rescaling and re-articulation of the state*" as it is no longer the only dominant actor.

The case of mercury regulation is worth exploring in depth as it stems from a global will to create stricter policies but depended on single actors to take action. Norway and Switzerland were the first to adopt mercury specific policies. This then was reflected in HELCOM, a lower level supranational institution that brings together Baltic States. Already there is a clear pattern of policy areas inter-locking with each other, regardless of the scale. This type of sub-national action was one of the key catalysts to further policy action (Selin & Selin, 2006). Although there was a European push for further global regulation, Canadian economic and mining interests strongly opposed it while Asia simply lacked the necessary institutions to implement such policies. However, Japan was keen to settle on an agreement notably due to its history with mercury pollution. This demonstrates how potential regional and national actions may accelerate or dilute any global inertia.

In 2009, the Minamata Convention created a binding agreement on mercury waste legislation. This is a defining example of actors from each scale of governance interacting with each other and although it was a strenuous process, there is now global regulation.

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However, the US and Russia have yet to ratify this treaty. State level governance therefore can still impede global level governance. Nonetheless, these international treaties will impact every level of governance, even incentivizing global politics to follow their path. Environmental governance is only growing in importance. Governance is no longer constrained by territories but rather, according to Paterson et al (2003: 6) has become a “*deterritorialized*” process. This confirms Bulkeley’s thesis of the emergence of network politics. The success of this treaty will be defined by both its impact on the national and local level governance and future treaty negotiation, once again proving how all actors can influence international governance.

## **New Actors**

NGOs have had an increasingly vital role in providing information while creating a platform for all involved actors to interact. Greenpeace was a key actor in creating toxic waste regulations in Poland by both lobbying and spreading awareness in Poland. Furthermore, it also exposed Poland’s flaws to other countries. A non-state actor, acting both on the national and global scale, was thus able to reflect its preferences upon a state actor (Kruszewska, 2000). Although this is a key example of state and non-state successfully acting together, Mol (2006) notes that non-state actors are often constrained by the state’s own regulations and its willingness to open its political process. This is notably the case in China. Indeed, the country’s centralised government makes it difficult for NGOs to even act on a regional level. Smythe (2000) notes that it is still rare for a single NGO to have enough power to change state actors.

There is little non-state mobilisation in Asia and industrial actors often overshadow those that do exist. Young and Kunayagam (1998) note that in Eastern Indonesia, islands with valuable resources have been taken over by industrial interests that control the labour forces and local infrastructures. There is little potential for environment



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governance to ever emerge from these situations as industrial actors quickly overwhelm them. Moravcsik (1997: 527) notes that non-state actors can “*embed[...] [themselves] in local social compromises*” and heavily influence state actions. This process is also seen in France. Szarka (2000) notes that neo-corporatism ideals have impregnated French policymaking. This has led to weakened policies on carbon emissions and water control. These industrial actors are able to lobby at every level of governance and through financial persuasion have their preferences reflected in the final policies.

Nonetheless, in order for either NGOs or private actors to be successful they must provide sufficient political or financial incentives for their preferences to be reflected. Paterson (2000: 17) notes that global governance is now characterised by a “*greater multiplicity of actors, many of whom interact transnationally*”. The constant interactions between both state and non-state actors show that new processes of governance are being created (Karkkainen, 2004). However, as demonstrated above, these very processes do not always lead to the best possible outcome. Nevertheless, this does prove the lack of spatial limits in environmental governance and the connection between each scale of governance.

## **New trends in Regional Action**

Regional actors’ capacity to act tends to depend on national governance. Guangzhou’s environment ministry is limited by the centralisation of political power and cannot enact any cohesive policies. (Hung & Leung, 2000) On the other hand, in Finland, regional action has been independent of national directives and has directly targeted their problems. None of these situations are ideal as they both imply that actors are unable to cooperate. Juhola et al (2012) highlight information asymmetry as the key deterrent to regional progress. This information deficit implies the need for a structuring of regional governance.

Indeed, Bulkeley (2003) notes that in order for regional governance to grow it must cooperate with other scales of governance.

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In the previously mentioned article on mercury regulation Selin and Selin (2006) had advocated the use of regional based organisations drawn from international institutions. Such a system exists in the shape of the current Basel Regional Centres. They provide the necessary regional institutions in order for Basel Conference directives to be respected. (SBC, 2001) These centres allow for flexible policy implementation in each region. International action thus transcends scale and is reflected on the regional level. These centres also empower regional governments as they provide them with an opportunity to “*creat[e] local initiatives to environmental problems*” (Ward, 1997: 461).

The creation of these networks implies that the original top-bottom hierarchy no longer has the same legitimacy in governance. This creates a unique situation in which regional action is taken independently but uses state resources while being overseen by a supranational committee. Karkkainen (2004: 75) describes this as “*post-sovereign governance*” in which actors are no longer confined to scales or states.

But networks at the regional level may not have the same strengths as those on higher scales. Indeed, Karkkainen’s claims (2004) must be tempered with the reality that states still control most regional action and these new networks often have difficulties in creating consequential policies. Even California, a state heralded as a leader in environmental governance, struggled to impose directives for park and open-space preservation. Although there was a microcosm of “*institutional, socioeconomic, and cultural*” actors involved in this process, the lack of national support and financial resources severely limited their ambitions. (Barbour & Teitz, 1999: 177) It is clear that long-term regional action cannot support itself. Indeed, these networks require leadership. This demonstrates that actors are not completely independent of their original scale of governance and require dialogue and interaction with other actors. It is this very interaction between scalar actors that makes environmental governance unique.

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## Conclusion

In conclusion, environmental issues have been increasingly resolved through networks of state and non-state actors from a range of scales. But environmental governance's main impediment is that it exists in a system created for neo-liberal governance in which its values are consistently opposed to those of economic governance. Nonetheless, certain powerful actors have been able to reflect their preferences with multilateral actions on all scales. This essay relied on liberalism to highlight the interdependence between states and showed that these new legislations had direct and indirect implications on the rest of the actors and their respective scales. It also may be too soon to speak of a loss of state sovereignty as any policy implementation still depends on the state. Nevertheless, it is clear that environmental governance does not occur at one scale but rather is an inter-connected process that involves actors from all scales.

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## **Rapid Rural Assessment of Bagamoyo District Pwani Region, Tanzania.**

*Jacinta Whelan*

### **Background**

The location selected for assessment is Bagamoyo district in Pwani region in Tanzania, East Africa. The Bagamoyo district covers an area of approximately 9,842 km<sup>2</sup>. This is a low-lying coastal area in the tropics. Both the port town of Bagamoyo itself (6.43° S, 38.90° E), and the surrounding area are locations of historical significance. Bagamoyo was one of the most important trading ports on the African East coast. This location was significant in the slave trade until it was abolished in the 1880s. The name comes from Bwaga-moyo, which translates as ‘lay down your heart’ as this was the place where many slaves would see their land for the last time. During the German colonisation, the Germans first set up their headquarters at Bagamoyo and the port continued to be an important trade hub where goods were



imported and exported until the headquarters was re-located to Dar-Es-Salaam (Sosovele, 2009).

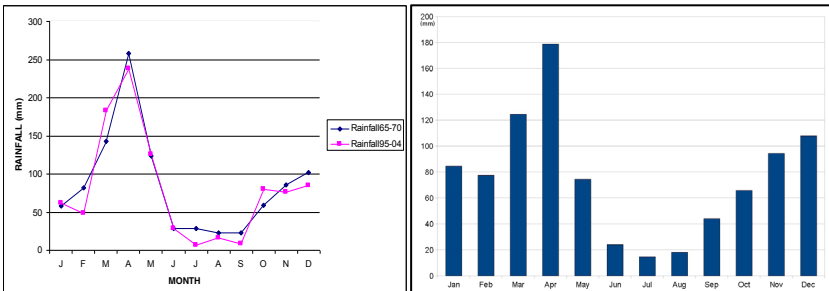
Two studies in particular form the basis of this analysis; the Mwavi farm assessment project was carried out in 2010 with three objectives: to assess the soil, analyse the climatic conditions and ultimately to determine the suitability of this location for agricultural development. The second study is a case study of the western Bagamoyo district that was carried out from 2008 - 2010 and centred on the Lugoba area. The aim of this study was to assess what changes had occurred in the rural food systems in the post-ujamaa era.

## Climate

The subject area for the Mwavi farm assessment is located in the north western part of the district near Kiwangwa. The climate data was taken from Kibaha weather station, as it is located closest to the farm. Figure 1 shows the historical trend; the average annual rainfall was 1013.8mm between 1965 and 1970 and that had reduced to an average of 958.15mm between 1995 and 2004; a reduction of 5.5%.

The average annual temperature range was found to be 19 – 23°C minimum and 29-32°C maximum (Mbogoni and Mwango, 2011).

The Lugoba case study also looked at climatic conditions to assess whether there had been changes in the physical environment over the period from 1985 to 2010. Figure 2 shows the average monthly rainfall from 1964 – 1993. This assessment concurred with the previous in that there are generally two rainy seasons; the masika or long rains that occur from March to April and the vuli or short rains that fall from November to December.



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**Figure 1: Rainfall comparison Mwavi**

**Figure 2: Rainfall Lugoba**

There is a dry season from June or July to August or September. The area has high humidity of up to 98% (Haapanen, 2011). Along with a reduction in rainfall, the effects of climate change appear to have made the rains less predictable over the last several decades. (Mkama et al., 2013).

## **Demographics**

In terms of population density, Tanzania is a sparsely populated country with an average density of 51/km<sup>2</sup> compared to some of its neighbours. Pwani region with 34/km<sup>2</sup> is on the lower end of the national scale. The Bagamoyo district has a population density of 39 inhabitants per km<sup>2</sup> this is a growth of 2.2% per annum between 2002 and 2012 from a density of 27/km<sup>2</sup>. This reflects the trend at National level where the population density has increased by approx. 30% in the decade between 2002 and 2012 (WorldBank, 2014).

From the latest census in 2012, the population of the Bagamoyo district is 311,740 inhabitants with an average household size of 4.4 people. This is the most populous district of the 7 in the Pwani region accounting for 28% of the regional population (NBS, 2012).

Due to the historical significance of the port and the large amount of traffic through it, there has been a large amount of migration in to the region. This has led to a diverse mix of tribes and religious orientations living in this area in modern times.

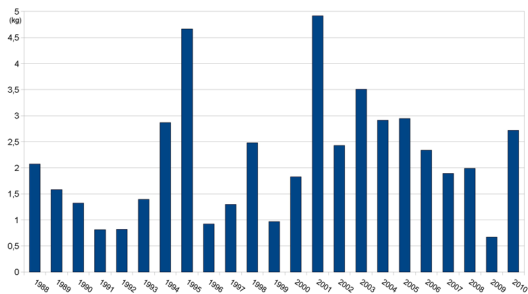
## **Socio-economic considerations**

As with most former colonies, the process of transferring land ownership to the indigenous people has been slow, however during the political debate around the issue the emphasis was on local issues of community and economy. This has resulted in a process that has three elements; a national, district and village land use plan. Villages are first registered and surveyed and then apply for village land use certificates and in turn farmers apply for a Certificate of Customary Rights of Occupancy (CCRO) (Ylhäisi, 2010).

In 2010 REPOA carried out an analysis of the determinants of rural income

Figure 3: Food aid 1988-2010

in Tanzania. The conclusion of the survey was that due to the average annual household income being less than \$150, the rural population is critically impoverished. This is borne out by the amount of food aid received by Tanzania which has shown an increasing trend over the period 1988 – 2010, see Figure 3. Although most aid was delivered to the central and north western regions, some was delivered to the Bagamoyo district (Haapanen, 2011).



While there is a large proportion of the rural population involved in subsistence agriculture, there are increasing numbers involved in off-farm economic activity. The majority of these activities consist of trading in agricultural or processed products.

## Farming & Agrarian Systems

According to the Pwani region Government office, in Bagamoyo, the percentage of the population engaged in Agriculture is 76%, and the cultivated area in the district is 75,360 (9%). Out of a potential

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area suitable for irrigation of 16,850 Ha only 720 or 4% is irrigated (Pwani, 2015).

Considering that the soil is generally poor with low levels of organic matter and the climate is dry this is a very low level of irrigation. The level of irrigation at national level is approximately 0.02%. Food crops cultivated in this area are cassava, rice, millet, legumes, maize and sweet potatoes. Cash crops produced include cashew nuts and sesame seeds.

The purpose of the Mwavi study was to determine whether this area was suitable for agricultural development. While the soil assessment found that there was variation in the soil between the upper mid and lower slopes, it concluded that the overall soil fertility in this area was low to very low. There was a very low level of organic matter in the soil and a high gravel content that did not facilitate moisture retention. The PH was between 5.4 and 6.5. Based on the soil assessment, rain fed annual (popcorn, sunflower, pigeon peas) and perennial crops (pineapple, citrus, yellow passion fruit) were selected for the study. The conclusion of the study was that in order to grow the selected crops, a programme of soil improvement would be necessary. Some of these crops could not be grown successfully in certain areas of the farm where the conditions were unsuitable (Mbogoni and Mwango, 2011).

The purpose of the Lugoba project was to assess how the land use has changed since the ujaama era. This was a much more in depth and longer-term analysis covering many aspects of rural life. Some of the conclusions outlined were that there was a small but noticeable expansion of foods due to importation from other countries. While liberalisation of trade meant the collapse of co-operatives, it had also caused a move away from cotton production in the area in favour of petty trade and charcoal production. Subsistence farming had declined and there was a noticeable loss of soil fertility. There was an increasing reliance on off-farm income generating activities due to the diminishing returns from agriculture, among other issues. While

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health workers reported an increase in nutrition, this was disputed by interviews with locals (Haapanen, 2011).

## **Livestock**

According to the Global Livestock Production and Health Atlas (GLiPHA) developed in 2009, in 2002 the Pwani region had a cattle density of 1.7/Km<sup>2</sup>, while Mwanza region in the Northwest had a density of 55.4/Km<sup>2</sup>. This indicates that relatively speaking, cattle are a low priority in terms of income generation and this concurs with the assessment by the FAO. One of the reasons is the prevalence of disease such as bovine theileriosis or East Coast Fever, which killed thousands of cattle in Bagamoyo district (Haapanen, 2011).

## **Fisheries**

It is estimated that in the region of 1,751 people are involved in fishing in the Bagamoyo district. These are mainly artisanal fishermen who fish in shallow waters near the coast. The number of people involved in fishing has doubled from approx. 600 to 1400 between 1988 and 2005. In the same period there has been a steep decline in the catches. As well as fishing, others are involved in mari-culture including seaweed, prawn farming and crab fattening. Salt production is another income generating activity in the area (Mkama et al., 2013).

## **Environment**

The East African coastal forest is designated by WWF as an eco-region. This eco-region covers 112,000 km<sup>2</sup> and stretches from Southern Somalia through Kenya and Tanzania to Southern Mozambique. In conservation status terms this area is considered to be critical or endangered and is a hotspot for biodiversity (WWF).

In Bagamoyo district there are 10 actual or proposed forest reserves Kiono Zaraninge being the largest covering 20,000 Ha. There is a major issue with deforestation in this district. It is clear to any visitor that charcoal production for cooking fuel is. This is a relatively simple and profitable source of income for the poor and along with clearing for cultivation, timber products and fire, is estimated to

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account for the loss of 2,000 Ha per year of forest (UNHABITAT, 2009).

While it has been recognised for some time by the Tanzanian government that this type of environmental degradation is detrimental for a myriad of reasons, including loss of biodiversity, soil degradation and desertification; due to the economic and demographic challenges, it has been difficult to halt the rapid rate of deforestation.

The Tanzanian government recognised the importance of managing the forest resources in conjunction with local communities in the 1990's and in 2002, the concept of participatory forest management was introduced into law. For land owned by either central or local government the process is known as Joint Forest Management. Community based forest management is practiced where the land is owned by village councils or individuals. It has been observed from some studies that once land tenure is clearly held by the village the trend of forest degradation and over exploitation was reversed. In Pwani region, 150,811 Ha is under joint forestry management and 57,401 Ha is under community based forest management (GoT, 2006).

## **Climate Change**

Bagamoyo is a coastal district and as such there are serious threats as a result of climate change that are already being felt in the area. A number of studies have been carried out to investigate the causes of environmental degradation and the effects of climate change. The predicted threats from climate change include less predictable precipitation that will potentially effect food security; more frequent and stronger storms which could affect infrastructure as well as food security; a rise in sea level which could mean communities living on the coast would have to be relocated; an increase in the temperature of the sea surface and ambient air and increased ocean acidification (Mkama et al., 2013).

## **Conclusion**

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From the literature reviewed it is evident that this is an area that has many challenges in terms of food production to support an increasing population. While the population density is not particularly high in comparison to some of the neighbouring countries, the capacity of the land to support the population has been decreasing rather than increasing. It is proposed that soil fertility has decreased as a result of the villagisation project that moved large numbers of people to locations that had not been assessed for their capacity to support the new population in the 1970's.

Historically, the rural population has been heavily dependent on subsistence agriculture and while this is now evolving to a cash economy and alternative off-farm sources of income are sought, the potential for agricultural improvements to increase living standards is clearly visible.

Improved food security, poverty reduction and a reduction in the consequential effects of poverty such as low levels of education and poor health and malnutrition are all benefits of investment in this area.

There are two large projects currently underway in the district. The first is the construction of one of the largest port in Africa. The new port in Mbegani will have a capacity of 20 million containers a year, 20 times that of the current capacity of Dar-Es-Salaam. This port will also encourage trade from surrounding land locked countries through Bagamoyo instead of Dar-Es-Salaam. This development will have major implications for the local people as 2,300 acres have been appropriated for the project that will consist of a Special Economic Zone as well as an Export Processing Zone, resort facilities and a residential area with associated facilities.

The second is a sugarcane processing facility, proposed to facilitate the growing demand for sugar and power that will also produce ethanol. This has been established in an area 20km Northwest of Bagamoyo town that had previously been a state run cattle ranch. It takes up of 22kHA that ceased operation in 1994. The Tanzanian

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government in exchange for equity in the venture provided the land for this project.

The Tanzanian Government, in its drive to encourage foreign direct investment, and to provide increased employment and more robust electricity services in rural areas has backed this project and others like it. However the structures and measures needed to govern such a venture have not been put in place and have led to conflict. According to the SEI, this drive has surpassed the capacity of the local infrastructure to maintain pace with the interest of foreign investors (Beyene et al., 2013).

The potential for economic growth for the area as a result of these developments is clear, however they will lead to a major increase in population both in the short and long term. Foundations must be laid in terms of education, skills and social supports and agricultural improvements to support this influx and to ensure that the positive impacts of this development are not outweighed by detrimental effects such as an increase in HIV transmission, and an increase in anti-social behaviour as a result of the further marginalisation of the already impoverished local communities.

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## **The Role of Energy in Development.**

*Oluwaseun Sonubi*

Energy services are vital for the enablement of human needs, like food and shelter, to be met. Important social development sectors like education and public health are also affected by the state of energy services in a country. Therefore, the quantity and quality of energy sources available to a populace is mostly indicative of the state of economic development of such people. Energy services are an integral input to the economic activities of a nation. This is especially obvious during the early stages of a nation's economic development as the share of energy services used for electricity, production services and transportation, and the amount of energy consumption per capita are key contributors to development. While modern energy services like Renewable Energy Technologies (RETs) can improve the environment, by reducing pollution for instance, rising energy demands and continued use of fossil fuels would worsen pollution and further threaten ecosystems. The relationships between development and energy are therefore quite complex as energy is intricately linked with each of the three dimensions of human development (social, economic and environment). To highlight these relationships between energy and development, in the ensuing paragraphs, this paper would analyse the role and impacts of energy in traditional economic growth and also consider the roles that energy efficiency and sustainable energy services like RETs can play in sustainable development. The paper will also cite some case studies of RE (Renewable Energy) increase in a country's energy mix and it will conclude by making recommendations regarding how sustainable energy can be employed for sustainable and equitable human development.

Energy is undoubtedly one of the most important inputs in an economy. It is however largely underrated as a driver of economic growth. According to Stern (2010), the mainstream theories of

economic growth pay scant attention to the role of energy. In his paper, Stern uses a synthesis of energy-based and mainstream models to show that when energy is scarce it imposes a strong constraint on the growth of the economy. A lot of other studies have tried to analyse the relationship between energy and economic development and most generally tend towards the conclusion that increased consumption and availability of energy is usually part of improved development, the relationship between both is however complex as it is difficult to single out the effects of energy on economic development while keeping the other multifarious factors in control. Most of the available literature therefore tend to focus on how economic development drives energy demands rather than the reverse trend. It is however clear that even though development in a traditional sense involves a number of other factors like modernization of agricultural processes, an improved education sector, evolution of labour markets, strong financial institutions and improved infrastructure provision (water, sanitation, and communications), it will be difficult to attribute success to a nation's economic development without energy development being part of such process of change. Such is the importance of energy that it could be considered as a prerequisite to economic development, especially at the early stages of development. While energy alone is not sufficient for creating the enabling conditions for economic growth, it is a certain necessity as it is virtually impossible to run a business venture/shop, operate a production factory, cultivate crops or deliver goods and services to consumers without the use of energy in one form or the other. Empirical analysis, as shown in the World Energy Outlook report (IEA, 2004) demonstrates the importance of energy in driving economic development. While noting that the neoclassical production function attributes economic growth to increases in the size of the labour force and to the amount of capital available, as well as to increases in "total factor productivity", the empirical analysis was done by explicitly incorporating an energy variable in the production

function and was used to estimate the contribution energy made to the growth of gross domestic product in several countries that grew very rapidly in the 1980s and 1990s. According to the World Energy Outlook report (IEA, 2004), Energy contributed significantly to economic growth in all countries and was the leading driver of growth in Brazil, Turkey and Korea. As intuitive as the relationship between energy and economic growth may be, it is difficult to determine the extent to which energy constraints, such as the availability and affordability, can affect economic development. The impacts of energy are also an important consideration.

The impacts of the intensive exploitation and use of conventional energy sources (mainly fossil fuels) since the industrial revolution which led to enormous economic growth across industrialized nations have been well analysed by many scholars and agencies. These impacts cut across a range of dimensions including environmental and social. Even though human activities like the use of wood to make fire has probably been contributing to air pollution for millenniums, anthropogenic air pollution has increased rapidly since industrialization commenced. The global industry's use of fossil fuels and consequent greenhouse gases emissions has undoubtedly contributed to warming the climate. According to the International Energy Agency (2013), the energy sector is the source of two-thirds of global greenhouse-gas emissions. Some of the other main areas of environmental problems that are linked with energy production and utilization are: major environmental accidents, water pollution, maritime pollution, land use and sitting impact, radiation and radioactivity, solid waste disposal, hazardous air pollutants, ambient air quality, acid rain and stratospheric ozone depletion (Omer, 2008). \*The environmental impacts of energy are however not limited to air pollution and climate impacts, as water and land resources are also affected. Since a lot of people in developing countries still rely heavily on firewood, charcoal and agro-residues to meet their basic energy needs, deforestation has also become a significant problem, which is

not unrelated to climate change. Oil spillage is another environmental vice that directly implicates energy. The use of energy sources, both renewable and non-renewable, also has social implications such as the displacement of peoples caused by the construction of large dams, while the time spent in gathering firewood is also a social impact. Across the traditional themes of development, energy is also intrinsically linked with many issues such as income generation, poverty and inequality. Modern energy services like electricity are vital for improving the livelihoods of people. Electricity is almost indispensable in our current dispensation as it is needed to power small and medium industries, run local health clinics and light up schools. Without it, rural poverty will likely not be eradicated. Improved energy services can increase food productivity and thus income generation by the use of electric water pumps for irrigation, amidst other agricultural electricity uses like storage and preservation of harvests. Better energy services could also reduce the share of household income spent on cooking and lighting, while powering machinery to permit income generation beyond daylight. Electricity also provides access to communications and information technologies that increase educational opportunities while also providing safe lighting for evening study. As local energy sourcing of firewood and biofuels is disproportionately borne by women and children, reliable and efficient energy services would free women and children for other opportunities such as income generating ones. Addressing the dependence on biomass for domestic energy demand consumption will also improve health conditions as respiratory infections caused by smoke pollution are a potential health hazard. For sustainable development to be achieved however, the production and utilization of energy has to be done in an environmentally-friendly and socially inclusive way, while also contributing to the economic growth of the country.

Sustainability is generally defined across three main dimensions: economic, environmental and social dimensions. Energy sustainability

would therefore require meeting our energy needs upon which economic development depends, while protecting the environment and improving social conditions. The present systems of energy production, distribution and use are clearly not sustainable in economic, environmental or social terms. To achieve sustainable development, it will be pertinent to find acceptable trade-offs between economic, environmental and social goals. As discussed earlier, access to modern energy services is a key requirement of sustainable development. It contributes not only to economic growth and household incomes, but also to the improved quality of life that comes with better education and health services. Without adequate access to modern, commercial energy, poor countries can be trapped in a vicious circle of poverty, social instability and underdevelopment. Increased use of modern energy by households is a key element in the broader process of human development, typically involving industrialization, urbanization and increased personal mobility. Poor people in rural areas, especially women and children, spend much of their time gathering firewood. This practice increases ecological damage while also posing health risks to the users. The need for cleaner energy sources is therefore paramount. As incomes rise, poor households usually switch to modern energy services for cooking and lighting. Increased access to cleaner and affordable energy options contributes to monetary gains among the poor and leads to better quality of life, such as an improved diet and amount of food intake, the ability to afford better health and education facilities (Barnes et al., 2010). For example, in Bangladesh, an impact assessment of its rural electrification revealed that 63% of electrified households surveyed reported an increase of income as a direct result of electrification (Berthaud et al., 2004). In Lao PDR rural electrification using solar systems has demonstrated the viability of decentralized renewable energy systems in enhancing rural livelihoods through increased income, improved healthcare and access to information (Theuambounmy, 2007).

The complex link and positive relationship between energy and overcoming poverty is very strong in developing countries. It is clearly demonstrated by the fact that poor people constitute the bulk of the estimated 3 billion people primarily relying on solid fuels (coal and traditional biomass) of which 2.7 billion people cook and heat their homes with traditional fuels and low-efficiency stoves (UNDP and WHO, 2009 ; IEA, 2010). Governments and their partners need to act decisively to accelerate the transition to modern fuels and to break the vicious circle of energy poverty and human underdevelopment in the world's poorest countries. This will entail improving the availability and affordability of commercial energy, particularly in rural areas. In order to ensure that modern, cleaner and affordable forms of energy are accessed by poor people, the right choice of energy supply has to be made. Large and small scale renewable energy technologies have the ability to fulfil all the requirements of sustainable energy earlier stated and are in the long-term, the most attractive options. The volatile price of fossil fuels has been problematic for most developing nations that are import-dependent on such energy sources, thus worsening the problem of insufficient energy development. By causing large budget and trade deficits, fossil fuels have also undermined the ability of developing country governments to meet the needs for basic services such as education, health care, and clean water. Renewable energy technologies (RETs), on the other hand, are likely to offer better job opportunities for local communities and could therefore generate a double dividend for the environment and poverty reduction, and as such present logical responses to the problems of climate change and energy poverty. Establishing local, renewable energy resources through cooperatives or small businesses can also promote community ownership of energy and encourage participation in control of energy resources, increasing energy independence and self-reliance.

Despite its impressive potential, the perceived high economic cost of RETs limits both public and private investment. The high

capital costs of installing renewable energy systems are often inappropriately compared to the capital costs of conventional energy technologies. Thus disregarding that over time, the low operating costs of renewable energy systems offset their high capital costs through avoided fuel expenses. In addition, the externalities particularly the environmental costs associated with conventional energy systems are often not fully accounted for, although this is a trend in decline. RETs have advanced quickly in recent years, and their cost has declined and their reliability has improved. The rise of RETs is being driven by technological advances, economies of scale in production, declining costs, increased environmental awareness and growing political pressure on governments. As the Sustainable Development Goals get agreed and declared in the next year, the role of energy will be an important one if the goals are to be achieved. The increased use of RETs will be an important tool in achieving the proposed goal 7: 'Ensure access to affordable, reliable, sustainable, and modern energy for all' (United Nations, 2014). Even though a single goal is dedicated to energy, its impacts will need to be mainstreamed across all other goals due to the intricate relationship between the development themes across board. One of the proposed target is to increase substantially the share of renewable energy in the global energy mix by 2030. Another one stated the need double the global rate of improvement in energy efficiency by 2030. This is another important tool in achieving sustainability of energy as wastage is a critical issue. A renewed focus on energy efficiency is already taking hold and is set to deliver benefits that extend well beyond improvements in competitiveness. Notable policies introduced over the past year include measures targeting efficiency improvements in buildings in Europe and Japan, in motor vehicles in North America and in air conditioners in parts of the Middle East, and energy pricing reforms in China and India (IEA, 2013). As well as bringing down costs for industry, efficiency measures mitigate the impact of energy prices on household budgets (the share of energy in household



spending has reached very high levels in the European Union) and on import bills (the share of energy imports in Japan's GDP has risen sharply) but the potential for energy efficiency is still far from exhausted (IEA, 2013). Further action is required to break down the numerous barriers to achieving high levels of energy efficiency so as to reduce the demand-supply gap and attain energy sustainability.

Several governments, even developing countries have taken on the initiative to increase the RETs in their energy mix. One of such countries is Nigeria. The country has a lot of potential for RETs to meet its huge energy demands. There are currently 23 grid-connected generating plants in operation in the Nigerian Electricity Supply Industry (NESI) with a total installed capacity of 10,396.0 MW and available capacity of 6,056 MW (KPMG, 2013). The energy consumption mix in Nigeria is dominated by fuel wood and petroleum products, with hydroelectricity contributing a small percentage to the mix. Over 60% of the country's population, especially in rural areas, depend on fuel wood for cooking and other domestic uses (Kankara, 2013). The present dependence on fossil fuels is not sufficient to meet the energy needs of the country, neither is it a sustainable option. In recent years, the Nigerian government has therefore made efforts through several power reform programs and policies to encourage the private and industrial use of Renewable Energy Technologies (RETs) while also working towards attracting private investment to improve the inclusion of RETs in the national energy mix. Several policy tools have been used to fashion the framework and projected timelines for the gradual transition from a fossil economy to one driven by an increasing share of renewable energy. The Nigerian Renewable Energy Master plan (REMP) seeks to increase the supply of renewable electricity from 13% of total electricity generation in 2015 to 23% in 2025 and 36% by 2030 (ECN, 2005). These targets, albeit a little unambitious, would set the country on a path of energy sustainability if the targets are met.

Another country that has followed the trend of increasing RETs in its energy mix for sustainability is Malaysia. Malaysia has adopted the Five-fuel Diversification Strategy energy mix since 1999, whereby the five main sources are oil, natural gas, coal, hydro and renewable energies (Oh et al., 2010). The energy mix in Malaysia is majorly influenced by the natural gas and oil sectors, both of which are dominated by Malaysia's state-owned national oil company, Petroleam Nasional Berhad (PETRONAS). Although the 9th Malaysia Plan (2006–2010) set a target of 5% RE in the country's energy mix, as at 2010, the vast majority of Malaysia's energy generation mix still came from conventional sources, comprising gas (65%), coal (28%), large-scale hydro (5%) and diesel (2%) (Oh et al., 2010). While the rapid depletion of fossil fuel reserves as well as climate change clamor has driven most countries towards RE (Renewable Energy) sources which are abundant, untapped and environmentally friendly, the development pace of RE in Malaysia is rather slow and still at its infancy, with its current contribution at around 1% only of the total energy mix as at 2010 (Oh et al., 2010). Presently, RE in Malaysia is still being generated on a small-scale basis only, for example, most of the solar power used in Malaysia is domestic level only (mostly for solar thermal), and large scale commercial use is not significant yet even though it may be quite feasible to set a target of about 10MW of grid connected photovoltaic system for Malaysia (Sopian et al., 2005). The share of hydropower in the generation mix is expected to increase from 5% in 2008 to 35% in 2030. According to Oh et al., Energy Efficiency (EE) is also explicitly addressed in the 9th Malaysia Plan (2006–2010) besides promulgating the use of RE to ensure energy supply sustainability for continuous economic growth. The EE programs focus on energy saving features in the industrial and commercial sectors as well as residential in the domestic sectors.

The progress in bringing RE generation into the mainstream has been slow and financing is still an issue. For any green technology industry to succeed, the right support mechanisms must be in place to

create the market. One of the key stumbling blocks is the prohibitive price of RE that gives households and businesses little incentive to adopt the technologies. A lot of people have become accustomed to cheap energy, with several governments still subsidizing natural gas and diesel/petroleum. If RETs are to become the mainstay of most economies, it is important that RE use is encouraged by subsidies and export credits. Governments need to fund research to overcome technological barriers and create public policies that will address existing market failures so as to create a level playing field for these technologies and drive down costs. The role of governments is critical in order to find innovative ways to generate public will and private sector support in pursuing sustainable energy agendas. So far, the arguments in favour of supporting RE have been overwhelmingly environmental, for a successful overhaul of fossil fuel usage however, RE also has to make economic sense to all actors. If this is achieved, RETs and EE policies, amongst others would promote a country's energy independence, conserve and minimize the impact on the environment, enhance the national economic development through the use of technology and improve the quality of life for all its citizens if such sustainable energy is equitably distributed.

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## **Why should we be concerned about environmentally induced migration?**

*Kerstin Rieger*

### **Introduction**

*“In coming decades, climate change will motivate or force millions of people to leave their homes in search of viable livelihoods and safety. Although the precise number of migrants and displaced people may elude science for some time, all available estimates suggest their numbers will be in the tens of millions or more. The mass of people on the move will likely be staggering and surpass any historical antecedent.” (Warner, Erhart, & Sherbinin, 2009, 1).*

Researchers, activists and the media have given vast attention to environmentally induced migration in recent years. Weakening ecosystems, vulnerability to natural disasters, steady climate-driven environmental changes and degradation is placing pressure on human migration and can lead to future crisis in sustainable development (Areikat, 2010). One of the most influential estimates from analysts set the number of ‘environmental refugees’ at 200 million by 2050 (Kraler, Cernei, & Pohnitzer, 2011). A staggering 98% of people affected by climate related disasters live in developing countries (Laczko, 2009). Do these people actually have a choice in relocating or not? People clearly have very little choice in situations like natural disasters. However in circumstances related to gradual environmental change, migration is likely to be more voluntary (Laczko, 2009). From

a human development perspective key policy implication ensures people do have an actual choice between staying or leaving (Laczko, 2009). This essay aims at critically discussing environmentally induced migration and its related impacts on human security and well-being. The debate begins with highlighting some consensus, controversies and diverse legal perspectives as well as conceptual gaps for policy analysis and finishes with distinct actions, which must be taken immediately.

### **Consensus within a controversial concept**

Efforts to outline and conceptualize an internationally accepted and stable definition for environmentally induced migration and as a consequence the migration of people due to harsh environmental incidences has been as controversial as the concept itself (Assan & Rosenfeld, 2012). However, the concept really caught some attention when Essam El-Hinnawi invented the term ‘environmental refugees’ and used it in his paper he wrote for the United Nations Environment Programme (Assan & Rosenfeld, 2012). One of the big hurdles faced within the conceptualization of environmental migration relates to the difficulty of recognizing the environment as the only reason causing the displacement (Assan & Rosenfeld, 2012). The IOM describes environmental migrants as

*“Environmental migrants are persons or groups of persons who, for compelling reasons of sudden or progressive change in the environment that adversely affects their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad”* (IOM, 2007, pp. 1-2)

Since the IOM definition, the debate on defining the term appears to have come to a halt whereby no subsequent advances on an internationally recognized definition were made, thus, perpetuating the confusion surrounding the term (Assan & Rosenfeld, 2012).

Environmental and natural factors are closely interlinked with social, economic and political factors and therefore they shape a

complexity of multiple sources leading to migration (Castles, 2002). Researchers have associated four ways where increased population movements potentially link to climate change: Acute natural disasters, such as typhoons and hurricanes, which force people to move; intensification of slow-onset natural disasters, such as drought and desertification, where populations may leave slowly over time as livelihoods are threatened; sea-level rise which undermines or even destroys livelihoods; conflicts caused from competing over essential natural resources, which leads to displacement. All the factors mentioned above will have security implications and therefore need to be dealt with very seriously (Gonzalez, 2010).

A research study which focused on the migration dynamics that may arise in Bangladesh as a result of climate change indicated the predicted changes in population densities across the country. It shows the internal migration from Western and Southern districts towards North and East due to droughts and vulnerability to floods and cyclones and predicted internal migrants of up to 10 million over the next 40 years (Hassani-Mahmooei & Parris, 2012). Laczko pointed out that the amount of people affected worldwide by slow-onset disasters such as floods (2.8 billion) and droughts (1.6 billion) is a far greater number than sudden events such as earthquakes (134 million), volcanoes (4.2 million) or storms (718 million) (Laczko, 2009).

### **Controversies**

Three topics are currently dominating national and international political discussions: Climate change, security and migration. However, it is clear to policy makers what the consequences of failure to ensure human security might be (Warner, 2008). Additional controversies exist related to the following question: “Should the United Nations Framework Convention on Climate Change (UNFCCC) recognize climate migrants? The advantages would be to ensure a fair distribution of cost burden and climate migration relevant debates are already underway in UNFCCC processes. Likewise, it fits with the adaptation mandate of UNFCCC and mitigation focus

addresses an underlying cause of climate migration. Furthermore, funding could be operated through existing adaptation funding mechanisms and there is an almost universal membership guaranteed (Gibb & Ford, 2012). Nevertheless, there are also risks attached to UNFCCC recognition such as oversimplification and the implementation could suffer from a lack of enforcement. Further, inherent weaknesses of the UNFCCC may limit progress and the restrictions on funding mechanism may inhibit effective results (Gibb & Ford, 2012). There are various existing frameworks and conventions in place to protect the rights of people forcibly displaced by conflict or ill treatment and to some extent by conflicts over resources or natural disasters. Yet, there are plentiful gaps in international law with regards to the protection of people displaced due to environmental degradation and the effects of climate change (Assan & Rosenfeld, 2012).

Numerous debates are on-going to define an 'environmental refugee'. According to the United Nations High Commissioner for Refugees (UNHCR), the 1951 Convention on Refugees and 1967 Protocol a refugee is

*'A person who owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion, is outside the country of his nationality, and is unable to or, owing to such fear, is unwilling to avail himself of the protection of that country'* (UNHCR, 1951).

Though Kraler et al. (Kraler, Cernei, & Pohnitzer, 2011) suggested to use the term "environmentally induced migrant" to represent the broader picture, as the term 'environmental refugee' was challenged in political and academic discussions. Furthermore they suggested using the term "environmentally induced displacement" to express forced forms of mobility primarily provoked by environmental change. Distinctive policies and reactions are needed during different stages of environmentally induced migration, ranging from actions to ease climate change, the offer of protection during the



displacement as well as resettlement and integration measures (Kraler, Cernei, & Pohnitzer, 2011). Another issue related to the definition is that it is understood that after the persecution has ceased the refugee will return to his home country. However in some cases such as the submersion of coastal areas or islands because of sea-level rise a return might be impossible. This illustrates the limitation of the term and therefore it must be expanded to adjust it to different trends and a larger scope (Zetter, 2008). Additional controversy over clarity lies in the legal framework protecting those who migrate or are displaced as a result of environmental impacts (Assan & Rosenfeld, 2012). For instance, the Guiding Principles on Internal Displacement states important although not binding obligations and rights, whereas the 1951 binding UN Convention Relating to the Status of Refugees clearly does not apply these (Global Migration Group and UNFPA, 2010).

### **Conceptual gaps**

Intense debates amongst academics are linked with the issue of statistics within environmentally induced migration (EIM). It holds one of the most important parts in the process of dealing with the issue of human displacement because of environmental modifications (Assan & Rosenfeld, 2012).. As referred to earlier on, the agreement on a definition is interlinked with establishing a suitable legal framework and consequently set the specific criteria necessary to measure the number of people affected by EIM. Assan et al. (Assan & Rosenfeld, 2012) highlighted, there have been numerous attempts of calculating the number of people displaced due to climate change, however these efforts have been met with much criticism as they are very poorly documented with hardly a data table to be found. There is a severe lack of research and data on environmental migration overall and in particular in climate change induced migration (Global Migration Group and UNFPA, 2010). Boano attributes the complexities of evaluating the number of environmental migrants to the 'lack of conceptual development and a vagueness coupled with

statistical biases that compromise the possibility to produce data that is meaningful, reliable and comparable' (Boano, 2008, p. 14).

Of the nearly 1 billion migrants in the world, 740 million are internal movers (Pereira, 2010). However, there are more than a dozen countries, which will face severe food security issues due to increased droughts and therefore significant higher international migration rates are expected; 40% to 150% increase in international migrants in the next few decades. It is key to prioritize these countries in future research (Laczko & Aghazarm, 2009). Furthermore researchers need to anticipate how much of these increases are related to slow-onset climate disasters and where they will strike to help governments to effectively manage these flows. The success rate of adaptation programs will increase if they consider how to provide people with a choice to migrate or to remain in their communities (Laczko & Aghazarm, 2009). There is also a lack of research on the consequences of climate-related migration and the health of people who move (McMichael, Barnett, & McMichael, 2012).

It is surprising how little is known about the potential of climate change and other forms of environmental change to severely affect human mobility (Stal & Warner, 2009). Policy intervention is necessary on a global level to prevent climate migration from worsening into a humanitarian crisis to guarantee that people confronted with climate change induced pressures have feasible options (Gibb & Ford, 2012). Legal international recognition is an absolute must to ensure the protection of climate migrants. Therefore the United Nations Framework Convention on Climate Change could be an appropriate option for the addition of a protocol on climate-induced migration and should be considered (Gibb & Ford, 2012). Currently, there is no distinct instrument applicable to environmentally displaced individuals at EU level (Kraler, Cernei, & Pohnitzer, 2011). High importance must be placed on people who are unable to migrate instead of just on those who move, when developing

protection policies are put in place, as they may be even more vulnerable to the effects of climate change (Laczko, 2009).

Gonzalez (Gonzalez, 2010) looks at the different adaptation strategies and suggests the following: Population trends and distribution as well as pro-active urban planning must be included in the adaptation planning as well as their impact and vulnerability assessments of international and national migration. The focus has to be on the most vulnerable such as indigenous people, women and children and support has to be provided to address climate-induced relocation. Furthermore, risk management and contingency planning for vulnerable populations and areas have to be put in place.

Policy makers are struggling due to a severe lack of research and data availability. Wide gaps exist in scale, content and methodology and frameworks for suitable management strategies. Therefore a distinct investment in both short and long-term research, data collection, and monitoring of projects must be made (Laczko, 2009).

Black et al. suggests a new framework to understand the effects of environmental change on migration. The framework would include economic, social, demographic, political and environmental drivers and is applicable to both national and international migration. It would emphasize in particular on the household and family characteristics as well as on facilitators and barriers to movement in translating drivers into actions (Black, Adger, Arnell, Dercon, Geddes, & Thomas, 2011).

### **Conclusion**

Policy makers, civil society, the scientific community and other actors play a crucial role in shaping the responses to conflicts and natural disasters. They must pursue solutions for those people who are currently migrating or will in the future, to protect their lives and livelihoods when they are unable to remain. Identifying adaptation strategies that allow people to remain where they currently live is essential to obtain sustainable and safe existence in the future. Human security in relation to climate change requires freedom from fear and

therefore demands urgent policy attention and action today. More consideration must be placed on identifying and testing new frameworks for managing possible movements given the existing gaps in applicable migration policies. The focus needs to be on both sides: migration and environment, whereas human well-being cannot be neglected. All countries and governments must make sure that environmentally induced migration doesn't threaten human security and therefore it is a matter of immediate policy relevance. National development frameworks as well as other areas of policy, including urban planning, trade and disaster risk reduction, and poverty reduction strategies must integrate environmental migration. A definition for an environmental refugee, which is internationally recognized, is urgently needed. People obliged to leave their homes because of environmental reasons must be granted the same rights and given equal protection as refugees forced to leave for different reasons such as armed conflict. Relocation planning must engage with the local communities in the political arena. Furthermore, close co-operation has to be fostered in the research community especially between environment and migration researchers.

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## **Does Community Based Conservation Work?**

*Josephine O'Brien*

Community-based conservation (CBC) is a relatively new mechanism used to conserve the local environment. It is carried out with the help and knowledge of the local population. This paper will look at the difficulties of defining CBC, why communities adopt this process and its history. The paper will also assess whether CBC does indeed work and how effective it is. This paper will contend in general that CBC does work with the right tools. Finally, this paper will contend that the benefits for CBC not only lie in the local environment but the benefits are abundant on a socio-ecological level.

It is hard to find one true definition of CBC. Neither the words community nor conservation have a universally agreed definition. The lack of clarity in these two words results in the definition and description of CBC to be quite ambiguous. The Oxford Dictionary defines the word community as “a group of people living in the same place or having a particular characteristic in common... the condition

of sharing or having certain attitudes and interests in common... a group of interdependent plants or animals growing or living together in natural conditions or occupying a specified habitat” (Oxford Dictionary, 2013). From a sociological aspect, a sense of community is something that is experienced differently by different groups of people dependent on their background. With this in mind CBC would have to be a versatile process, one that can be tailored to each differing community. Conservation is defined by the Oxford Dictionary as “the action of conserving something...preservation, protection, or restoration of the natural environment and of wildlife” (Oxford Dictionary, 2013). The act of conservation is to protect natural resources, animals, plants and their habitats. Conservation allows the sustainable use of natural resources for humans (Soule, 1986).

When considering the reasons why communities partake in CBC, examining the costs and benefits associated with the process give a fair indication to the outcome. The benefits can be multiple and the costs preliminary high. For a community to conserve their local environment they must believe that the benefits of conservation are greater than the costs for conserving the resources, otherwise it is seen as a pointless exercise. The benefits can be economical, developmental, social and cultural. As mentioned previously community is something that is experienced differently by everyone. What may be considered a benefit of CBC in the developing world may not be considered a benefit by a community within the developed world, it is dependent on the communities’ values. Every community lies within a local and global context and the success of CBC is inherent of the constraints of human society. If CBC is directed well, the community is able to control their failure, yet if there is a lack of community capacity the project of conservation may fail.

Before CBC, conservation was the main process that occurred, the difference was conservation did not incorporate the help of the local community. Conservation was a process recognised and employed on an international level as the loss of global biodiversity was too great and the earth was unable to recover at a rate fast enough.



The process of conservation ignored community-based practices, displaced local populations and destroyed local cultures and traditions. The original form of conservation involved trying to protect ecologies but not the community. CBC is a lot more ethical than conservation (Mbaiwa, 2005). Rather than the local government seeing the problem of destroying a local culture it was non-Governmental Organisations (NGOs) that noticed the issue. NGOs stepped in and tried to correct the mistakes of governments, but it has not been the simplest of tasks to carry out (Clark and Cragun, 1991).

In 1975 the International Union for the Conservation of Nature (IUCN) first introduced the concept of CBC. It has taken many shapes and forms since (Cholchester, 2004). It stipulated that there should be a recognition of the rights of indigenous people and recognised their rights of the protected areas, that they could not just be displaced from the land. Policy changes have been introduced and implemented and have attempted to increase the rights of indigenous people. It was from this that CBC came into place.

Communities have a vital role in biodiversity conservation. Managing the ‘commons’ is something that is often forgotten and ignored (Berkes, 2007). More focus on “the damage that innocent actions by individuals can inflict on the environment” is essential (Hardin, 1968). The main role the community have is to conserve biodiversity, meeting social needs, such as maintaining local culture, increasing opportunities for income generation, and improving health and well-being, lowering management costs and sustaining outcomes over time. The process of conservation is constantly changing to involve the local community and people in radical new ways. This constant change in development of conservation, e.g. different techniques employed in conservation, means that it is incorporating the new knowledge learned of ecology. Nature is now recognised to be a force that is dynamic and changing. Where mans’ actions are a part of, not separate from, an integrated whole (Botkin, 1992). CBC spans a wide array of approaches that share the dual beliefs that involvement of communities living in the area to be more protected is more ethical and also more effective.

One of the earliest examples of CBC can be seen in Tanzania, in the Ngorongoro Conservation Area. Conservation was implemented as Maasai pastoralists had been displaced from their homeland to create National Parks. This tended to be the main instigator for the process of CBC to be employed. Thirty years on and one of their main goals was met, and it is still possible to see Rhinoceros (*Rhinocerotidae*) grazing in Tanzania. Because, this example of CBC worked so well it led to this process being adopted by other communities. The Serengeti Regional Conservation Strategy and Selous Game Reserve in the 1980s was established to continue CBC and help local communities. They have helped the communities by teaching them how to use the land efficiently without further damage to the land, giving them a quota so they can still hunt but without endangering the population (Leader-Williams et al, 1996).

When discussing socio-ecological interactions one must bear in mind there has been shifts in focus of the conservation of nature as managed through exclusive state control, to nature as managed through inclusive, participatory and community based endeavours. Communities are now included in the politics and policies of conservation. They remain peripheral to defying the ways in which conservation is perceived and nature is managed. Local communities are seen as tools and commodities rather than actively knowing agents of CBC (Igoe and Brockington, 1999; Ribot, 1999).

There are many difficulties to come with CBC on this level. A political decentralization is seen, there is a shift of power from the state to the communities. This leads to the introduction of new laws. The introduction of a wider policy framework is essential for any future projects of CBC. It would encourage more communities to conserve their lands and wildlife. If we examine CBC within the scope of Tanzania National Parks (TANAPA) a lot of change has to occur. Yet, this leaves little inclusion of complex local knowledge systems.

CBC though its aim is to keep local traditions, it also breaks some to create a more democratic community. In some cases it has empowered women, educating them and increasing their rights, so that

they are equal to men (Mukadasi and Nabalegwa, 2007; Aswani and Weiant, 2004).

Socio-economic differences often influence participation of a community in CBC and the end result (King, 2007). The perception of game reserves in South Africa would be a primary example of this. When institutions, NGOs, take over the running of a CBC operation they may put a lot of focus on the communities' cultural aspect, as to not fall into the pitfall that earlier conservation projects did. King (2007) notes that the younger generation may not have an interest in tribal traditions associated with the community, thereby institutions focusing on old traditions may not always be what all members of the community want. Institutions should try not to associate "community" and traditional structure.

Myers (2002), believed that social and political issues must be evaluated at a local scale. These issues can have a knock-on effect of the outcome of CBC. A way must be found to work across different political systems for CBC to work effectively (Vasseur and Hast, 2002). Many communities that engage in CBC tend to be in countries that do not benefit from living in a democratic society under democratic rule. This leads to many communities having a total distrust of governments and other institutions that are separate from their community. Campbell et al (2007) and Mallory et al (2006) talk about this distrust and how communities can be unwilling to partake in CBC programs. Balint and Masinya (2006) and Brockington (2007) also focus on this distrust and how political unrest causes the failure of CBC. The CAMPFIRE program in Zimbabwe due to the breakdown of government and in Tanzania the corruption of local government and interference from central state and district government respectively.

There is a multilevel organisation of social systems involved in conservation. There are institutions present at every level, from regional to international. An idea that is reflected in the 'commons' literature implies that processes at these levels require different concepts and principles. Yet, it is observed that both these concepts and principles tend to overlap (Dietz et al, 2003; Poteete et al, 2004).

Every level of the scale is different causing the perspective from each respective level to be different also. The view and thoughts of biodiversity on an international level are going to be much different on a regional level.

If we bring it back to Hardin's idea of the 'Tragedy of the Commons'(1968), on an international level it is viewed as a global commons, while on a regional it is seen as local commons for livelihoods. This does not mean that the view on the international level is correct and the view on the regional level is wrong, or vice versa. Both are equally correct from their own point of view. On a regional level CBC is most likely to be carried out with local knowledge for guidance. Meanwhile, on an international level the findings of science would influence the process of CBC, which could lead to conflict on how CBC is carried out and the success rate of CBC. This difference in approaching resource systems, because of the differences in knowledge and understanding of the area, have to do with the level at which the information is obtained (Reid et al, 2006).

Biodiversity conservation and social-ecological systems should not be viewed as complex. If CBC is approached with a view focusing on its complexity rather than its simplicity then CBC has the capacity to become another panacea. Berkes in 2007 examined CBC within a globalized world and he argued that "implementing governance to deal with the complexity of biodiversity conservation requires developing the capacity to deal with multiple objectives, using deliberate processes and partnerships, and learning lessons from common research".

There are many examples to verify that yes CBC does work. Not only does it work but it is also beneficial to the local population of the area and the local biosphere. CBC has been seen effective in many places.

Despite this essay focussing on CBC in the developing world, CBC projects do exist in the developed world. In the west a major concern is overfishing. As fisheries are declining due to overfishing it is clear that on some level management practises are failing (Acheson et al. 2000). The failure of management of fisheries is seen on a global

level (Clover, 2006). The loss of this biodiversity could have catastrophic consequences. The management of fisheries holds problems in their approach. The lack of understanding has given the opportunity to restructure the management framework (Holling, 1986). One example of a failing fishery was Pacific Salmon in the Pacific Northwest. Local councils in the area are trying to change the management structure to prevent extinction of Pacific Salmon and the depletion by partaking in CBC. Before it was recognised that change would have to occur, fisheries in the area were run by bureaucracies who were only concerned with the economic net value of the fish population (Lichatowich, 1997). In the process of conservation they took the Native Americans way of dealing with the fishery that had worked many years before without worry of a loss of population. The Bonneville Environmental Foundation have played a massive role in this CBC. One of their criteria to provide financial help with this conservation project was that the locals had to support and be involved in the process (Reeve et al, 2006).

In Botswana there are agencies present whose sole purpose is to implement conservation programs, in particular CBC. Yet these agencies got into a spot of difficulty when it became apparent that poachers were still active in the 1980s and 1990s. The government had become dependent on bureaucratic approaches to conservation that were shutting out communities rather than bringing them in on the process (Hulme and Murphree, 2001). CBC now had to follow new sets of rules and guidelines. Two major policies included the Tribal Grazing Land Policy (TGLP) and the Wildlife Conservation Policy 1986. The TGLP concerned the privatisation of grazing commons (Peters, 1994). Whereas, the Wildlife Conservatoin Policy encouraged economic benefit of wildlife. Community-Based Natural Resource Management (CBNRM) has helped provide income for some rural communities. It is not all good though. CBNRM has suffered from poor management and became too reliant on external funding for their projects. In the end it ended up as a revenue sharing mechanism (Arntzen et al, 2003), which would not be one of CBCs main objectives. Despite CBC did not give everything managed on this

occasion, the elephant population is better than it was before CBC was employed.

The object of CBC is to incorporate improvement to the lives of local people while conserving areas through the creation of national parks or wildlife refuges (Gezon, 1997). CBC is a process that needs to be adopted for many areas that are under threat. By merging both knowledge from the local people and the knowledge obtained from science you may have a high success rate of CBC. But when you consider that most CBC projects are carried out in the developing world scientific groups may not be willing to go in and educate the local people and the local people may not be willing to accept such help. They may rather prefer to follow in tradition on how to manage their land. Of course from the case studies that have been mentioned previously, it can be seen with the right tools and initiative carrying out CBC has multiple benefits for the local community who are willing to accept help from international and local groups.

Some political systems that have acted in a way that maintain ecological resilience and conserve biodiversity in the past are now vulnerable to competition from larger and more powerful political and economic interest in an ever progressive globalised world. This can destroy incentive for conservationist practise and communal management from the local population and local interest groups (Smith and Wishnie, 2000).

There is not one definite answer for the question “Does CBC work?” Different preservation sites have illustrated that CBC can work and also highlighted the difficulties with CBC. However reasons for its failure can vary from inadequate resources, uneven implementation, to over wishful planning. Despite this, CBC has become a popular progress. In the future it may be difficult to find a conservation site that is not the result of CBC. CBC can only work if NGOs and communities share responsibility and management.

Looking at past conservation projects is a good way to alter and tailor projects so that communities involved get the most from CBC. It is both useful for educating people, conserving the environment and on some occasions providing an income on some occasions.

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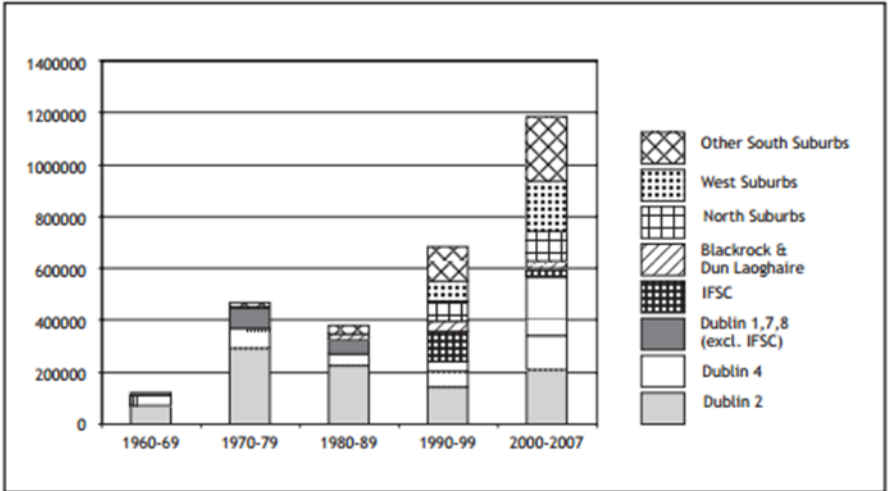
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## **The Factors underlying the changing location of office functions in Dublin since 1960.**

*Lynn Waller*

Dublin has witnessed an exponential rise in demand for offices since 1960, which has changed the spatial structure of office functions across the city and its suburbs. Dublin's inner-city has experienced a movement of office locations, however, the overall trend has been the decentralisation of office developments, illustrated in figure 1 below (Healey and Ilbery, 1990). Office development completions in Dublin have occurred in cycles since 1960, reflecting international economic growth norms, creating office spatial patterns reflected in American and European cities (MacLaran et. al., 2010). This has resulted in a

pulsating growth of office space into Dublin’s hinterland (McCartney, 2008).



Source: CURS TCD/Savills HOK database

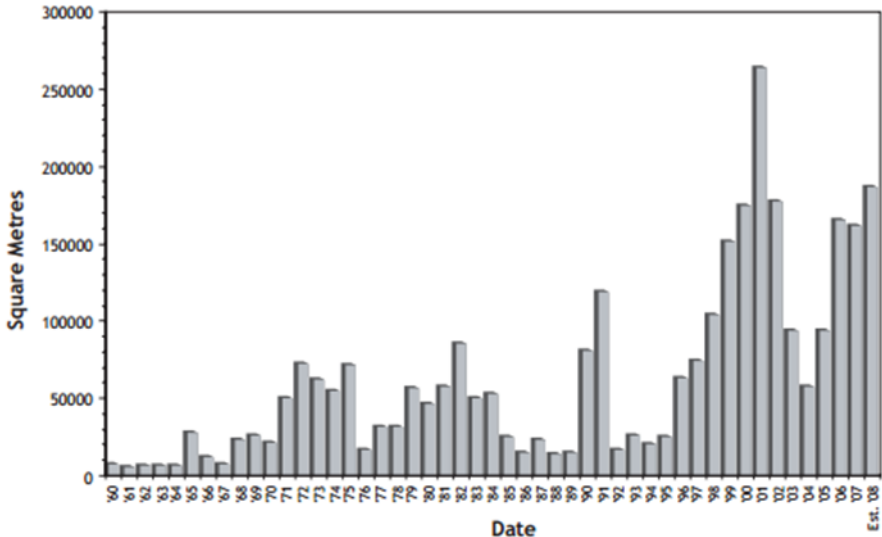
Figure 1: Geographical diversification of office development in Dublin over five decades (MacLaran et. al., 2010).

Up to and including the 1960’s, Dublin’s dominant office core was situated in terraced Georgian buildings in the prestigious areas of Dublin 2 and 4, south-east of the city centre including Merrion Square and St. Stephen’s Green (Malone, 1981; McCartney, 2008). This continued throughout the 1960s, with 3% of office completions located in Dublin’s suburbs (MacLaran et. al., 2010). The 1960’s saw the beginning of purpose-built ‘modern office’ developments in Dublin, such as Liberty Hall (McCartney, 2008). The 1970’s began the spread of office development north of the River Liffey to Dublin 1 and 7, for example, Park House (MacLaran and Killen, 2002).

During the 1980’s the suburban trend of office developments began in earnest. 15.25% of office completions occurred in the outer suburbs, with a majority (6.15%) built in the south-suburban nodes of

Blackrock and Dun Laoghaire (MacLaran et. al., 2010). By the end of the 1980's, 9% of total office stock was situated in suburban nodes, office parks and isolated blocks (MacLaran and Killen, 2002). Office stock rose by 70% in the 1990's beginning with the 1990/1991 office boom. The spatial distribution of offices widened considerably, with 48% of developments during the 1990's completed in Dublin's suburbs. Most developments occurred in the southern suburbs, including Sandyford-Leopardstown, Clonskeagh, Dundrum and Stillorgan. Some western and northern sites developed to a lesser extent, including East Point Business Park, Citywest, Santry, Tallaght and Park West (MacLaran et. al., 2010).

Despite the unprecedented growth of suburban office completions, city centre development continued in the 1990s and early 2000s, with the development of Dublin's docklands and the Irish Financial Services Centre (IFSC). Office completions peaked in the early 2000s, until increased vacancy levels of 20% curtailed development from 2004 onwards, as illustrated in figure 2. A down-scaling of office completions ensued, exacerbated by the 2008 economic downturn (MacLaran et. al., 2010).



Source: CURS TCD/Savills HOK database

Figure 2: The development of office space in Dublin from 1960 (MacLaran et. al., 2010).

The changing spatial configuration of Dublin's office functions since 1960 has occurred for many reasons. The various factors and geographical scales involved will be outlined and examined, in order to understand the processes changing the location of office functions.

### **Land Availability and Rent Cost**

Rent is the highest cost of occupation for office-based firms and is one of the main factors for a company when deciding its location. Rent is primarily determined by the location of the offices, the city centre being the highest cost. The level of rent cost decreases with distance from the prime Dublin 2/4 hub, because demand for offices is greatest where there is limited supply of land available for development. This will now be examined for Dublin in terms of both demand and supply.

Economic growth in Dublin in the 1960's led to an expansion of the service sector and hence an increase in office development across the city (MacLaran, 1999). The 1970's witnessed a further rise in public-sector demand and developers began seizing opportunities to create new space in Dublin's inner city, knocking down much of Dublin's oldest and finest buildings, despite heated protest (McDonald, 1985). Ireland's economy experienced unprecedented GDP growth in the 1990's, leading to the office boom of 1990-1991 (Bertz, 2002a). This increased the scale of the services sector, furthered employment in services and increased competition for the limited space for development in the inner-city (MacLaran and O'Connell, 2001). This made it more expensive for developers to buy sites, leading to soaring rental values for occupiers, particularly after 1995. City centre rents then became unaffordable for many of Dublin's office-based industries (MacLaran and Malone, 1985; MacLaran and O'Connell, 2003).

From the 1970's developers began to find cheaper 'off-prime' sites in order to address the high levels of user-demand (Burke-Kennedy, 2014; MacLaran, 1999). This process is complex, as it is difficult to predict the market and ensure occupiers will locate in offices upon completion. The move away from the established office core was further facilitated by the economic boom of the 1990s, as it made it easier to take such risks (MacLaran and Kelly, 2014). These new locations in Dublin's north inner-city and suburbia provided cheaper rents for occupiers for whom the prestige of the traditional office core was not of prime importance, and would instead benefit from lower overheads, rent and business rates in the suburbs. Those companies who remained in the inner-city, despite higher rent costs, placed more importance on corporate image and prestige (Bertz, 2002a).

### **Government Policy**

Dublin's planning policies have greatly influenced the spatial configuration of the city's office functions (MacLaran, 1999). Before

the Planning and Development Act 1963, there was no legislation preventing the destruction of Dublin's inner-city buildings for the creation of new offices (McDonald, 1985). To the dismay of much of the public, "grotesque modern office blocks" were erected in the place of Georgian buildings (McDonald, 1985: 1). However, the 1963 Act put controls into place, making it increasingly difficult for developers to find new inner-city office locations. Suburban land was developed, where there was ample land available and fewer restrictions on building conservation, height and density (Bertz, 2002a).

The increasing popularity of neoliberal policies in the 1980's was evident in a series of tax incentive schemes to undertake Dublin urban renewal, stimulate employment and encourage investment (MacLaran and Kelly, 2014; Williams, 2006). These incentives became available in the 1990's, encouraging service industries to locate in areas of Dublin inner-city and its suburbs, such as Park West. Most tax incentives came about due to the Urban Renewal Act 1986, which created Designated Areas for fiscal incentives along the inner-city fringes. The incentives encouraged high office-development growth rates in the 1990's, demonstrating that such



Figure 3: Current administrative boundaries of Dublin (MacLaran et. al., 2010).

programmes have significant influence over urban development (MacLaran, 1993; Williams, 2006). A hugely successful example of this is the IFSC which commenced in 1987 (Bertz, 2002b). Enterprise Zones were set up in 1994 at Grand Canal Quay and East Point Business Park (Bertz, 2002b). By 1996, 100,900m<sup>2</sup> of office space was built north of the river and 39,555m<sup>2</sup> south of the river, which successfully attracted large companies such as Telecom Eireann and ESAT (MacLaran and Kelly, 2014).

Dublin's docklands regeneration is a prime example of Irish government planning policy successfully influencing the changing spatial configuration of offices. Irish authorities invested in the docklands from the 1990s, in order to renew the area and attract investment (Drudy, 1999). The Dublin Docklands Development Authority (DDDA) was set up in 1997 to oversee the project. Fiscal incentives such as tax allowances, rates remission and rent allowances were provided in order to stimulate private-sector development and improve the area (Drudy, 1999).

### **Accessibility and Transport**

Accessibility for labour force is crucial when locating offices. Dublin's office-based workforce has traditionally relied on the radial pattern of public transport, therefore requiring a central location (MacLaran and Killen, 2002). The arrival of the DART train in the 1980's refocused office functions from the southern fringe of Dublin's office core to a north-eastern zone around Westland Row, where Pearse Street DART Station is situated (MacLaran, 1999). This development demonstrates the extent to which transport planning influences the locational patterns of offices (MacLaran, 1993). The building of high-quality suburban rail, Quality Bus Corridors and the Luas tram across Dublin's suburbs, have further facilitated the development of office parks such as Sandyford and Park West, by increasing workforce accessibility (MacLaran et. al., 2010).

Irish society has experienced a major shift towards car ownership and therefore a heavier reliance on the car for commuting. Therefore,



it has become more feasible to locate office-based industries in the suburbs, where public transport is not required to the same extent as in the inner city, particularly since the development of the M50 ring-road (MacLaran et. al., 2010). These commuting patterns reflect those of the USA, as workforces commute from suburb to suburb, instead of commuting into the city (MacLaran, 1999). The availability of large suburban sites provides ample land for car-parking, which cannot be found in the inner-city (Bertz, 2002a).

### **Telecommunications, Services and Facilities**

One of the major factors facilitating the decentralisation of office functions is the development of telecommunication and Broadband facilities. Historically, office-based industries clustered in order to communicate with trading partners, facilitate meetings and function more efficiently (Bertz, 2002a). However, physical proximity to Dublin's office core has diminished in importance as increased availability of telecommunications has improved communication by technology, thereby lowering the necessity for concentration. It has led to a redefinition of how space is used, perceived and controlled, as industries are now capable of reaching wider hinterlands (Bertz, 2002a).

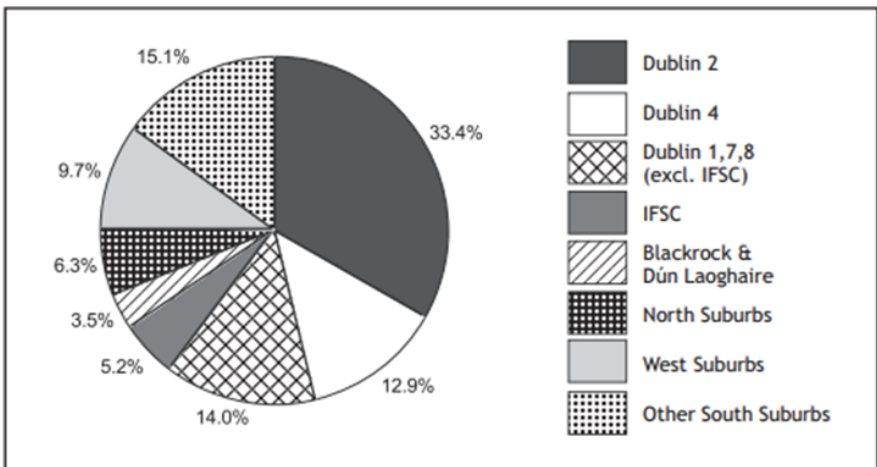
Particularly for call centres and IT companies, the development of Broadband and fibre optics has been fundamental in the establishment of footloose industries, capable of situating away from the office core. Agglomerations of industries in office parks such as Citywest (National Digital Park), allow for cheap access to such services, as many industries can be linked to the same teleservices networks (MacLaran, 1999).

The suburbanisation of office functions has been additionally facilitated by the development of office parks, as they provide a focus for services such as shops, restaurants and gyms which appeal to workforces and therefore attract occupiers.

### **Changing Work Practices**

The world has experienced a major shift in the nature of work from manufacturing to service activities (Drudy and Walker, 1996). Many of these involve the development of software, which is manufactured at a desk. They therefore require office functions as their base, which has increased demand for office developments in Dublin as the city attracts foreign investment (Bertz, 2002a).

Since the 1990's, Dublin has attracted an increasingly diverse market of industries, namely international firms including Google and Microsoft, which present new office requirements. ICT, financial and professional services companies are highly mobile and exhibit few locational constraints (Bertz, 2002a; Burke-Kennedy, 2014). This is creating a new type of 'footloose' office demand which reshapes Dublin's office-space structure, as international clients require new locational criteria; ample floor-space, cheap rents, low rates and excellent telecommunication services (MacLaran et. al., 2010). Dublin's suburban locations and office parks, such as Citywest, Sandyford and Swords, provide exactly what is required by these firms, creating a geographical diversification of demand and dispersion of office functions (Bertz, 2002a).



Source: CURS TCD/Savills HOK database

Figure 4: Location of the modern (post-1960) office stock in 2007 (MacLaran et. al., 2010).

## **Discussion and Conclusion**

The combination of factors examined above has produced a new geographical spread of offices across Dublin since 1960. While the traditional office core of Dublin 2/4 still dominates today, the city has witnessed a spread of producer services and a decentralisation of office-based activities into its wider hinterland, as illustrated in figure 4 (Healey and Ilbery, 1990).

This has occurred due to recent Irish economic growth, creating a greater demand for office space. Soaring rent prices in the central office hub have pushed developers to look for new sites. The north inner-city and outer suburbs provide ample space and cheaper rents for occupiers (Bertz, 2002a). Irish government policy has played a crucial role in encouraging foreign investment in areas such as Grand Canal Dock and Sandyford, away from the traditional core. This was achieved through planning acts, fiscal incentives and new zoning categories, to regenerate areas and attract industry (MacLaran and Kelly, 2014). The development of higher-quality public transport and road networks, along with improved telecommunication networks in the suburbs, facilitated the decentralisation of office activities by appealing to the labour force (MacLaran, 1999). The large, cheaper sites away from the core fulfil the needs of the international ‘footloose’ technology-based companies, such as Facebook and Microsoft, which exhibit few locational constraints (Bertz, 2002a).

The culmination of these factors has changed the landscape of office functions across Dublin, as the city now follows the decentralising trend apparent in metropolises in Britain and America (MacLaran et. al., 2010), and is likely to continue to do so for the foreseeable future.

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**A selection of DU Geographical Society pictures  
from 2014/15.**



# Atlas



**Forty Society Members visit the Latvian Capital, Riga, November 2014**



## Atlas



**Former Chairman, Professor Des Gilmor, with 2014/15 Chairman, Stephen McLoughlin**



**Sarah Overy elected as new treasurer. Dr Sokol thanking the outgoing Treasurer, John Stillman, for his outstanding job.**



## Atlas



**Iseult Ward of 'Food Cloud' Speaks to the society**



**The weekly Geog Soc committee meeting in progress**

## Atlas



### Dublin University Geographical Society 2014/15

From left to right. Back row: Rachel Skelly, Luke Scully, Rachel Gallagher, Stephen McLoughlin, Matthieu Chateau, John Stillman.

Front row: Liam Sweetman, Oisín Byrne, Kayleigh O’Gara, Lynn Waller, Stephen Lee.



DU Geographical Society 55<sup>th</sup> Anniversary Celebration in the Freeman Library

# Atlas



The Committee plaque unveiled by Professor Des Gilmor in the Museum building

## Atlas



**Geography Alumni Gathering in the Museum Building, November 2014**



**Librarian, Luke Scully, accepting a donated Journal by Professor Martin Sokol**

Atlas



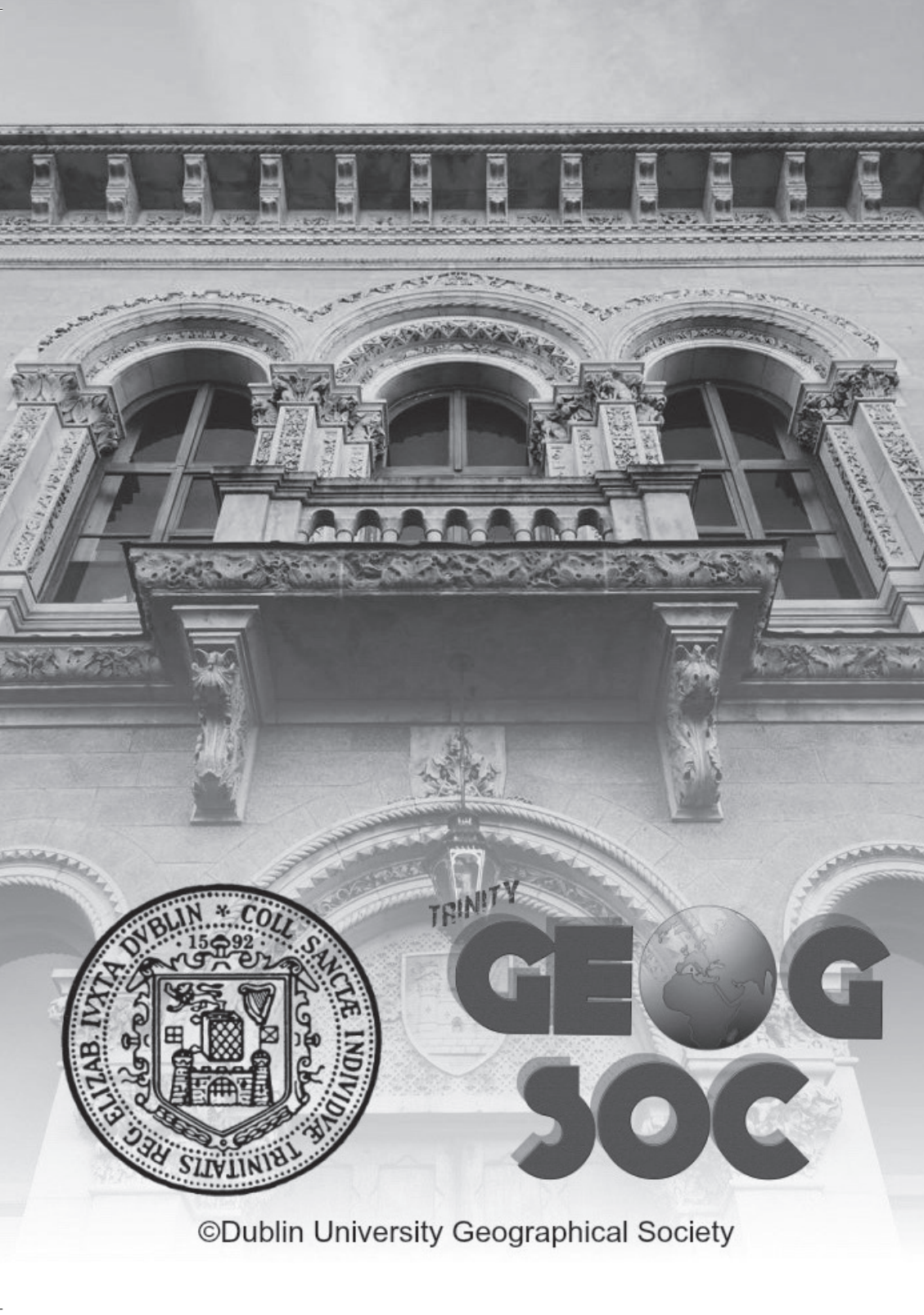
## Atlas



**Prof James Killen and Prof Des Gillmor – Awarded Honorary Life Membership**



**Prof James Killen speaking at the DU Geographical Society 55th Anniversary reception**



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