

**HEALTH IN INTERNATIONAL ENVIRONMENTAL LAW: AN
ANALYSIS OF THE HEALTH OBJECTIVES AND IMPACT OF
INTERNATIONAL ENVIRONMENTAL LEGAL REGIMES IN
DEVELOPING COUNTRIES WITH A FOCUS ON AFRICA AND
THE OPTIONS FOR REFORM**

A PhD by publication submitted to the University of Stirling for the Degree of Doctor
of Philosophy in Law

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgement has been made in the text. This thesis includes papers of which I am the sole author that are contained within the body of the thesis text. I was solely involved in designing the research and data analysis, conducting field and library research and related work and writing the publications. No parts of this work have previously been submitted for any similar qualification. I have also included a list of related publications in Annex II demonstrating my contributions to the health and international environmental law fields.

Signature.....

Date: 29 August 2014.....

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THESIS ABSTRACT

The protection of human health and the environment are two major goals of international environmental law. However, there has been little coherent scrutiny of their scope or implementation at international and domestic levels in developing countries and Africa in particular. This thesis shows that international environmental law regimes with a health protection objective have not maximized opportunities to reinforce the promotion and protection of public health in Africa. Through *inter alia* a study of sustainable management of shared freshwaters, trans-boundary movement of hazardous wastes and their disposal and international climate law, the thesis shows that a range of legal frameworks comprised of substantive, institutional and procedural law mandates States to advance the health objective in international environmental law. However, the thesis demonstrates the limits of these regimes and suggests options to enhance their potential in promoting and protecting public health. An enhanced framework of adaptive governance is proposed to improve environmental health governance. The thesis illustrates how the discourse on health in international environmental law can strengthen international environmental health governance to improve environmental and public health outcomes. It contains seven publications that analyse the strengths and weaknesses and options for reform of the international environmental law regime for health. The implications of these findings for theory, practice and public policy are discussed.

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CHAPTER I: BACKGROUND AND RESEARCH SCHEME

1. Focus

The seven papers included in this submission for the Degree of Doctor of Philosophy in Law are linked by the scrutiny of the health objective in and the impact of international environmental law regimes in the developing world, focusing on Africa.¹ All the papers propose options for reform. The publications examine the effectiveness of a range of environmental law regimes in relation to the promotion and protection of public health in developing country contexts. They analyse the state of the law as well as their implementation. The publications are thematically linked through the scrutiny of health in the substantive, procedural, institutional and implementation mechanisms of different international environmental law regimes. They argue that a large body of international legal instruments for the protection of the environment have a distinct health protection objective alongside the environmental objectives. The papers demonstrate that the

¹ While the publications focus on sub-Saharan part of Africa, I refer to Africa in the thesis because the papers have references to supranational entities in Africa such as the Inter-ministerial Conference on Health and Environment in Africa which includes Algeria as well as the African Union which includes Egypt, Libya and Tunisia. These papers include progressively, Onzivu, W., International Environmental Law, the Public's Health and Domestic Environmental Governance in Developing Countries, 2006 21(4) *American University International Law Review*, 597-684; Onzivu, W., Tackling the Public Health Impact of Climate Change: the Role of Domestic Environmental Health Governance Mechanisms in Developing Countries, (2009) 43(3) *The International Lawyer*, 1311; Onzivu, W., Health in Global Climate Change Law: The Long Road to an Effective Legal Regime Protecting Public Health and the Climate, (2010) 4 *Carbon and Climate Law Review*, 364-382; Onzivu, W., The Long Road to Integrating Public Health into Sustainable Development of Shared Freshwaters in International Environmental Law: Lessons from Lake Victoria in East Africa, (2012) 46(3) *International Lawyer*, pp.867-892; Onzivu, W., Re-examining the Effectiveness of Health Protection in Global Environmental Regulation, in *Human Rights and Duties: Sustaining Global Ecological Integrity and Human Health through Science, Ethics and the Law*, (Westra, L., Soskolne, C., & Donald Spady, D., Editors) (Routledge, London, 2012); Onzivu, W., (Re)invigorating the Health Protection Objective of the Basel Convention on Transboundary Movement of Hazardous Wastes and their Disposal, (2013) 33(4) *Legal Studies*, pp 621–649, ; Onzivu, W., Rethinking Transnational Environmental Health Governance in Africa, Can Adaptive Governance Help? (2014) *Review of European, Comparative and International Environmental Law (RECIEL)*, accepted for publication.

effective implementation of the former requires a more consistent approach in order to develop and improve public health in the developing world. They also identify the specific challenges that arise from a lack of focus and propose options that can reinforce health as well as environmental protection and improve the overall effectiveness of environmental regimes in developing countries.² The two primary research questions asked in this thesis are, firstly, whether international environmental legal regimes have optimized health protection in Africa and, secondly, what are the governance and theoretical pathways to maximise the impact of international environmental law regimes on health improvement in Africa?

2. Literature Review

There is some existing literature on health in international environmental law that relates to the health impact and objectives of international environmental law regimes in developing countries. This thesis seeks to fill gaps in the literature and make an original, comprehensive and thematically linked scholarly contribution to improving the effectiveness of the public health objective in international environmental law.

David Fidler,³ Yasmin Von Schirnding et al,⁴ Obijiofor Aginam,⁵ and others,⁶ have explored the health objective in international environmental law. However, their work is

² See Convention for the Conservation of Antarctic Seals, ILM 11(1972) 251; The Minamata Convention on Mercury, accessed at http://www.mercuryconvention.org/Portals/11/documents/conventionText/Minamata%20Convention%20on%20Mercury_e.pdf. The former focuses on nature protection and the later on protection of human health. The varied objectives of environmental law beyond health protection as well as the effectiveness of global and domestic public health laws for the protection of the environment could have been explored but would have been incongruent and too broad for inquiry.

³ Fidler, D.P., Challenges to Humanity's Health: The Contributions of International Environmental Law to National and Global Public Health, (2001) 31 *Environmental Law Reporter*, 10048.

not focused on analysing the legal regimes of developing countries, and particularly those in Africa. Generally, there is limited legal literature on this specific topic. The few sources of literature are (often non-legal) scholarly articles, books, reports and policy publications of the WHO and UNEP. The WHO Regional Office for Africa and UNEP have jointly published some policy related resource materials. Many of the publications are technical resources, for example on the Inter-ministerial Conference on Health and the Environment in Africa (IMCHE).⁷ They are not analytical scholarship and tend to describe materials to facilitate process and outcomes by Member States in mainstreaming policies and actions on health and the environment. Related to these

4 Von Schirnding, Y., Onzivu, W. & Adede, A.O., 'International Environmental Law and Global Public Health' (2002) 80(12) *Bulletin of World Health Organization* 970, 972-973

5 Aginam, O., *Global Health Governance: International Law and Public Health in a Divided World*, University of Toronto Press, 2005.

⁶ Wiley, L.F., *Healthy Planet, Healthy People: Integrating Global Health into the International Response to Climate Change*, 24 *Journal of Environmental Law & Litigation*, 203; Wiley, L.F., *Moving Global Health Law Upstream: A Critical Appraisal of Global Health Law as a Tool for Health Adaptation to Climate Change*, 22 *Georgetown International Environmental Law Review* 439 (2010); Wilson, A. & Daar, A.S., *A Survey of International Legal Instruments to Examine Their Effectiveness in Improving Global Health and in Realizing Health Rights*. (2013) 41, *The Journal of Law, Medicine & Ethics*, 89–102; Cenevska, I., *Protection of the Health of Workers and the General Public under the Euratom Treaty and EU Environmental Health Policy - the Ratio Between Human Health Protection and Environmental Protection*, (2012) 21(4) *European Energy and Environmental Law Review*, 176-187; [Atapattu, S., *The Public Health Impact of Global Environmental Problems and the Role of International Law*, 30 *American Journal of Law & Medicine* \(2004\) 283](#)

Alkon, M., *International Environmental Law in The Praeger Handbook of Environmental Health*, Robert, H. Friis., (Eds), (Praeger, Santa Barbara, California, 2012); Reynolds, C., *Public and Environmental Health Law*, (The Federation Press, Melbourne - Australia, 2011); Kappas, M., GroB, U. & Kellehr, D. (Eds), *Global Health: A challenge for Interdisciplinary Research* (Universitätsverlag Gottingen, 2012).

⁷ World Health Organization, *Environmental Health: A Strategy for the African Region*, AFR/RC52/10. (Brazzaville, Congo: WHO Regional Committee for Africa, 2002); Manga, L., et al., "Overview of Health Considerations within National Adaptation Programmes of Action for Climate Change in Least Developed Countries and Small Island States", June 2010, available on the Internet at <www.who.int/phe/Health_in_NAPAs_final.pdf> (last accessed on 1 July 2010); WHO and UNEP, *Meeting of Partners on the Implementation of the Libreville Declaration on Health and Environment in Africa: The roadmap to support the implementation of the Libreville Declaration on Health and Environment in Africa (2009–2010)* (Brazzaville: United Nations Environment Programme and World Health Organization Regional Office for Africa, (2009)10.; WHO and UNEP, *Health Security through Healthy Environments: First Inter-ministerial Conference on Health and Environment in Africa, Libreville - Gabon, 26-29 August 2008, Proceedings*, WHO Regional Office for Africa, 2009, 3, 9; International Institute of Sustainable Development (IISD), 'Report of the first Inter-ministerial Conference on Health and the Environment in Africa' 2008 14(1); WHO Regional Office for Africa and UNEP, *the Health and Environment Strategic Alliance for the Implementation of the Libreville Declaration*, (Brazzaville, WHO Regional Office for Africa: 2011).

literatures are several policy instruments on the work of the IMCHE.⁸ UNEP's technical publications (such as the Environment Outlook) also provide data on human health and the environment. Its findings and other evidentiary materials provide descriptive materials on the key themes of the environmental challenges facing Africa.⁹ Other high level publications relating to key issues of the thesis include evidentiary findings for international climate change policy with examples from developing countries and Africa.¹⁰ There are also public health publications which consider the environmental health challenges facing Africa, but these do not focus on legal analysis of environmental health laws or policies.¹¹ There are similar generally descriptive

⁸ Libreville Declaration on Health and Environment in Africa, Libreville 29 August 2008, World Health Organization Regional Office for Africa, accessible at <http://www.afro.who.int/en/regional-declarations.html> on 25th July 2014; Implementation of the Libreville Declaration on Health and Environment in Africa: Luanda Commitment, Luanda 26 November 2010, accessed at http://www.unep.org/roa/hesa/Portals/66/HESA/Docs/Conference_Outcomes/Luanda_Commitment_Final_en.pdf, last accessed on 25th July 2014.; African Ministers of Health and Environment Joint Declaration on Climate Change and Health, Luanda 26 November 2010, accessed at http://www.unep.org/roa/hesa/Portals/66/HESA/Docs/Conference_Outcomes/Joint_Statement_on_Climate_Change_and_Health_Final_en.pdf on 25th July 2014.

⁹ UNEP, *Africa Environment Outlook 1: Past, Present and Future Perspectives* (Nairobi: UNEP, 2002); UNEP, *Africa Environment Outlook 3, Our Environment, Our Health* (Nairobi: UNEP, 2013)3; UNEP, *Africa Environment Outlook 2, Our Environment, Our Wealth* (Nairobi: UNEP, 2006) 9-11; UNEP, *The Greening of Water Law: Managing Freshwater Resources for People and the Environment* (2005) (by Gabriel Eckstein); UNEP Health and Environment Linkage Initiative (HELI), available at <http://www.who.int/heli/en>, accessed 27th July 2014.

¹⁰ Boko, M., et al., 2007: Africa Climate Change 2007: Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 435 (Parry, M.L., et al., Eds., Cambridge University Press 2007); Confalonieri, U., et al., Human Health Climate Change 2007: Impacts, Adaptation and Vulnerability Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 393 (Parry, M.L., et al., eds., Cambridge University Press 2007).

¹¹ Dakubo, C.Y., *Ecosystems and Human Health: A Critical Approach to Eco-health Research and Practice*, Springer, 164-167; Nkomo, J.C., et al., *The Impacts of Climate Change in Africa*. Report submitted to the Stern Review on the Economics of Climate Change (London: H.M. Treasury, UK, 2006); Nweke, O.C.& Sanders III, W.H., 'Modern Environmental Health Hazards: A Public Health Issue of increasing Significance' (2009) 117(2) *Environmental Health Perspectives* 863-870; Briggs, D., *Environmental Health Hazard Mapping for Africa* (Harare: WHO Regional Office for Africa, 2000) 76; Gopalan, H.N.B., *Environmental Health in Developing Countries: An Overview of the Problems and Capacities*, (2003) 111(90), *Environmental Health Perspectives*, A446-A447; Nordberg, E. & Winblad, U., *Urban Environmental Health and Hygiene in Sub-Saharan Africa: Current African Issues* 18, 24 (Nordiska Afrikainstitutet [Nordic African Institute], ed., 1994), available at <http://www.nordicafrikainstitute.com/publications/download.html/9171063641.pdf?id=24781>; Zarocostas, J., 'Health effects of toxic waste dumped in Cote d'Ivoire need urgent examination, UN expert says', (2009)

public health publications on environmental health which consider its linkages to environmental protection without a specific focus on Africa or developing countries.¹²

There is a limited number of scholarly publications in international environmental law and international health law that discuss some aspects of the environmental health challenges facing developing countries and Africa in particular.¹³ There are also publications which are global or thematic in nature and do not focus on Africa.¹⁴ Again,

23 September, BMJ 339; Montgomery, M.A. & Elimelech, M., Water and Sanitation in Developing Countries: Including Health in the Equation,(2007) 41 *Environmental Science & Technology* , 17 ; UN Office on Drugs and Crime, Transnational Trafficking and the Rule of Law in West Africa: A Threat Assessment (UNODC, Vienna, 2009), p 56, available at http://www.unodc.org/documents/data-and-analysis/Studies/West_Africa_Report_2009.pdf., visited 27th July 2014.

¹² Black, H., Environmental and Public Health: Pulling the Pieces Together, 2000(November) *Environmental Health Perspectives*, A512, A513; Richards, E.P., The Role of Medical and Public Health Services in Sustainable Development, (2002) 32 *Environmental Law Reporter* 11299; Frumkin, H. & Malilay, J., Climate Change: The Public Health Response, 2008(98) (3) *American Journal of Public Health* 435; Campbell-Lendrum, D., et al., Global Climate Change: Implications for International Public Health Policy, (2007) 85(3) *Bulletin of the World Health Organization*, 235; Martens, W.J.M., et al., Potential Impact of Global Climate Change on Malaria Risk, (1995) 103 *Environmental Health Perspectives*. 458, 463; Listorti, J.A. & Doumani, F.M., Environmental Health: Bridging the Gaps, accessed at <http://siteresources.worldbank.org/INTURBANHEALTH/Resources/1090754-1248834093497/wholebook.pdf>. accessed on 26th July 2014.

¹³ Aginam, O., Global Health Governance: International Law and Public Health in a Divided World, University of Toronto Press, 2005; Kotze, L.J., ‘Some for all, Forever: A Southern Perspective on Poverty, Access to Water, Environmental Health and the North-South Divide’ in Westra, L., Soskolne, C. & Spady, D.,(eds), *Human Rights and Duties: Sustaining Global Ecological Integrity and Human Health through Science, Ethics and the Law* (London: Routledge, 2012) 262-263; Temitope Ako, R., Environmental Justice in Developing Countries: Perspectives from Africa and Asia-Pacific, (Routledge (Earthscan), Abingdon, 2004), 24-27; Aaron, K.K., ‘Perspective: Big Oil, Rural Poverty and Environmental Degradation in the Niger Delta Region of Nigeria’(2005) 11(2) *Journal of Agricultural Safety and Health* 127-134; Kidd, M., ‘Environmental Law in Africa’ in Alam, S., Bhuiyan, J.H., Chowdury, T.M.R. & Techera, E.J.,(eds) *Routledge Handbook of International Environmental Law* (Routledge, Abingdon, 2013), 509, 515-516; Mayda, J., Environmental Legislation in Developing Countries: Some Parameters and Constraints, (1985) 12 *Ecology Law Quarterly* 997, 1013, 1023 ; Dwasi, J.A., Regulation of Pesticides in Developing Countries, (2002) 35 *Environmental Law Reporter* 10045, 10045; Zahedi, N.S., Note, Implementing the Rotterdam Convention: The Challenges of Transforming Aspirational Goals into Effective Controls on Hazardous Pesticide Exports to Developing Countries, (1999) 11 *Georgetown International Environmental Law Review* 707, 708-09 ; Morriss, A.P. & Meiners, E., *Property Rights, Pesticides, & Public Health: Explaining the Paradox of Modern Pesticide Policy*, (2002) 14 *Fordham Environmental Law Journal*. 1, 50 .

¹⁴ Westra, L., Environmental Justice and the Rights of Unborn and Future Generations: Law, Environmental Harm and the Right to Health 3-4 (2008); Fidler, D., International Law and Global Public Health, (1999) 48 *University of Kansas Law Review* 1, 39; Wiley, L.F., ‘Moving Global Health Law Upstream2: a Critical Appraisal of Global Health Law as a Tool for Health Adaptation to Climate Change’ (2010) 22 *Georgetown International Environmental Law Review* 439; Heinzerling, L., ‘Health

however, these publications tend to address the environmental health law environment in Africa peripherally and do not comprehensively analyze the health objective of international environmental law and its impact in Africa.

Scholarly analysis of the health objective of international environmental law is therefore limited and consists of a patchwork of specific themes such as water and climate change governance without systematic and coherent linkages. Most of the literature is comprised of surveys of evidentiary linkages between health and the environment. Moreover, the publications are largely descriptive and explanatory. Those which are interpretative do not address comprehensively the key issues considered in this thesis. The literature outlined in this section is cited throughout the published papers of the thesis, and a full list of all works that have been consulted is provided at Annexes II and III.

In the course of the PhD, I was able to use libraries at Bradford, Manchester and Stirling universities, the LSE and the Institute of Advanced Legal Studies. I also conducted research at WHO Libraries, UNEP and its Secretariat Libraries in Geneva and Nairobi, and several smaller libraries in developing countries. I made particular use of the Dag Hammarskjold library at the United Nations in Geneva. No single library contained all the data I needed and I also made significant use of online resources such as Westlaw, UNEP and WHO websites.

Regulation and Governance: Climate Change, Human Health and the Post- cautionary Principle”, 96 *Georgetown Law Journal*, 445 at 450; Peiry, K.K., Public Health in International Law: the Contribution of the World Summit on Sustainable Development, (2002) 80(12) *Bulletin of the World Health Organization* 925.

3. Research philosophy and methods

This thesis identifies the limits of international environmental law for health protection and proposes options for improving the status quo in Africa in particular.¹⁵ While it recognizes that the law and governmental institutions can solve policy challenges, the research also analyses "black letter" approaches in international environmental law which emphasize command and control regulation and sanctions for non-compliance.¹⁶ The research utilises a problem solving approach. This is defined as a dynamic process that involves the identification of a problem, the formation of a consensus that it ought to be solved, and the mobilization of an appropriate expertise to solve it.¹⁷ The published papers identify health protection as a problem in international environmental law, as demonstrated in the case studies. They also propose solutions to the problem which involves the mobilization of legal and political capital through a theoretical framework based around adaptive governance.

¹⁵ Salter, M. & Mason, J., *Writing Law Dissertations: An Introduction and Guide to the Conduct of Legal Research*, (Harlow: Pearson Education, 2007), p.6; Tan, W., *Practical Research Methods* (2nd ed, Prentice Hall, Singapore, 2004), p 3.; Robson, C., *Real World Research: A Resource for Social Scientists and Practitioner - Researchers* (2nd ed, Blackwell Publishers, Oxford, 2002), p 18. These confirm that Research is a systematic study of a topic which seeks to define, describe and explain what the topic is and how it is distinct from other phenomena. It requires the ability to assess the various debates and issues that the topic has generated. To research is to investigate a problem systematically, carefully and thoroughly.

¹⁶ Cottrell, M.P., and Trubek, D.M., *Law as Problem Solving: Standards, Networks, Experimentation, and Deliberation in Global Space*, (2012) 21, *Transnational Law & Contemporary Problems* 361

¹⁷ *Id* at 363; See also Seligman, T.J., *Beyond "Bingo!" Educating Legal Researchers as Problem Solvers*, (2000) 26(1) *William Mitchell Law Review*, 179-203, stressing the importance of problem solving in legal research.

The thesis implements a progressive research design.¹⁸ It develops a methodologically structured research proposition.¹⁹

The overall approach taken in the thesis draws on that of Arild Underdal²⁰ who argues that evaluating the effectiveness of a cooperative arrangement means comparing something – such as a legal regime – against some standard of success or accomplishment. Any attempt at designing a conceptual framework for the study of regime effectiveness must, then, ask at least three questions: (1) what precisely constitutes the object to be evaluated? (2) against which standard is this object to be

¹⁸ Tan, W., *Practical Research Methods* (2nd ed, Prentice Hall, Singapore, 2004), p 76., defined research design as the plan for getting from the research question to the conclusion; Robson, C., *Real World Research: A Resource for Social Scientists and Practitioner - Researchers* (2nd ed, Blackwell Publishers, Oxford, 2002), p 81., reporting the components of a research design; The first is the research purpose: what is it trying to achieve? The second is the theory that informs the research: what conceptual framework connects the studied phenomena and allows the findings to be understood? The third is the research question(s): what a question is the research geared to providing answers to? The fourth component is the methods: what specific techniques will be deployed to collect data to answer the research question; how will data be analysed and shown as trustworthy? The fifth component is the sampling: where, when and how will the data be located?

¹⁹ Brettel Dawson, T., *Legal Research in a Social Science Setting: The Problem of Method*, (1991-1992)14 *Dalhousie Law Journal*, 445 at 446, stating that a methodologically sound proposition requires a basic focus or question in any inquiry. Tan, *Ibid*, p.18 Methodology is a branch of knowledge concerned with method, defined as a special form of procedure or characteristic set of procedures employed in an intellectual discipline or field of study as a mode of investigation or inquiry, or of teaching and exposition. It is closely related to, and overlaps with, the research design and methods. It may be defined as the ways of producing and analysing data to test hypotheses. It broadly deals with the later components of research design, once the purpose and research question have been decided. It is about how the research question is answered rather than determining the research question itself or its significance. It is impossible to determine a suitable methodology until the research question and hypothesis to be tested are known.

²⁰ Underdal, A., “One Question, Two Answers” in Miles, E. , Underdal, A., Andresen, S. , Wetterstad, J. , Skjærseth, J.B.& Carlin, E.M., *Environmental Regime Effectiveness: Confronting Theory with Evidence* (The MIT Press, Cambridge Ma, 2002), 4-5; Underdal, A., “The Concept of Regime ‘Effectiveness’” (1992) 27(3) *Cooperation and Conflict* 227 at 228-229; Helm, C. & Sprinz, D., “Measuring the Effectiveness of International Environmental Regimes” (2000) 44(5) *Journal of Conflict Resolution* 630; Victor, D.G., Raustiala, K. & Skolnikoff, E.B.,(eds)*The Implementation and Effectiveness of International Environmental Commitments: Theory and Practice* (Cambridge, MA: MIT Press/London: International Institute for Applied Systems Analysis, 1998) ix; Raustiala, K. & Slaughter, A.M., ‘International law, international relations and compliance’ in Carlsnaes, W., et al., (eds) *The Handbook of International Relations* 28 (2002); Kingsbury, B., ‘The concept of compliance as a function of competing conceptions of international law’ (1998) 19 *Michigan Journal of International Law* 345–372.

evaluated? and (3) how do we go about comparing the object to this standard – in other words, what kind of measurement operations, or methodologies, do we have to perform to attribute a certain score of effectiveness to a particular regime? In this thesis, the objects to be reviewed are international environmental law regimes relating primarily to climate change, transboundary waste and shared freshwaters, the health outcomes achieved in Africa, and how they can be maximized. The standard against which this object is to be evaluated is the objective of protecting human health in developing countries: that is, the analysis aims to compare the strengths and limits of environmental law regimes with the objective of protecting health. As outlined below, the combination of doctrinal, socio-legal, case study, theoretical and observational methods in the thesis provides the process by which the objects are compared to the standard.²¹

Collectively, the legal research methods provide the methodological techniques which link the key issues under consideration.²²

3.1. **Doctrinal method**

In the context of legal research, a doctrinal approach refers to the synthesis of rules, principles, norms, interpretive guidelines and values which coherently explain or justify

21 Fisher, E., Lange, B., Scotford, E., & Carlane, C., Maturity and Methodology: starting a debate about environmental law scholarship, (2009) *Journal of Environmental Law* 213-250. Fisher and colleagues have argued that environmental legal scholarship is immature due to failure by scholars to adopt methodologies, whether socio-legal, doctrinal or jurisprudential. They argue that a mark of good environmental legal scholarship is not the deployment of a particular method but a thought out method.

22 A quantitative and inflexible design strategy is not appropriate for this research given the nature of the problem addressed, that cannot be addressed by fixed designs such as scientific experimentation. There are, of course, many aspects of health and the environment that can be tested quantitatively, such as the level of pollution in a river and its health effect on the users in the basin. However, an analysis of the effectiveness and impact of the health objective of international environmental law draws in many qualitative issues, such as whether a particular law can promote public health.

legal provision as part of a larger legal system.²³ Doctrinal research methodology seeks to provide a detailed, technical commentary and systematic exposition of the content of legal doctrine.²⁴ It produces and renews doctrinal writing on law, which is understood as an internally coherent system of rules, principles and basic axioms.²⁵ The priority is to gather, organize and analyse legal rules, and offer commentary on the emergence and significance of the authoritative legal sources that promulgate these rules. The advantages of the doctrinal approach are that its interpretative techniques provide continuity and coherence in legal research. It enables a focused approach to examining primary material with clearly defined legal boundaries. The principal arguments against the doctrinal approach are that it ignores the distinction between law in books and law in action, the complexities of modern society,²⁶ and judicial behaviour and the ideologies which motivate such behaviour. It also ascribes ethical neutrality to rules. While mindful of these issues, the thesis includes doctrinal analysis of relevant treaties, statutes and case law and their applicability to health protection in the implementation of international environmental law, focusing on Africa.²⁷

23 Hutchinson, T. & Duncan, N., Defining and Describing What We Do: Doctrinal Legal Research, (2012) 17 *Deakin Law Review*, 83 at 84.

24 Salter and Mason, note 15 above, 49.

25 Ibid. p.56.

26 Ibid. p.112-118.

27 See Onzivu, W., "International Environmental Law, the Public's Health and Domestic Environmental Governance in Developing Countries", (2006) 21(4) *American University International Law Review*, 597-684; Onzivu, W., 'Tackling the Public Health Impact of Climate Change: the Role of Domestic Environmental Health Governance Mechanisms in Developing Countries', (2009) 43(3) *The International Lawyer*, 1311, where commentaries have been provided on several environmental as well as public health Statutes to assess their effectiveness for the domestic implementation of the health protection objective of international environmental treaties.

3.2. Socio-legal method

The thesis does not, however, use doctrinal methods in isolation: they are combined with a socio-legal approach. In saying this, it is acknowledged that the nature and scope of socio-legal studies have different and often incompatible interpretations.²⁸ It contains a rich, almost anarchic heterogeneity and is open to many different aims, outlooks and disciplinary backgrounds:²⁹ there is a plethora of different research activities which can be called socio-legal. Thomas has, however, summed up what provides the impetus behind socio-legal studies: “empirically, law is a component part of the wider social and political structure, inextricably related to it in infinite variety of ways only properly understood in that context”.³⁰ Socio-legal research is therefore a broad church where library based theoretical and empirical work is undertaken as well as policy orientated research which directly feeds into policy and law reform.³¹ Its approach is often interdisciplinary or multi-disciplinary, bridging the gap between law and other disciplines such as sociology, social policy and economics.³² Its commitment to inter-disciplinarity enables techniques and methods of law to engage with other disciplines in ways that would not be possible with one discipline in isolation. Socio-legal studies also critically investigate the discrepancy between law in books and law in

²⁸ Salter and Mason, note 15 above, 119-130.

²⁹ See Faure, M., *The Future of Socio-Legal Research with Respect to Environmental Problems* (1995) 22(1), *Journal of Law and Society*, 127-132.

³⁰ *Ibid.*

³¹ Salter and Mason, note 15 above, 123.

³² *Ibid.*

action, and transcend the exclusively doctrinal analysis of supposedly authoritative legal texts.³³

Socio-legal approaches have a number of important advantages.³⁴ They broaden the scope of legal research by expanding the conceptual framework for assessing and interpreting legal information. They allow a research topic to be viewed in wider contexts. Problems whose solutions are multidisciplinary can be addressed and research skills enhanced. New understandings beyond law can be developed and doctrinal law evaluated using non-legal methods. Socio-legal studies transcend the disciplinary isolation of law by extending analysis to the social, economic, gender, political and other contexts that influence legal doctrine and decision-making. It evaluates the impact of law on society and facilitates a closer relationship between legal research and policy debates over the future direction of law reform. There are, of course, criticisms of the socio-legal approach, which should be acknowledged. The main ones include the lack of clarity in its definition, its linkage (sometimes unacknowledged) to political agendas and potential capture by policy makers and powerful ideologies.³⁵ Other criticisms centre on the relative lack of expertise of most legal academics in social science research methods, meaning that its empirical foundation is sometimes weak.³⁶

In this context, this thesis seeks to augment its use of doctrinal method by using socio-legal approaches in a number of ways. First, it adopts a multidisciplinary approach that integrates international environmental regulation with public health, which is a separate

³³ Ibid, 125, 152-155, stating that, socio-legal studies explore the contours of law through a variety of research methods and modes of analysis. It investigates the practical impact of law in action, focusing on the functional aspects of law in relation to the realization of public policy.

³⁴ Ibid, 177-178.

³⁵ Ibid, 178-179.

³⁶ Ibid, 179.

discipline: the linkage between the protection of human health and environmental regulation is explored across the papers.³⁷ Second, it has combined the critical doctrinal examination of various environmental legal instruments and their impact on the application of environmental and public health policy: law and policy are brought together. For example, the examination of the impact of the Basel Convention on health and environmental regulation in developing countries and its strengths and weaknesses for public health protection policy were analysed in detail and options for improvement proposed. Third, and as is explained in more detail below, the papers have proposed a rethinking of environmental health governance under the rubric of adaptive governance: there is a strong theoretical component to the thesis, which is inter-linked with both legal doctrine and policy. This has led to the adoption of four principles, or “pillars”, to remedy the inadequacies of adaptive governance in theory and practice and offers a potential pathway for legal and institutional reform to promote environmental health in Africa.

3.3. Case study method

Case studies are utilised in the thesis to exemplify and develop key issues and arguments. The key feature of case study research is the close delineation of the object of study. The objective is to fully understand and articulate particular and specific situations. According to Merriam, the use of case studies does not claim any specific data collection methods but focuses on holistic description and explanation.³⁸ She adds

³⁷ Onzivu, W., ‘International Environmental Law, the Public’s Health and Domestic Environmental Governance in Developing Countries’ (2006) 21(4) *American University International Law Review*, 605-610.

³⁸ Merriam, S.B., *Qualitative Research and Case Study Applications in Education*, (Jossey-Bass: San Francisco, 2001).

that data analysis strategies in case research include narrative, constant comparative and content analysis and that “the learning is in the doing.” According to Yin, conducting a case study includes preparing for data collection, collection of evidence, analysis of the evidence, and composition of the case study report.³⁹ The analysis must be of highest quality and address significant aspects of the case study and utilize the prior expert knowledge of the researcher.

More specifically, the approach taken in the thesis to case studies follows that articulated by Stake⁴⁰ who has argued that a case study researcher is an interpreter who builds clearer view of the phenomenon under study through explanation and description, and provision of integrated interpretations of situations and contexts.⁴¹ The case may be studied qualitatively or quantitatively, or analytically through interpretations, but it must have features, boundaries, coherence and sequence.⁴² Case studies frequently used to research policy and regulatory design has advantages as a research method.⁴³ They are, for example, a useful and important means of engaging with social analysis.⁴⁴ However, Ragin argues that the concept of a case study is problematical as it is at the boundary between quantitative and qualitative social

³⁹ Yin, R.K., *Case Study Research: Design and Methods* (3rd Edition). (Sage, Thousand Oaks, CA, 2003), p.109.

⁴⁰ Stake, R.E., *The Case Study Method in Social Inquiry*, in Gomm, R., Hammersley, M. & Foster, P., (Eds), *Case Study Method: Key issues, key texts*, (Sage, London 2000), 102.

⁴¹ Ibid.

⁴² Ibid.

⁴³ Gunningham, N. & Sinclair, D., *Leaders & Laggards: Next Generation Environmental Regulation* (Greenleaf Publishing, Sheffield, 2002). For example, Neil Gunningham and Darren Sinclair used case studies of environmental regulatory design to identify regulatory best practice internationally in a number of specific contexts to evaluate the effectiveness of regulation.

⁴⁴ Feagin, J.R., Orum, A.M. & Sjoberg, G., Preface, In Feagin, J.R., Orum, A.M. & Sjoberg, G., (Eds), *A case for the case study*, (University of North Carolina, Chapel Hill, 1991), p vii.

science.⁴⁵ Others label case studies as uncontrolled,⁴⁶ while others still commend the growing rigour of qualitative case studies.⁴⁷ For some commentators, the less than scientific character of case study method⁴⁸ means that case researchers can fail to meet the basic methodological standards needed to achieve academic validity.⁴⁹ Despite these arguments, it is argued that case studies undertaken comprehensively and with rigour contribute to knowledge. The in-depth focus on a particular situation within bounded situations that provides understanding of complex situations is a valuable research tool. In this context, the case studies in the thesis discuss specific legal and policy concerns to allow the overall hypothesis and arguments to be exemplified and tested.⁵⁰ They “tell big stories through the lenses of smaller cases.”⁵¹ The case studies provide a way into providing in-depth analyses of health in international environmental law and its application at the domestic levels in the context of developing countries. In addition, the main case studies of health in global climate change law, the legal regime for the sustainable governance of Lake Victoria and health protection and the Basel Convention⁵², and the smaller case studies of United Nations Framework Convention

⁴⁵ Ragin, C.C., Introduction, Cases of What is a Case? In Ragin, C.C. & H.S. Becker., (Eds), What is a Case? Exploring the Foundations of Social Inquiry (Cambridge University Press:New York, 1992), 1-17.

⁴⁶ Gilgun, J.F., A Case for Case Studies in Social Work Research, *Social Work*, 39(4), 371-380 at 373.

⁴⁷ Fraser, M.W., Rich, Relevant and Rigorous: do Qualitative Methods Measure up? (1995) 19(1) *Social World Research*, 25-27.

⁴⁸ Hammersley, M. & Gomm, R., Introduction, in Gomm, R., Hammersley, M. & Foster, P.,(Eds), Case Study Method: Key Issues, Key Texts, (Sage Publications, London,2000),1-16.

⁴⁹ Cutler, A., Methodical Failure: The Use of Case Study Method by Public Relations Researchers, (2004) 30 *Public Relations Review*, 365-375 at 374.

⁵⁰ Onzivu, W., ‘Health in Global Climate Change Law: The Long Road to an Effective Legal Regime Protecting Public Health and the Climate’, (2010) 4 *Carbon and Climate Law Review*, 364-382; Onzivu, W., The Long Road to Integrating Public Health into Sustainable Development of Shared Freshwaters in International Environmental Law: Lessons from Lake Victoria in East Africa, (2012) 46 (2) *International Lawyer*, pp.867-892; Onzivu, W., (Re)invigorating the Health Protection Objective of the Basel Convention on Transboundary Movement of Hazardous Wastes and their Disposal, (2013) 33(4) *Legal Studies*, pp 621–649, December 2013.

⁵¹ Tan note 18 above, p 77.

⁵² Onzivu., note 50 above.

on Climate Change Conference of Parties (hereinafter referred to as UNFCCC COP) Decisions,⁵³ National Adaptation Plans of Action (herein after referred to as NAPAs) in developing countries,⁵⁴ the Bali Declaration on Waste Management for Human Health⁵⁵ and the Inter- Ministerial Conference on Health and the Environment in Africa (IMCHE),⁵⁶ illuminate the strengths and limitations of environmental legal regimes for health and the significance of adaptive governance and the potential for reform.

3.4. Adaptive theory and governance

All research is, whether or not this is acknowledged directly, to some degree influenced by theoretical assumptions which helps orient data collection and analysis.⁵⁷ My reliance on adaptive theory reflects its flexibility in dealing with constantly changing health and environmental governance frameworks:⁵⁸ the theory is of considerable relevance to the research topic.⁵⁹ It is developed in the course of the thesis and its scope clarified and explored.

This element of the thesis relates to a broader debate on the importance of strengthening the regulatory governance of international environmental law to augment its impact on

⁵³ Onzivu, W., 'Health in Global Climate Change Law: The Long Road to an Effective Legal Regime Protecting Public Health and the Climate' (2010) 4 *Carbon and Climate Law Review* 364-382.

⁵⁴ Ibid.

⁵⁵ Onzivu, W., '(Re) invigorating the health Protection Objective of the Basel Convention on Trans-boundary Movement of Hazardous Waste and their Disposal' (2013) 33(4) *Legal Studies*, 621-649.

⁵⁶ Onzivu, W., Rethinking Health Promotion and Protection in International Environmental Legal Regimes: Can Adaptive Governance Help?, *Review of European, Comparative and International Environmental Law(RECIEL)*, accepted for publication, forthcoming 2014.

⁵⁷ Layder, D., *Sociological Practice: Linking Theory and Social Research*, (Sage Publications, London, 1998), p. 66.

⁵⁸ Ilg, M., Complexity, Environment, and Equitable Competition: A Theory of Adaptive Rule Design, 41 *Georgetown Journal of International Law*, 647-673; Ruhl, J.B., 'Thinking of Environmental Law as a Complex Adaptive System: How to Clean up the Environment by Making a Mess of Environmental law' (1997) 34 *Houston Law Review*, 933; Folke, C., Hahn, T., Olsson, P.& Norberg, J., 'Adaptive Governance of Socio-ecological Systems' (2005) 30 *Annual Review of Environment and Resources*, 441.

⁵⁹ Layder, D., note 57 above.

society in general. In this context, I have sought to utilize adaptive governance as a theoretical springboard and framework to develop ideas which can inform the improvement of environmental health governance in Africa.⁶⁰ Adaptive governance enables the generation of long-term, sustainable policy solutions to complex and dynamic environmental challenges through collaboration among diverse stakeholders and governmental agencies.⁶¹ It is adaptable, flexible and extends from natural systems to human organizations, reacting to change in ecological and human institutions and systems.⁶² It recognizes that, because science is constantly evolving, our understanding of natural systems or the effect of human interactions on them is rarely complete.⁶³ Adaptive governance monitors outcomes and maintains flexibility to alter policies should predictions prove inaccurate or scientific understanding advance further. The health challenges of climate change as well as transboundary waste and water and options for public health improvement requires flexibility, and an evolving evidence base for the development of new regulatory tools.

In view of the weaknesses of adaptive governance, adaptive theory facilitated an analysis of its strengths and limitations. To mitigate its limitations, it identifies and explores four principles, or “pillars”- ethics, environmental justice, evaluation and multi-sectoralism - as fundamental to reinforcing its role in improving environmental health governance in Africa. I have also discussed options to mitigate the weaknesses of

⁶⁰ Cilliers, P., *Complexity and Post Modernism* (Routledge:London, 1998), 112-140; Hill, P., *Understanding global health governance as a complex adaptive system*, (2011) 6(6) *Global Public Health*, pp.593-605.

⁶¹ Scholz, J.T. & Stiftel, B., (eds) *Adaptive Governance and Water Conflict: New Institutions for Collaborative Planning* (Washington D.C.: Resources for the Future Press, 2005) 5.

⁶² *Ibid*, 2.

⁶³ Garmestani, A.S., Allen, C.R., Cabezas, H., *Panarchy, Adaptive Management and Governance: Policy Options for Building Resilience*, (2009) 84 *Nebraska Law Review* 1036.

adaptive governance. These include inter alia promoting the participation and recognition of all environmental health actors, to identify the possible weaknesses of a legal instrument in order to foster the efficiency and effectiveness of legislation and laying down principles to guide effective regulation of environmental health. However, a reworked theory of adaptive governance in Africa needs to be implemented both de jure and defacto. It is proposed that sub-Saharan Africa Member States, regional integration organizations and other law making institutions in Africa need to institutionalize adaptive governance. The European Union's smart (also called better) regulation provides an important reference point in efforts to utilize the four pillars to mitigate the weaknesses of adaptive governance and reinforce it. This hybrid smart regulation would apply the elements of adaptive governance as well as the four pillars of environmental justice, environmental ethics, evaluation and multi-sectoralism throughout the regulatory chain from the drafting, negotiation, adoption and implementation of environmental laws to achieve both health and environmental objectives.

3.5. Observational method

In conducting research for the thesis, I also used observation. According to Phillips, observational methods of data collection are techniques for gathering information without direct questioning on the part of the investigator.⁶⁴ They can be structured or

⁶⁴ Benard, P.S., *Social Research: Strategy and Tactics* (Macmillan, New York, 1966) 135.

unstructured, with a “look and see” approach.⁶⁵ Observation is valuable⁶⁶ and can guide the researcher to analyze the dynamics of particular situations, and provide clues as to what to look for when evaluating changes.⁶⁷ It also helps to clarify and define the boundaries of the problem under consideration⁶⁸ and my perspective on what I have observed is reflected in the published papers.⁶⁹ My observations largely took place before I commenced my PhD. However, they directly related to my work for the PhD because I used the acquired knowledge in analysing the international health and environment challenges in the subsequent publications for the thesis. As a Legal Officer at the World Health Organization from 2000-2007, I attended many conferences on a range of issues relating to the challenges facing international environmental health governance. Since one of my tasks was to report to the WHO on the outcomes of every meeting, I developed expertise in observational method and was able to engage with a range of international environmental and health actors that included states, international organizations and profit and non-profit bodies. In this context, I was able to observe the challenges facing environmental governance in relation to health protection, and the normative, regulatory and institutional developments in this area.⁷⁰

⁶⁵ Angrosino, M.V. & Mays de Perez, K., Rethinking Observation: From Method to Context, in Handbook of Qualitative Research, (Denzin, N.K. & Lincoln, Y.S., Editors) (Sage, Thousand Oaks, CA, 2000), 673.

⁶⁶ Jorgenson, D.L., Participant Observation: A methodology for Human Studies (Sage: Newbury Park, CA 1989), 12.

⁶⁷ Benard, P.S., note 64 above.

⁶⁸ Jorgenson, D.L., Op cit.

⁶⁹ Onzivu, W., note 37 above 597-600, 637-676. This paper greatly benefited from my participation in the negotiations of the Stockholm Convention on Persistent Organic Pollutants.

⁷⁰ For example, as part of the WHO delegation, I attended negotiating meetings of the Stockholm Convention on Persistent Organic Pollutants in Geneva and Stockholm. My observations of the ban of the so-called “dirty dozen”, with the limited exemption for DDT, highlighted the challenges facing international environmental law in seeking to meet the dual objectives of protecting human health and the environment; See further discourse on this issue in Martin, A.K., Regulation of DDT: A Choice Between Evils, (2008) 41 *Vanderbilt Journal of Transnational Law*, 677; arguing that many developing countries insisted on this exception because “DDT has the potential for great benefit and great harm. It is currently

I did not use qualitative interviewing because given my experience at the WHO and in African Member States, I know that officials are reluctant to speak openly for reasons of confidentiality.⁷¹ I did not use focus group methods or questionnaires for the same reason and also because it is very difficult to select the right mix of participants across the developing world, particularly Africa.⁷²

4. Ethical considerations

The Economic and Social Research Council's ethics framework requires researchers to integrate ethical issues in their research.⁷³ The nature of my PhD research excluded direct interaction with respondents especially children and other vulnerable groups. Despite this, I undertook a careful consideration of issues including consent, legal requirements, data protection, confidentiality, data collection processes, the role of gatekeepers and the role of the researcher. Because the data that I relied on was already in the public domain, I considered confidentiality a lesser concern.

Nonetheless, principles relating to privacy of information were observed and only

the most efficient method for controlling malaria, particularly for those countries the disease affects most. However, it also causes global pollution and damages the health of humans and wildlife”.

⁷¹ Hawkins, K., *Law as a Last Resort*, (Oxford University Press: New York 2002), 449; Jennifer, M., *Qualitative Researching*, Second Edition (Sage: London, 2002), 62; Seidman, I.E., *Interviewing as Qualitative Research*, (Teachers College Press, Columbia University: New York, 1991), 3.; Jones, S., *Depth Interviewing: In Applied Qualitative Research*, Walker, R., (Editor), (Gower: Aldershot, 1985), 46.

⁷² Morgan, D.L., *Focus Groups as Qualitative Research* (Sage: Newbury Park CA, 1988), p 11.; Wilkinson, S., *Focus Group Research*, in *Qualitative Research: Method, Theory, Practice*, Silverman, D., (Editor), (London, Sage, 2004), 177.; Stewart, D.W. & Shamdasani, P.W., *Focus Groups, Theory and Practice*, (Sage: Newbury Park, CA, 1990: 57-59).

⁷³ Economic and Social Research Council., *Research ethics framework*, (E.S.R.C: Swindon, 2010), To ensure high ethical standards with integrity and quality, researchers and respondents must be fully informed about the purpose, methods, and intended possible uses of the findings, what participation in the study entails, and what risks, if any, are involved. Confidentiality of information as well as anonymity of respondents must be respected. Ethical principles ensure that participation in the research is entirely voluntary and free. Any conflicts of interest must be declared; the research must demonstrate its independence and ensure that no harm is occasioned to any respondents.

relevant data was collected and utilized in my research. I also ensured the respect of ethical principles on privacy, both individual and institutional in the writing of materials and data obtained as well as any notes I obtained from my observations in workshops and conferences.⁷⁴

⁷⁴ Lanour, C.F., The Efficient Conduct of Social Science Research and Administrative Review Procedures, In *Solutions to Ethical and Legal Problems in Research*, (Boruch, R.F. & Cecil, J.S., (Eds) (Academic Press: New York 1983), pp 171-181.

CHAPTER II: CONTRIBUTION AND ADVANCEMENT OF KNOWLEDGE IN HEALTH IN INTERNATIONAL ENVIRONMENTAL LAW

1. Health and environmental protection: a background

To analyze health in international environmental law, it is necessary to consider the links and tensions between the protection of human health and the environment. There are several direct and indirect links that exist between human health and environmental protection. First, health is affected to a great extent by environmental conditions. Environment-related diseases afflict many people, particularly the world's poorest. For example, diarrhoeal diseases in the developing countries are caused by poor sanitation. Land based marine pollution by sewage and chemicals contaminate coastal waters inhabited by humans. Air pollution including indoor air pollution contributes to health risks such as respiratory infections, lung cancer and myocardial infarctions.⁷⁵ Chemicals which bioaccumulate have been found in the human food chain and can be toxic to brain, kidneys, and the reproductive and cardiovascular systems and may lead to renal and neuro-pathological damage.⁷⁶ Climate change has had a negative effect on public health. The U.N.'s intergovernmental Panel on Climate Change and other scientific panels have assessed the potential health consequences of climate change which include infectious diseases, malaria, dengue fever, schistosomiasis, chagas disease, sleeping sickness and river blindness.⁷⁷

⁷⁵ WHO, Health and Environment in Sustainable Development: Five Years After the Earth Summit 81, 87-88 (1997)

⁷⁶ Id

⁷⁷ Id

Second, the management of natural resources, an important aspect environmental protection, is increasingly related to human health. This linkage ensures a balance between the management of natural resources for their aesthetic benefits and sustainable development.⁷⁸ The conservation of forest, soil, and water resources is needed for the protection of human health. Likewise, the protection of natural resources is increasingly dependent on the state of human health of populations in developing countries.⁷⁹ Diseases negatively affect the conservation of natural resources in these countries. For example, malaria poses risks to the public, depresses tourism, blocks sustainable investment, and prevents the sustainable use of arable lands, forests, and other natural resources.⁸⁰ Tropical parasitic diseases such as onchocerciasis, schistosomiasis, and trypanosomiasis have rendered certain areas unattractive for certain forms of settlement, tourism, agriculture, mining and other natural resource management initiatives.⁸¹ HIV/AIDS has drained the natural resource conservation budgets of many countries in Africa south of Sahara.⁸² The role of communities as actors in environmental management is increasingly recognized in developing countries. Yet healthy populations are key in effective community level environmental and natural resource management.⁸³ This

⁷⁸ Smith, S.L., [Ecologically Sustainable Development: Integrating Economics, Ecology, and Law](#), 31 *Willamette L. Rev.* 261, 263-64, 287-88 (1995)

⁷⁹ Atapattu, S., Sustainable Development and the Right to Health, in *Sustainable Justice: Reconciling Economic, Social and Environmental Law* 355, 355-56 (Marie-Claire Cordonier Segger., MC & Weeramantry, C.G eds., 2005)

⁸⁰ Lindsay, S.W & Birley, M., Rural Development and Malaria Control in Sub-Saharan Africa, 1 *EcoHealth* 129, 129 (2004); Vasant Narasimhan & Amir Attaran, Roll Back Malaria? The Scarcity of International Aid for Malaria Control, *Malaria J.*, Apr. 15, 2003, <http://www.malariajournal.com/content/pdf/1475-2875-2-8.pdf>

⁸¹ Hursey, B. S., & Slingenbergh, J., "The tsetse fly and its effects on agriculture in sub-Saharan Africa." *World Animal Review* (1995): 67-73.

⁸² WHO, Health in the Context of Sustainable Development, at 16, WHO Doc. WHO/HDE/HID/02.6 (2002) (prepared by Y. von Schirnding & C. Mulholland)

⁸³ Hunter, L.M et al., Population Dynamics and the Environment, Examining the Natural Resource Context of the African HIV/AIDS Pandemic 5-7 (July 2005) (working paper for the Biannual Meeting of

linkage, however, has its tensions as humans have also being responsible for the destruction of natural resources, thereby undermining non-utilitarian natural resource conservation for aesthetic benefits.

Third, ecosystems are critical to the protection of public health. The Convention on Biological Diversity defines ecosystems as a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit"⁸⁴ Central to the ecosystem concept does the idea that living organisms are continually engaged in a set of relationships with every other element constitute the environment in which they exist. An ecosystem approach to human health protection recognizes that the health of ecosystems is key to sustaining human life, but also to complex interactions between environmental, socio-cultural, and economic factors.⁸⁵

Human health is deeply dependent on the health of the earth's ecosystems. While human health cannot be sustained in poisoned ecosystems, healthy ecosystems depend on human restraint and responsibility towards it. An ecosystem approach to health protection provides significant gains for both the public health and conservation.

However, this concept has its tensions, particularly in developing countries.

Populations in Africa continue to face heightened vulnerability to disease, due to increase in population, trade, travel, natural resource exploitation and interactions with humans. In the wake of the ebola epidemic of 2014 in West Africa and previous ones in Central and East Africa and SARS and avian flu in Asia, ecosystem such as bats and

International Union for the Scientific Study of Population), <http://www.populationenvironmentresearch.org/papers/HunteretalIUSSP.pdf>

⁸⁴ Convention on Biological Diversity, Article 2 31 ILM 818 (1992).

⁸⁵ Forget,G & Lebel, J., An Ecosystem Approach to Human Health, 2001(Supplement April-June) International Journal of Occupational & Environmental Health (Supplement) S15-S16.

primates are a source reservoir of disease agents.⁸⁶ Many new and re-emerging human diseases can be traced to pathogens that emanate from animals and products of animal origin.⁸⁷

2. Health and the normative scope of implementation of international environmental law

The papers have a coherent theme, that environmental legal regimes have a health protection objective but that their implementation and impact in the developing world is weak and ineffective. I have made proposals for reform. This thesis also identifies the scope and normative content of international environmental law for the promotion of health. The actors crucial in my discourse on health in international environmental law are States as well as international organizations and other non-state actors. The multiplicity of States, the diversity of interests and interdependence between States,⁸⁸ and a heightened awareness that many issues transcend national boundaries and require a global response have blurred the boundaries of what is international and not.⁸⁹ The existence and legitimacy of an international legal system with consequences for breach promotes State compliance with international law; noncompliance infers state

⁸⁶ Beaglehole, R., (Ed) *Global Public Health: A New Era* 15-17 (Oxford University Press, 2003) 15-17..

⁸⁷ Meslin, FX et al., *Public Health Implications of Emerging Zoonoses*, Scientific & Technical R., Apr. 2000, at 310, available at http://www.oie.int/eng/publicat/rt/1901/A_R19124.htm.

⁸⁸ Klabbers, J., *International Law*, (Cambridge University Press: Cambridge 2013) 14-17; Malanczuk, P., "Globalisation and the Future Role of Sovereign States", in Weiss, F., et al., *International Economic Law with a Human Face* 45 (Kluwer Law International: London 1998).

⁸⁹ Chinkin, C.M., "The Challenge of Soft Law: Development and Change in International Law", (1989) 38 *International and Comparative Law Quarterly*, 850; Dupuy, P.M., "Soft Law and the International Law of the Environment", (1991) 12 *Michigan Journal of International Law*. 420; Hillgenberg, G., "A Fresh Look at Soft Law", (1999) 10 *European Journal of International Law*. 499; Nollkaemper, A., "The Distinction Between Non-Legal and Legal Norms in International Affairs: An Analysis with Reference to International Policy for the Protection of the North Sea from Hazardous Substances", 13 *International Journal of Marine & Coastal Law*. 355 (1998); Shelton, D., "Law, Non-Law and the Problem of "Soft Law"", in Shelton, D., ed., *Commitment and Compliance* 1 (Oxford University Press: Oxford 2000).

responsibility.⁹⁰ The limits of health in environmental legal regimes are to a large extent concomitant with non-compliance by states of their legal obligations at both international and domestic levels.⁹¹ In evaluating the contribution to knowledge of this thesis, the following strands of the normative scope of health protection in international environmental law have been analyzed.

2.1. Health and sources of international environmental law

The papers submitted for the PhD have analyzed health protection in a range of the sources of international law as provided under Article 38(1) of the Statute of the International Court of Justice (ICJ). These comprise international conventions, international custom, general principles of law, judicial decisions and the teachings of the most highly qualified jurists.⁹² However, treaties provide the primary corpus of international environmental law in relation to the analysis of the health objective and its impact.⁹³ Despite varying reporting, there are 540 multilateral environmental treaties from 1800 to date, including the Mercury Convention adopted in January 2013, several

⁹⁰ Henkin, L., *How Nations Behave – Law and Foreign Policy* (2nd Ed., Columbia University Press 1979), at 47; Franck, T.M., “Legitimacy in the International System”, (1988) 82 *American Journal of International Law*. 705. Franck identifies four indicators of rule legitimacy: determinacy, symbolic validation, coherence and adherence; Draft Articles on the Responsibility of States for Internationally Wrongful Acts, in Report of the International Law Commission on the Work of its Fifty-third Session, *U.N. GAOR, Supp. (No. 10), U.N. Doc. A/56/10*, Article 1 of the Draft Articles on State Responsibility stipulates that, “every internationally wrongful act of a State entails the international responsibility of that State.”

⁹¹ Onzivu, W., note 37 above, 605-610.

⁹² Article 38(1), Statute of the International Court of Justice, Annexed to the U.N. Charter Jun. 29, 1945, (entered into force Oct. 24, 1945), 1 U.N.T.S. xvi).

⁹³ Article 2(a) of the 1969 Vienna Convention on the Law of Treaties defines international conventions as being, “an international agreement concluded between States in written form and governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation”; see also Harris, D., *Cases and Materials on International Law*, (Seventh Edition, Sweet & Maxwell 2010) 15-17; Dixon, M., McCorquada, R. & Williams, S., *Cases and Materials on International Law*, (5th Edition, Oxford University Press, Oxford 2011) 61-62.

of which have an express health protection objective.⁹⁴ As Shaw has stated, “while the growth of international law in human rights, environment and trade has led to arguments that holistic international law is facing fragmentation into self-contained legal regimes, there is still a powerful centralising dynamic and a strong presumption against normative conflict”.⁹⁵

The published papers in the thesis have analysed substantive, institutional, procedural and enforcement requirements of international environmental law for health protection.

⁹⁶ International law now deeply influences the domestic law of States through the implementation of treaties.⁹⁷ Yet, like international law, the domestic environmental legal regimes in Africa have not optimized the protection of the public’s health.⁹⁸ The study has also analyzed other sources of international environmental law such as custom, judicial decisions, principles and international acts such as UNEP’s and WHO’s Decisions on health and the environment.⁹⁹ International acts include those

⁹⁴ See Mitchell, R.B., 2002-2014. *International Environmental Agreements Database Project (Version 2013.2)*. Available at: <http://iea.uoregon.edu/> Date accessed: 6 August 2014; Sand.P.H., *Effectiveness of International Environmental Agreements: A Survey of Existing Legal Instruments* (Cambridge University Press, Cambridge 1992) pp 4–15

⁹⁵ Shaw, M.N., *International Law*, (6th Edition, Cambridge University Press: Cambridge 2008), p.65-66.

⁹⁶ Higgins, R., *Problems and Process: International Law and How We Use It* (Clarendon Press: Oxford 1994), stating that international law is concerned with both substantive and procedural legal issues; Onzivu, W., ‘The Long Road to Integrating Public Health in the Sustainable Management of Shared Freshwaters: Lessons from Lake Victoria in East Africa’ (2012) 46(3) *International Lawyer* 867-892; Onzivu, W., ‘(Re) invigorating the health protection objective of the Basel Convention on Trans-boundary Movement of Hazardous Waste and their Disposal’ (2013) 33(4) *Legal Studies*, 621-649; Onzivu, W., ‘Health in Global Climate Change Law: The Long Road to an Effective Legal Regime Protecting Public Health and the Climate’ (2010) 4 *Carbon and Climate Law Review* 364-382.

⁹⁷ Gardiner, R.K., *International Law*, (First Edition, Pearson Longman: 2003), 9.

⁹⁸ Onzivu., *Opcit*

⁹⁹ Lauterpacht, E., *The Development of International Law by the International Court* (Stevens Ltd., London 1958); The Gabcikovo Nagymaros and other cases highlighted in the publications for the PhD submission and included in Annex III on listy of cases discussed in the submission.; Klabbars, J., note 75 above; Aust, A., *Handbook of International Law* (Cambridge University Press: Cambridge), p. 7.; Sands, P. & Klein, P., *Bowett’s Law of International Institutions* (6th Edition, Sweet & Maxwell: 2009), 284-302; UNEP., The Governing Council Decision 25/8 in ‘Decisions adopted by the Governing

adopted by international organisations and by states in the form of non-binding declarations: memoranda of understanding or Action Plans also form an important corpus of international environmental law.¹⁰⁰ Their legal effect depends on the treaty basis of the organization. Several international acts analysed in the study demonstrate their limits in health protection.¹⁰¹ For example, UNFCCC COP decisions, despite some references to health, have not passed comprehensive and specific decisions on tackling health impacts of climate change.¹⁰²

The study has also analysed several principles of international environmental law such as sustainable development, the precautionary principle, and the polluter pays principle which highlight the environment and human health protection interface.¹⁰³ For example,

Council/Global Ministerial Environment Forum at its 2th session', pp 15–17, available at <http://www.unep.org/GC/GC25/Docs/GC25-DRAFTDECISION.pdf>, accessed 11 July 2010; UN, UNEP, FAO, Basel, Rotterdam and Stockholm Conventions, 'Report of the simultaneous extraordinary meetings of the COP to the Basel, Rotterdam and Stockholm conventions, the 3 Omnibus decision adopted by the COP to the Basel, Rotterdam and Stockholm Conventions', Document UNEP/FAO/CHW/RC/POPS/EXCOPS.1/8, available at <http://excops.unep.ch/documents/meetingdocs/08e.pdf>; WHO, Sixty-Third World Health Assembly, 'Resolution WHA 63.25, Improvement of health through safe and environmentally sound waste management' (21 May 2010), available at http://apps.who.int/gb/ebwha/pdf_files/WHA63/A63_R25-en.pdf, accessed 12 July 2010.

¹⁰⁰ Sands & Klein, *Ibid.*

¹⁰¹ These include the 1972 Stockholm Declaration on the Human Environment, Declaration of the United Nations Conference on the Human Environment, princ. 1, U.N. Doc. A/CONF.48/14/Rev. 1 (1973); *the 1992 Rio Declaration*, Rio Declaration on Environment and Development, Annex I princ. 4, U.N. Doc A/CONF.151/26 (Vol. I) (1992); *the 2002 Johannesburg Programme of Action at the WSSD and 2012 Rio Plus 20 Declarations as well as other statements and non-binding act*, United Nations, *The Future We Want*, Rio Plus 20 Outcome Document, New York, 2012, accessed at <http://www.uncsd2012.org/content/documents/727The%20Future%20We%20Want%2019%20June%201230pm.pdf> on 11 April 2014, which highlight the health-environment interface.

¹⁰² Onzivu, W., 'Health in Global Climate Change Law: The Long Road to an Effective Legal Regime Protecting Public Health and the Climate' (2010) 4 *Carbon and Climate Law Review* 364-382, 368-370.

¹⁰³ See Sands P and Peel J (with Fabra A and Mackenzie R), *Principles of International Environmental Law*, (Third Edition, Cambridge University Press: Cambridge, 2012)187-237. These principles include sovereignty over their natural resources and the responsibility not to cause trans-boundary environmental damage, the principle of preventive action, the principle of co-operation, the principle of sustainable development, the precautionary principle, and the polluter pays principle and the principle of common but differentiated responsibility. While all these principles are relevant to health protection in international environmental law, my thesis has reinforced the importance of preventive action,

a systematic analysis of the sustainable development principle identified its strengths and limits for health protection in the case of Lake Victoria.¹⁰⁴ The PhD submission also proposed the inclusion of health as a fourth pillar of sustainable development.¹⁰⁵

2.2. Health and the implementation of international environmental law

An important component of the thesis is the analysis of the regulatory approaches and implementation actions in international environmental law. The analysis of regulatory mechanisms focuses on two broad categories: command and control (direct regulation) and economic instruments. For example, the United Nations Framework Convention on Climate Change (referred to as UNFCCC), the Basel Convention, the Ozone Conventions, the Stockholm Convention on Persistent Organic Pollutants and Rotterdam Prior Informed Consent Conventions discussed in the thesis contain a mix of direct and economic instruments. Their analysis highlights the state of health protection in international environmental law. The study examines health protection in the implementation of environmental law at international and domestic levels. It demonstrates the limits of the command and control approaches for the protection of public health. It also shows that while economic instruments are being used increasingly, these require further flexibility to promote public health. The proposal to institutionalize adaptive governance reinforced by the four pillars of environmental

cooperation, sustainable development and precaution in improving the health objectives and impact of environmental law.

¹⁰⁴ Onzivu. W., 'The Long Road to Integrating Public Health in the Sustainable Management of Shared Freshwaters: Lessons from Lake Victoria in East Africa' (2012) 46(3) *International Lawyer*, p.876.

¹⁰⁵ Onzivu. W., 'Re-examining the Effectiveness of Health Protection in Global Environmental Regulation' in Westra, L., Soskolne, C. & Spady, D.,(eds) *Human Rights and Duties: Sustaining Global Ecological Integrity and Human Health through Science, Ethics and the Law*(Routledge, Abingdon,2012), 301-314.

justice, ethics, evaluation and multi-sectoralism aims to facilitate flexible regulatory approaches for environmental health governance in Africa.¹⁰⁶

In relation to implementation actions by Parties such as adopting national implementing measures, compliance by domestic regulated communities, international reporting and enforcement measures, the thesis shows that international environmental law has not optimized the protection of health. For example, the case studies on transboundary waste, water and climate change show that domestic implementing legislation and regulations have not comprehensively addressed health protection measures.¹⁰⁷

Similarly, in the context of the Basel Convention, the implementation of the health objective through state reporting on health as required by the Convention is inadequate.¹⁰⁸ International organizations,¹⁰⁹ international courts¹¹⁰ and NGOs¹¹¹ can enforce international environmental law and are critical for improved health outcomes. For example, while the study acknowledges the important role of international health actors such as the World Health Organization, the United Nations Environment

¹⁰⁶ Onzivu, W., 'Rethinking Transnational Environmental Health Governance in Africa, Can Adaptive Governance Help?', *Review of European, Comparative and International Environmental Law (RECIEL)*, forthcoming 2014.

¹⁰⁷ Onzivu, W., 'The Long Road to Integrating Public Health in the Sustainable Management of Shared Freshwaters: Lessons from Lake Victoria in East Africa' (2012) 46(3) *International Lawyer* 867-892; Onzivu, W., '(Re) invigorating the health protection objective of the Basel Convention on Transboundary Movement of Hazardous Waste and their Disposal' (2013) 33(4) *Legal Studies*, 621-649; Onzivu, W., 'Health in Global Climate Change Law: The Long Road to an Effective Legal Regime Protecting Public Health and the Climate' (2010) 4 *Carbon and Climate Law Review* 364-382.

¹⁰⁸ Onzivu, W., '(Re) invigorating the Health Protection Objective of the Basel Convention on Transboundary Movement of Hazardous Waste and their Disposal' (2013) 33(4) *Legal Studies*, 621-649.

¹⁰⁹ For example, the Council on the International Sea bed Authority has powers to coordinate the supervision and implementation of Part XI of UNCLOS, 1992.

¹¹⁰ See *Gabcikovo and Nagymaros case* submitted by Hungary and Slovakia about their rights to the Danube River, *Case Concerning Pulp Mills on the River Uruguay (Argentina v Uruguay)*, Merits, Judgement, 20 April 2010, International Court of Justice, the *Lac Lanoux Arbitration* between Spain and France and the *Nuclear Test cases* between Australia/New Zealand and France [1974].

¹¹¹ See *Social and Economic Rights Action Center v. Nigeria*, Comm. No.155/96 (2001), OAU Doc. CAB/LEG/67/3 rev. 5, available at <http://www1.umn.edu/humanrts/africa/comcases/155-96.html>.

Programme and others, it recognizes their institutional limitations, such as the weak enforcement mechanisms at their disposal.¹¹² The thesis publications call for efforts to encourage interagency and inter-sectoral coordination, including in the context of environmental health governance frameworks in Africa such as the Intergovernmental Conference on Health and Environment in Africa (IMCHE).

3. Summary of thematic contribution

As already outlined, the thesis demonstrates synergy and coherence by systematically analyzing the health impact and objective of international environmental law. It also explores the ways in which it can be strengthened to better promote public health in developing countries, especially in Africa. The papers collectively make a novel and substantial contribution to international environmental law by analyzing its strengths and limits in terms of the achievement of its health objective. The thesis findings and contributions to scholarship and practice can be summarised as follows. First, international environmental law has a distinct health protection objective that requires more effective follow up and implementation. Second, environmental and public health governance are closely intertwined and this inter-linkage needs to be reinforced to protect both health and the environment at the international and domestic levels. Third, the substantive, procedural and institutional mechanisms of international environmental law regimes with a health objective have not optimized the protection of health in the developing world and Africa in particular. Fourth, the implementation mechanisms of

¹¹² Onzivu, W., 'International Environmental Law, the Public's Health and Domestic Environmental Governance in Developing Countries' (2006) 21(4) *American University International Law Review*, 605-610, discussing the role of WHO and World Trade Organization; Onzivu, W., '(Re) invigorating the Health Protection Objective of the Basel Convention on Trans-boundary Movement of Hazardous Waste and their Disposal' (2013) 33(4) *Legal Studies*, 621-649, discuss the challenges of coordination between the relevant agencies and Convention Secretariats with mandates on trans-boundary waste.

international environmental law have placed restrictions on the protection of public health in Africa. Fifth, the evidentiary case studies of climate change, transboundary waste and water demonstrate the limits of environmental law regimes for health protection in developing countries. Sixth, potential options for legal reform exist to improve health in the implementation of international environmental law in the developing world and Africa in particular but these require a clear theoretical underpinning. Finally, a reworked theory of adaptive governance reinforced by the four "pillars" of environmental justice, ethics, evaluation and multi-sectoralism can provide the theoretical foundation on which to develop the health outcomes of international environmental law to better effect.

4. Implications for Policy and Practice

International law scholarship can contribute positively to changes in policy and practice.¹¹³ The thesis has a number of implications for policy and practice on improving public health provision in international environmental law regimes. At the international level, the ongoing international environmental negotiations such as climate change negotiations need to adequately reflect the health dimension.¹¹⁴ Any agreements should include substantive mechanisms that tackle health challenges. Parties need to include health experts in environmental negotiations.¹¹⁵ Health concerns also need to be comprehensively addressed in the domestic implementation of

¹¹³ Stahn, C. & De Brabandere, E., The Future of International Legal Scholarship: some thoughts on "Practice", "Growth" and "Dissemination", 2014(1) *Leiden Journal of International Law*, 3-6.

¹¹⁴ Onzivu., note 53 above, 364-382.

¹¹⁵ Von Schirnding, Y., Onzivu, W. & Adede, A.O., note 4 above.

international environmental law, for example, in mitigation and adaptation policies in the context of international climate change law.¹¹⁶

The thesis therefore advocates a key role for the World Health Organization, the United Nations Environment Programme and relevant UN agencies in promoting health in international environmental governance.¹¹⁷ For example, the WHO Constitution provides the WHO with the authority to promote and adopt conventions, regulations, and recommendations that address any matter within its competence and empowers it to collaborate with other UN system agencies and programmes: WHO and UNEP have therefore promoted environmental protection in developing countries.¹¹⁸ In the context of climate change, the thesis argues that global health law can provide a synergistic role in promoting the health benefits of international climate change law as well as dealing with the health impact of climate change. Several joint technical reports on climate change have been issued by the WHO, United Nations Environment Programme and

¹¹⁶ Onzivu, W., ‘Tackling the Public Health Impact of Climate Change: The Role of Domestic Environmental Health Governance Mechanisms in Developing Countries’ (2009) 43(3) *The International Lawyer*, 1311; Onzivu, W., ‘Health in Global Climate Change Law: The Long Road to an Effective Legal Regime Protecting Public Health and the Climate’ (2010) 4 *Carbon and Climate Law Review* 364-382; n 17 above; Heinzerling, L., ‘Health Regulation and Governance: Climate Change, Human Health and the Post- cautionary Principle’, 96 *Georgetown Law Journal*, 445 at 450; Rajamani, L., ‘Addressing the ‘Post-Kyoto’ Stress Disorder: Reflections on the Emerging Legal Architecture of the Climate Regime’, (2009) 58 *International and Comparative Law Quarterly* , 803-834; Wiley, L.F., ‘Moving Global Health Law Upstream: A Critical Appraisal of Global Health Law as a Tool for Health Adaptation to Climate Change’, (2010) 22 *Georgetown Environmental Law Review*, 439 .

¹¹⁷ Onzivu, W., ‘(Re) invigorating the Health Protection Objective of the Basel Convention on Trans-boundary Movement of Hazardous Waste and their Disposal’ (2013), 33(4) *Legal Studies*, 621-649; Onzivu, W., ‘International Environmental Law, the Public’s Health and Domestic Environmental Governance in Developing Countries’(2006) 21(4) *American University International Law Review* , 605-610, discussing the role of WHO and World Trade Organization.

¹¹⁸ See WHO/FAO/UNEP joint Panel of Experts on Environmental Management for Vector Control and the WHO/ILO/UNEP International Programme on Chemical Safety.

the World Meteorological Organisation. In May 2008, the WHO's World Health Assembly passed a resolution on health and climate change.¹¹⁹

Moreover, WHO's definition of health; "a state of complete physical, mental, and social well being, and not merely the absence of disease or infirmity", gives the organization an expansive legal basis upon which to develop and promote international law. I have argued that WHO's definition of health provides a sound legal basis to bridge the health and environmental regulatory gap and offers a pathway for an effective implementation of environmental law while promoting and protecting public health in Africa.¹²⁰

However, much of WHO law is still soft (international) law and its effectiveness for environmental health protection needs to be strengthened by reinforcing implementation mechanisms for environmental health law.¹²¹

At the domestic level in Africa, a case is made for recognizing the importance of systematically reviewing the health objectives and impact of environmental regulation on health protection and of options for improvement. The participation of Health Ministries in international and domestic environmental governance needs to be enhanced. However, ministries of Health and the Environment need to strengthen their internal capacities to participate in the development and implementation of international

¹¹⁹ World Health Organization., Sixty-First World Health Assembly, Resolution WHA61.19, 24 May 2008.

¹²⁰ Onzivu, note 104 above 867-892

¹²¹ For example, Francis Snyder describes soft law as "rules of conduct which in principle have no legally binding force but which nevertheless may have practical effects." See Snyder, F., "The Effectiveness of EC Law," in Daintith, T., (Ed.) *Implementing EC Law in the UK* (John Wiley, Chichester, 1995); See also Dupuy, P.M., *Soft Law and the International Law of The Environment* (1991) 12 *Michigan Journal of International Law*, 420

environmental law.¹²² Legal reforms in public health and inter-ministerial coordination can improve environmental health governance. The health sector should be an integral part of the scientific, technical and legal input in environmental policy implementation. The thesis highlights the importance of establishing strong domestic inter-sectoral coordination mechanisms for environmental governance that includes all environment and health sectors. The involvement of both the environment and health sectors in international environmental law making and its domestic implementation can significantly improve the protection of public health, while advancing the effectiveness of environmental legal regimes.

Improving environmental assessments that fully incorporate health concerns should be a key focus for developing countries particularly in Africa. This could reinforce health aspects in environmental impact assessment and other areas such as strategic or health impact assessments which equally assess both health and environmental needs in a project or policy. The thesis also highlights the role of non-state actors in monitoring the implementation of environmental law to fulfill its objectives. Non-state actors can play an important role in monitoring the implementation of the health protection objective in Africa.¹²³ Individuals and NGOs can trigger a variety of formal and informal assessment processes, both internationally and through resort to domestic institutions, including courts. Beyond this, the thesis proposes institutionalizing the evaluation of environmental law as a mandatory legal requirement by African States.

¹²² Onzivu, *Opcit.*

¹²³ Onzivu., note 106 above, discussing resolutions of the Inter-ministerial Conference on Health and Environment in Africa that promote private sector and NGO participation in and monitoring of environmental health policies.

This would enable an assessment of the extent of health protection by environmental requirements at the domestic level.

A key theme of the thesis for international environmental governance is that the procedural and institutional mechanisms of the environmental Conventions need to reinforce health protection, including by strengthening health reporting by Parties under international environmental law. This would highlight the scope of health threats that need to be considered in the functioning and implementation of international environmental law. Another theme relates to the need to improve the governance of treaties in tackling evolving challenges in relation to realizing their stated objectives. The landmark Bali combined meeting of the Conference of Parties (ExCOP) of the Basel, Rotterdam and Stockholm Conventions and its Omnibus Decisions and the February 2012 merger of Basel, Rotterdam and Stockholm Secretariats are initiatives that reflect this study's quest to improve the effectiveness of environmental and health objectives and reflect adaptive governance in action. A theme related to these reforms is that Secretariats of environmental Conventions with an explicit health protection objective need to put in place health units to facilitate follow up of health obligations and implementation by Parties. Dedicating staff with relevant health related expertise can facilitate the provision of effective legal and technical assistance and promote participation and engagement of the health sector at both international and domestic levels in the governance of environmental treaties.

A major issue underpinning this thesis is that Parties could adopt binding instruments such as Conventions and Protocols that more comprehensively improve the linkages

between public health and environmental issues. These legally binding instruments could help to address the gaps identified in this thesis such as improving sectoral coordination, capacity building, institutionalizing evaluation, improving health reporting and exchange of information. This would not only improve health protection objectives but also generally strengthen the effectiveness of environmental legal regimes. For example, I have proposed the adoption of a Protocol on Waste and Health beyond the Bali Declaration on Waste for Human Livelihood and Health.¹²⁴ This would obviate the weaknesses of soft law and introduce binding approaches to counteracting the adverse health impacts of trans-boundary movement of hazardous waste.

Strengthening compliance mechanisms of international Conventions with a health objective is a critical step to improving health protection in environmental legal regimes. This could include the adoption of new compliance structures and enforcement powers, increased funding and technical assistance for treaty implementation. For example, in the context of the Basel Convention, it has been proposed that the Compliance Committee could be given compulsory and sufficient funding by parties and effective powers to enforce compliance with the Convention to protect both human health and the environment.

¹²⁴ Onzivu., note 108 above, 621-649

5. Originality and value

The mark of originality and making a distinctive valuable contribution to the field of study are fundamental to a PhD thesis.¹²⁵ The publications submitted as part of this thesis demonstrate significant and coherent synergy, originality and value through the conceptual and practical linking of key issues. The publications evaluate the distinct health protection objective of international environmental law, its limited impact in substantive, procedural, institutional and implementation terms and options for reform in the context of a reworked theoretical framework of adaptive governance. The papers have been published in highly ranked, peer reviewed law journals including *Legal Studies*, *RECIEL* and *International Lawyer*. They map emerging international and domestic action to reinforce the linkages between health and the environment for the mutual advancement of both.¹²⁶ For example, the thesis analyzes the Bali Declaration on Waste Management for Human Health,¹²⁷ the Inter-ministerial Conference on Health and the Environment in Africa¹²⁸ and, at the domestic level, the development of environment and health action plans in a number of developing countries.¹²⁹

While the papers deal with health in international environmental law, they also seek to explore the development and implementation of international environmental law at the global, regional and domestic levels. The case studies on climate change, transboundary

¹²⁵ Loughnan, A. & Shackel, R., *The Travails of Postgraduate Research in Law*, (2009) 19 *Legal Education Review*, 99 at 104.

¹²⁶ Onzivu., note 93 above, on the emergence of inter-ministerial environment and health conferences, and environment and health action plans.

¹²⁷ *Ibid.*

¹²⁸ *Ibid.*

¹²⁹ Onzivu, W., 'International Environmental Law, the Public's Health and Domestic Environmental Governance in Developing Countries' (2006) 21(4) *American University International Law Review* 597-600, 637-676. ; Onzivu, W., 'Tackling the Public Health Impact of Climate Change: The Role of Domestic Environmental Health Governance Mechanisms in Developing Countries' (2009) 43(3) *The International Lawyer*, 1311.

waste, shared waters and adaptive governance analyse how the health and environmental interactions at the international and domestic levels operate and how they can be improved. Several smaller case studies in the thesis have highlighted the weaknesses of international environmental law for health protection. First, an analysis of successive UNFCCC COP decisions found limited or no health measures.¹³⁰ Second, a study of NAPAs found a limited inclusion by developing countries of health adaptation projects.¹³¹ Third, an analysis of the legal regime of the Senegal River Basin identified the ensuing public health crisis due to the failure to include health protecting measures.¹³² Fourth, a mini case study of the Bali Declaration on Waste Management for Human Health identified both the pathways and the limits of soft law initiatives to improve health protection in an environmental law regime.¹³³ Fifth, a case study of the Inter-Ministerial Conference on Health and the Environment in Africa (IMCHE) identified weak transnational and domestic environmental health governance in Africa and proposed adaptive governance as the solution to redress the lacuna.¹³⁴ Significantly, the thesis proposes that for adaptive government to be beneficial in Africa, the embedding of four pillars *viz* ethics, environmental justice, evaluation and multi-sectoralism offer an effective mechanism for reinforcing health protection in international environmental law.¹³⁵

¹³⁰ Onzivu, note 102 above, 364-382.

¹³¹ Ibid; Onzivu, W., 'Tackling the Public Health Impact of Climate Change: The Role of Domestic Environmental Health Governance Mechanisms in Developing Countries' (2009) 43(3) *The International Lawyer*, 1311.

¹³² Onzivu., note 105 above.

¹³³ Onzivu., note 108 above.

¹³⁴ Onzivu., note 106 above.

¹³⁵ Ibid.

Each of the papers in the thesis demonstrates originality in the analysis of the health objectives and impacts of international environmental law. The case studies in particular expound upon the health and environmental interface in the operationalization of international conventions at the global, regional and domestic levels. There are few other previous works that have systematically analyzed the health objective or impact in international environmental law with a focus on the developing world and Africa in particular. The thesis provides new perspectives and options that exist under international environmental law to examine and tackle health challenges. It provides new pathways for implementing international environmental law as well as options to improve its overall effectiveness in achieving its stated objectives. The contribution of the thesis is explained in more detail in the following analysis of the individual publications.

CHAPTER III: THE HEALTH OBJECTIVE AND IMPACT OF INTERNATIONAL ENVIRONMENTAL LAW: THEMATIC CONTRIBUTION TO KNOWLEDGE OF THE PUBLICATIONS

1. Introduction

The seven publications presented for the PhD demonstrate a common theme that while international environmental law has a distinct health protection objective, its impact on health protection has been limited and options are proposed to improve health. Publications 1 and 2 introduce and define the core problems and options for improving environmental legal regimes to improve the promotion and protection of public health. Mini case studies of some legal regimes provide a snapshot for further inquiry in the later papers. Publications 3, 4, 5 and 6 focus on comprehensive case studies of sustainable management of shared freshwaters in Africa, trans-boundary movement of hazardous waste and their disposal and climate change to demonstrate the strengths and limits of the legal regimes for health. Publication 7 brings together the key themes across the publications by providing a framework for analysis of the health objective in international environmental law, its impact and options for reform. It provides a rethought theory of adaptive governance. The analysis in the 7 publications encompasses substantive, procedural, institutional and enforcement aspects of the relevant legal regimes. The combined papers make a coherent contribution to knowledge and practice which include: provision of evidence through analysis of a health objective of international environmental

regimes, the varying linkages between health and environmental legal regimes at the international and domestic levels, findings on the strengths and limitations of the substantive, procedural, institutional and implementation aspects of environmental legal regimes, analysis of primary materials and instruments in case studies of transboundary water, waste and climate change to demonstrate the need for improvement of implementation of the relevant legal regimes to improve health.

2. Publication 1: International environmental law, the public's health and domestic environmental governance in developing countries, (*American University International Law Review*, 2006)

This is the introductory paper for the PhD submission.¹³⁶ In 2006 when this paper was published, The American University International Law Review ranked 5th out of 202 international law journals under Washington & Lee's journal rankings.¹³⁷ This paper introduces the key issue of the thesis, the limited integration of the health protection objective in international environmental law and its implementation at the domestic level. It discusses the nexus between health and the environment and develops earlier works by the author¹³⁸ and others¹³⁹ on the role of international environmental law in the promotion and protection of global public health. However, these publications did not systematically and comprehensively explore the challenges facing the achievement of health objectives in international environmental law (including at domestic levels in

¹³⁶ Onzivu., note 37 above, 597-684

¹³⁷ See law journal rankings at www.lawlib.wlu.edu/LJ/.

¹³⁸ Von Schirnding, Onzivu. & Adede., note 4 above.

¹³⁹ Fidler, D.P., Challenges to Humanity's Health: The Contributions of International Environmental Law to National and Global Public Health, (2001) 31 *Environmental Law Reporter*. 10048.

the developing world and particularly in Africa). This general introductory paper fills this lacuna by comprehensively exploring the realities of integrating health concerns in international and domestic environmental governance in developing countries. It does so at four levels.

Firstly, it discusses the public health impacts of environmental threats and the importance of ecosystems for public health protection and promotion. A novel contribution to evaluation of the health and environment linkage is the analysis of the role of health in the conservation of natural resources and the provision of some significant examples such as the environmental context of Ebola and the mountain gorillas in Uganda.¹⁴⁰ This resonates in contemporary Africa where the fatal Ebola outbreaks including the 2014 epidemic in West Africa have been linked to wildlife especially bats and primates that are host reservoirs to this deadly virus.¹⁴¹

Secondly, the paper contributes to pre-existing work by reviewing the progressive development of health in international environmental law from the 1972 Stockholm Conference on Human Environment, the 1992 United Nations Conference on Environment and Development (UNCED) in Rio to the 2002 World Conference on Sustainable Development in Johannesburg. This provides a basis for the subsequent

¹⁴⁰ Onzivu. , note 37 above, 605-610.

¹⁴¹ See Food and Agriculture Organization.,FAO Warns of Fruit Bat Risk in West African Ebola epidemic, accessed at <http://www.fao.org/news/story/en/item/239123/icode/> on 5th August 2014. See also Newman, S.H., Field, H., Epstein, J.& de Jong, C., Investigating the Role of Bats in Emerging Zoonoses: Balancing Ecology, Conservation and Public Health Interest, Food and Agriculture Organization of the United Nations, Rome, 2011; Dixon, M.A., Dar, O.A. & Heymann, D.L., Emerging Infectious Diseases: Opportunities at the human-animal-environment Interface, (2014)174(22) *Veterinary Record* 546-551.

cases studies on issues such as the sustainable development of the shared freshwaters of Lake Victoria.¹⁴²

Thirdly, the paper initiates a health review of specific international environmental agreements with mini-case studies of the Rotterdam Prior Informed Consent Convention,¹⁴³ the Stockholm Convention on Persistent Organic Pollutants¹⁴⁴ and the Vienna Convention on the Protection of the Ozone Layer.¹⁴⁵ This highlighted the challenges facing public health promotion and protection in specific environmental treaties especially in the developing country context. The mini-case studies also provided the basis for in-depth case studies of the implementation of global legal regimes on climate change, transboundary waste and transboundary freshwater as discussed below.¹⁴⁶

Fourthly, the paper also systematically reviews some of the pathways for domestic regulatory integration of health and environmental concerns in developing countries, including examples from Africa. These pathways include national environmental action plans, national environmental and health laws, environmental and health impact assessments, national institutions for the environment, the role of health ministries,

¹⁴² Onzivu., note 107 above, 867-892.

¹⁴³ Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, Sept. 11, 1998, 38 I.L.M. 1 (1999).

¹⁴⁴ Stockholm Convention on Persistent Organic Pollutants, May 22, 2001, [40 I.L.M. 532 \(2001\)](#).

¹⁴⁵ Vienna Convention for the Protection of the Ozone Layer, Mar. 22, 1985, T.I.A.S. No. 11,097, 1513 U.N.T.S. 293 [hereinafter Vienna Convention]; Montreal Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, S. Treaty Doc. No. 100-10, 1522 U.N.T.S. 29. For a full text of the Montreal Protocol, incorporating all amendments and adjustments, see Ozone Secretariat, UNEP, The Montreal Protocol on Substances that Deplete the Ozone Layer (2000), <http://www.unep.ch/ozone/pdf/Montreal-Protocol2000.pdf>, visited 22 July 2014.

¹⁴⁶ Ruhl, J.B., 'Thinking of Environmental Law as a Complex Adaptive System: How to Clean up the Environment by Making a Mess of Environmental law' (1997) 34 *Houston Law Review* 933.

capacity building, financial and technical assistance, the role of domestic courts and the finally the role of civil society and related stakeholders. The paper highlights options to optimize health protection through these domestic environmental governance mechanisms. Finally, it introduces the roles of some key international institutions in the discourse on implementing the health objective of international environmental law. This is a precursor to understanding the role of international institutions in the thesis such as the WHO in reinforcing the health protection objective, and as critical nodes in international environmental health governance.

This paper represents a significant improvement on earlier works by identifying the core problem of the limits of the health objective in the development and implementation of international environmental law in the developing world. The paper sends a clear message to policymakers, other practitioners and scholars about the need to rethink the linkages between health and international environmental law and its transposition in the domestic context. It also highlights a gap in law, policy and practice: the need to develop new ways of reinforcing human health in international and domestic environmental governance.

3. Publication 2: Re-examining health protection in international environmental regulation (*Routledge, 2012*)

This book chapter is published under Earthscan by Routledge.¹⁴⁷ Routledge by Taylor and Francis is one of the top academic publishers in the UK and beyond. The book chapter argues that despite the vast body of international law that provides for health protection, their implementation and impact especially in the developing world is weak and ineffective. The chapter also introduces aspects of environmental regulation that highlight its ineffectiveness in optimizing health protection. These include health protection in the context of sustainable development, the regulation of shared waters, the regulation of trans-boundary waste, international climate legal regimes, European Union environmental health law (as a comparative analysis) and domestic implementation of environmental law, which all demonstrate the limits of health promotion and protection in environmental law. The chapter also uses case studies of the legal regime of the Senegal River basin, emerging domestic climate legislation in developing countries, and EU law to demonstrate the inherent limits of health protection. The chapter reinforces the linkages between health and environment as advanced in publication 1.¹⁴⁸ It notes that environmental law has many of its origins in the public health regulation in Victorian Britain.¹⁴⁹ It also argues that the social pillar of sustainability includes human and societal capabilities and that health bridges the environmental, economic and social pillars of sustainability.

¹⁴⁷ Onzivu., note 105 above.

¹⁴⁸ Onzivu. , note 37 above, 601-609.

¹⁴⁹ Lazarus, R.J., *The Making of Environmental Law* (Chicago: University of Chicago Press, 2004).

To further the linkages between health and environmental law, the chapter reviews existing literature and argues that environmental law continues to be viewed as a component of global health law. This is evidenced by the health objective of several environmental treaties as well as a growing body of soft law adopted under the auspices of the World Health Organization on matters of health and the environment. Throughout the thesis, environmental law is evaluated for its (in) effectiveness in health protection. The chapter defines effectiveness to include legal, problem-solving, economic, political and normative effectiveness.¹⁵⁰ It also analyses effectiveness in terms of treaty objectives, participation, implementation, capacity building, operation, review and adjustment.¹⁵¹ Stressing the importance of effectiveness in terms of achieving the health objective of environmental law, the chapter analyses the importance of the Vienna Convention on the Law of Treaties, which provides that a treaty should be interpreted in good faith including in the light of its object and purpose.¹⁵² This reflects a recurrent theme throughout the thesis that the health objective of international environmental law has not been optimized as it ought to be and there are options to improve health promotion and protection in environmental law at both the international and domestic levels.

The chapter then examines three mini case studies to demonstrate the limits of health protection in international environmental regulation. Firstly, the legal regime for the management of the River Senegal Basin had initially failed to take account of the health

¹⁵⁰ Sand, P.H., *Effectiveness of International Environmental Agreements: a Survey of Existing Legal Instruments* (Cambridge University Press: Cambridge 1992) 4-15.

¹⁵¹ *Id.*

¹⁵² Vienna Convention on the Law of Treaties, 1155 U.N.T.S. 331, 8 I.L.M.679, Article 31.

challenges of the Basin. Subsequently, disease epidemics such as cholera became endemic among the Basin population and this overtook other objectives such as irrigation that the legal regime set out to achieve.¹⁵³ Secondly, the paper surveyed developments in the adoption of domestic climate legislation around the world and identified a lack of direct health protection provisions in such legislation.¹⁵⁴ Finally, the paper highlights EU environmental law initiatives to tackle the health challenges of the environment in order to redress the health deficit in European environmental regulation. This was an attempt to demonstrate that even in a developed world jurisdiction, the weak implementation and impact of the health objective in EU environmental law is recognized and actions are being taken to improve law and policy in this area.

The book chapter concludes by setting out the starting points for the improvement of the current provision. These include the recognition of environmental health as a public good,¹⁵⁵ the need to reinforce impact assessments of health in all its evolving forms such as health impact assessment, linking this with regular evaluation of environmental laws and their health and other objectives, enhancing multi-sectoral institutional coordination, and most importantly, the redefinition of the social pillar of sustainability to include a specific health pillar. This publication is significant in that it reinforces the evidence and arguments in publication 1 on the linkages between environment and health. It also provides additional case studies in this context and identifies options to improve health protection in environmental law. Finally, it introduces the governance of

¹⁵³ Onzivu., note 105 above.

¹⁵⁴ Id.

¹⁵⁵ See also Onzivu., note 102 , 365-366, which reinforces this theme and argues that climate change and health actions are a public good.

shared fresh waters, climate change and transboundary waste as key issues and sets out the case for their extensive analysis in the subsequent publications of the thesis.¹⁵⁶

4. Publication 3: The Long Road to Integrating Public Health into Sustainable Development of Shared Freshwaters in International Environmental Law: Lessons from Lake Victoria in East Africa, (*International Lawyer, Fall 2012*)

This paper is published in the *International Lawyer*.¹⁵⁷ In 2013, the *International Lawyer* was ranked number 3 (after the *European Journal of International Law* and *American Journal of International Law*) of all refereed international law journals as compiled by Washington & Lee's Law Journal rankings. A key criterion for the ranking is the impact factor.

The paper argues that international water law, as a body of international environmental law, has not maximized the protection of health in water management.¹⁵⁸ The rethinking of the management of shared waters and health is considered in the context of the sustainable management of Lake Victoria. This is discussed through the lens of

¹⁵⁶ Onzivu, W., 'The Long Road to Integrating Public Health in the Sustainable Management of Shared Freshwaters: Lessons from Lake Victoria in East Africa' (2012) 46(3) *International Lawyer* 867-892; Onzivu, W., '(Re) invigorating the Health Protection Objective of the Basel Convention on Trans-boundary Movement of Hazardous Waste and their Disposal' (2013) 33(4) *Legal Studies*, 621-649; Onzivu, W., 'Health in Global Climate Change Law: The Long Road to an Effective Legal Regime Protecting Public Health and the Climate' (2010) 4 *Carbon and Climate Law Review* 364-382.

¹⁵⁷ Onzivu., note 104 above 867-892.

¹⁵⁸ See Sands, P. & Peel, J.(with Fabra, A. & Mackenzie, R.), *Principles of International Environmental Law*, (Third Edition, Cambridge University Press, Cambridge, 2012), 13-14 stating that "the definition of environment continues to evolve with inputs from religion, science, economics and philosophy. Legal definitions of the environment reflect scientific categorizations as well as political acts that incorporate cultural and economic dimensions. A scientific approach defines environment into compartments that include atmosphere, atmospheric dispositions, soils and sediments, water quality, biology and humans". See also 1997 Watercourses Convention, Art.1(2) which defines the environment broadly in terms of its impacts which include human health and safety, flora, fauna, soil, air, water, climate, landscape and the interaction among these factors.

international, regional and domestic law, policy and practice. The paper provides evidence that health is affected to a great extent by environmental conditions. It also states that WHO definition of environmental health as the “direct pathological effects of chemicals, radiation and some biological agents, and the effects on the health of the broad physical, psychological, social and aesthetic environment”¹⁵⁹ reflects WHO’s constitutional definition of health. This reflects health as both psycho-social and physical.... that humans are living beings who exist in social environments.¹⁶⁰ It is reported that there is a direct relationship between availability of freshwater and human health and that water-borne diseases constitute a high proportion disease and death globally, with increasing incidence in Africa.

The case of Lake Victoria basin in East Africa demonstrates this scenario with its combination of poverty and the public health threats of HIV AIDS, malaria, unplanned urbanization and environmental degradation. Pollution and related water borne diseases such as typhoid fever, cholera and dysentery reduce life expectancy in the Basin. Eutrophication and urban pollution from several towns around the lake have contributed to the discharge of effluent, pesticides, medical waste, oil and banned substances posing a severe threat to human health.

These challenges are closely intertwined with the inadequacies of international sustainable development law in tackling health issues. While sustainable development

¹⁵⁹ WHO Constitution, Preamble which defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

¹⁶⁰ Ruger, J. P., 2 *Public Health Ethics* 261,267 (2009).

is provided for in several global instruments,¹⁶¹ and is increasingly recognized as an evolving body of international law,¹⁶² I argue that it is not fully responsive to health concerns of the Lake Victoria Basin. This is because the regional and domestic legal regimes reflect the health deficits of global sustainability law. These include the contested legal status of the principle, the lack of clarity on the scope of health protection under the social pillar and ineffective legislation and enforcement to address health challenges. The limits of international sustainable development law are also replicated in international water law which focuses more on water allocation than quality,¹⁶³ which in turn undermines health protection despite the existence of an isolated Water and Health Protocol in Europe.¹⁶⁴ Yet, there is no equivalent regional legal instrument in Africa.

In the face of weak global legal frameworks for sustainable management of Lake Victoria that fail to maximize health protection, the legal frameworks adopted under the auspices of the East African Community (EAC) could have been utilized to promote health in the Basin. Unfortunately, despite EAC competence in the protection of health and the environment,¹⁶⁵ its legal frameworks have not prioritized health promotion and

¹⁶¹ United Nations Conference on Environment & Development., June 3-14, 1992, Agenda 21 Programme of Action for Sustainable Development, P8.28, U.N. Doc. A/CONF.151/26 (1992) [Agenda 21]; see also U.N. Dep't of Econ. & Soc. Affairs, Division for Sustainable Development, Plan of Implementation of the World Summit on Sustainable Development (Dec. 15, 2004), available at http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIChapter1.htm

¹⁶² *Gabcikovo-Nagymaros Project (Hung. v. Slovak.)*, 1997 I.C.J. 7, 78 (Sept. 25).

¹⁶³ Bruch, C., *Adaptive Water Management: Strengthening Laws and Institutions to Cope with Uncertainty*, *Water Resources Development and Management*, 89-113, in Biswas, A.K., et al., *Water Management in 2020, Water Management and Development* (Springer, 2009).

¹⁶⁴ Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, June 17, 1999, 2331 U.N.T.S. 202, 269.

¹⁶⁵ Articles 5(1), 19, 21, 5(3)(a), (c); EAC, Protocol for Sustainable Development of Lake Victoria Basin, Nov. 29, 2003, [available at http://www.internationalwaterlaw.org/documents/regionaldocs/Lake_Victoria_Basin_2003.pdf](http://www.internationalwaterlaw.org/documents/regionaldocs/Lake_Victoria_Basin_2003.pdf); EAC, Protocol on Environment and Natural Resources Management, Apr. 3, 2006, [available at](http://www.internationalwaterlaw.org/documents/regionaldocs/Lake_Victoria_Basin_2003.pdf)

protection as they should. The paper advances a number of reasons for this failure of sustainability and health promotion and protection in the region. Firstly, the weak and fragmented sustainability regimes in the EAC have prioritised the economic pillar over the social pillar to the detriment of health protection in the Basin. The laws are market driven and aimed at trade liberalization and economic development: they are devoid of detailed social and environmental protection frameworks. Secondly, there is a dearth of comprehensive legal mechanisms for tackling environmental health. Despite the existence of public health laws in the EAC Partner States to address water quality, these have not facilitated the monitoring of Lake Victoria's pollution and the resulting environmental health crisis. Thirdly, the lack of domestic multi-sectoral coordination between health and environment Ministries and the resultant failure to implement regional social goals at the domestic levels undermines collaborative efforts to promote integrated environmental health governance in the region.¹⁶⁶ Poor coordination between regional and domestic initiatives undermines health promotion in the area. This reflects the perils of sectoral competition that have long undermined environmental health governance in East Africa.¹⁶⁷ Fourthly, the enforcement of and compliance with water laws in East Africa is problematic. Lack of awareness of water rights, lack of coordination between sectoral ministries and poor involvement of local communities,

http://www.eac.int/environment/index.php?option=com_content&view=article&id=122:eac-gender-a-community-development-framework&catid=3:key-documents.

¹⁶⁶ Bertilsson, R., et al., Stockholm Int'l Water Inst., Integrated Water, Sanitation and Natural Resources Initiative in the Lake Victoria Region 1, 14 (June 2006), available at http://www.siwi.org/documents/Resources/Papers/Paper10_Integrated_Initiative_Lake_Victoria_Region_2006.pdf, visited June 10th 2014.

¹⁶⁷ Andreen, W.L., Environmental Law and International Assistance: The Challenge of Strengthening Environmental Law in the Developing World, (2000) 25 *Columbia Journal of Environmental Law*, 17, 21-22, finding that the lack of coordination between health and environmental sectors in developing world leads to competition over funding, inconsistent and overlapping implementation of environmental health measures.

competition for resources, lenient penalties and weak public health laws and enforcement regimes undermine health protection in the Basin. Finally, limited technical capacity as well as lack of civil society participation undermines public health promotion and protection in the region.

The paper concludes by providing options for reform which include adopting an adaptive governance framework to address issues of uncertainty in the policy process to tackle the Basin's environmental health challenges. It also proposes that the EAC and its Member States implement long term regional health and sustainability plans for the Basin to tackle social issues, especially health. It recommends the implementation of riparian wide law reform and harmonization to address existing and emerging public health threats facing the region. Finally, the EAC and its Member States need to foster effective bottom up civil society and community participation in law development and implementation aimed at addressing environmental health threats in the region.

This paper represents a significant advance in scholarship by demonstrating the limits of health promotion and protection in the context of sustainable development in international environmental law at the global, regional and domestic levels through a case study of the Lake Victoria Basin. The paper contributes to understanding of the importance of sustainable development in rethinking the environmental health governance of shared freshwaters. It also highlights the challenges of health in regional governance and its transposition in the domestic context in relation to shared freshwaters. The paper stresses the importance of law reform, multi-sectoral coordination and reinforcing the participation of civil society, including communities. Finally, it emphasizes the importance of adaptive governance as a valuable theoretical

framework for rethinking health protection in the legal regime governing the Lake Victoria basin.

5. Publication 4. Health in global climate change law: The long road to an effective legal regime protecting both public health and the climate (*Carbon and Climate Law Review*, 2010)

This paper is published by the *Carbon and Climate Law Review*.¹⁶⁸ In 2013, the journal was ranked 7th out of the 28 refereed environmental and natural resources journals compiled by Washington & Lee's Law Journal rankings. This paper amplifies the key problem at issue in the thesis, the limited implementation of the health objective in international environmental law. This paper systematically reviews the status of public health in the international climate change legal regime. It focuses on the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and related legal instruments and assesses their implications for protecting and promoting health and tackling climate change. There are some previous publications on health and climate change, including some from a legal perspective.¹⁶⁹ Despite this body of scholarly work, there are limited scholarly legal publications that exclusively analyze the texts and the progressive development of the UNFCCC and the Kyoto Protocol to analyse the health mandate in the legal regimes and its implementation at the international and domestic levels. The paper therefore discusses and builds on the

¹⁶⁸ Onzivu., note 102 above, 364-382.

¹⁶⁹ Martens, W.J.M., et al., Potential Impact of Global Climate Change on Malaria risk, (1995) 103 *Environmental Health Perspectives*; Heinzerling, L., "Health Regulation and Governance: Climate Change, Human Health and the Post-cautionary Principle", 96 *Georgetown Law Journal*, 445 at 450; Wiley, L.F., "Moving Global Health Law Upstream: A Critical Appraisal of Global Health Law as a Tool for Health Adaptation to Climate Change" (2010) 22 *Georgetown Environmental Law Review*, 439.

linkages between health and climate change by identifying health as a core issue for global climate change law and the health paradigm in its progressive development and implementation.

The legal and institutional limitations of the UNFCCC and Kyoto Protocol in the context of public health and protection of the global climate are analyzed with evidence from international climate law as well as from some pre-existing scholarly works. The publication argues that the UNFCCC and the Kyoto Protocol are biased towards emission reduction largely by mitigation, a bias that is also reflected in emerging domestic climate legislation in both the developed¹⁷⁰ and the developing world.¹⁷¹ As the paper confirms, health is largely confined to the legal framework for climate adaptation, but faces challenges in the areas of finance, sectoral coordination, and compliance. These limitations in turn undermine robust actions by Parties to undertake measures protecting health in the context of climate change. The paper contributes to new knowledge by rethinking the importance of health in international climate law and policy and linking this with the publication on climate change in domestic environmental health governance in developing countries.¹⁷² The paper also explores options for international and domestic legal and institutional reforms to improve the status quo. Its proposal on the role of adaptive governance is a further development of a

¹⁷⁰ Onzivu, W., Mind that Gap: International Climate Law, Health Protection and the United Kingdom's Climate Legislation, (2012)21(2) *European Energy and Environmental Law Review*, 79, 89-90.

¹⁷¹ Onzivu, W., 'International Climate Law, Health Promotion and Evolving Domestic Climate Law in Developing Countries' (special edition, 2013) *African Yearbook of International Law* 257-285 at 261.

¹⁷² Onzivu, W., Tackling the Public Health Impact of Climate Change: the Role of Domestic Environmental Health Governance Mechanisms in Developing Countries, (2009) 43(3) *The International Lawyer*, 1311.

common theme which runs throughout the thesis.¹⁷³ The paper makes the following contributions to improving knowledge.

Firstly, it amplifies the pre-existing evidence that climate change will impact on human health and links this to human rights by adopting an equity framework. This demonstrates the power imbalance between the richer nations which contribute more to climate change and have resources to mitigate it and the poorer developing nations which contribute less to the problem. It also highlighted the issue of climate change in the context of efforts to tackle disease in the developing world.¹⁷⁴ Secondly, the paper also traces the health mandate in the United Nations Framework Convention on Climate Change (UNFCCC) to the pre-UNFCCC environmental legal agenda as it relates to health. It argues that from the 1972 Stockholm Conference on Human Health and the Environment to Agenda 21 and the 1992 Rio Declaration of the United Nations Conference on Environment and Development where climate change was discussed, health had always been considered a central theme and concern in the progressive development of environmental law.¹⁷⁵ Thirdly, the paper examines the substantive provisions of both UNFCCC and its Kyoto Protocol, arguing that a direct mandate and health objective is present in the two instruments.¹⁷⁶ This provides a sound legal basis to reinforce health protection in international climate law. Fourthly, the paper conducts a systematic analysis of the UNFCCC Conference of Party Decisions from 1995 to 2010 to explore a health promotion and protection mandate. It concludes that despite

¹⁷³ Onzivu., note 106 above.

¹⁷⁴ Onzivu., note 102 above , 365-366.

¹⁷⁵ Onzivu. , note 38 above. 597-600, 637-676.

¹⁷⁶ UNFCCC., Articles 1 and 4(1)(f).

some references to health, UNFCCC COP has not provided comprehensively for health protection.¹⁷⁷ This is relevant because UNFCCC COP decisions have an important operational significance in the development and implementation of climate law and policy including as it applies to health.¹⁷⁸ Fifthly, the paper elaborates on the role of the WHO in the development of soft international climate law and policy and identifies a consistency in its engagements with UNFCCC institutional structures and processes.¹⁷⁹ This links to a discussion of the WHO's role in tackling the health impact of climate change through its participation as a key actor in international climate law implementation.¹⁸⁰ This part of the discussion also highlights a key component of this thesis, that WHO law and policy is a part of the corpus of evolving international climate law in part because of the health mandate and objective in the UNFCCC and other policy linkages.¹⁸¹ It develops further the role of WHO as a key actor in improving environmental health governance in developing countries.¹⁸² Sixthly, the paper evaluates the implementation of the UNFCCC and Kyoto Protocol particularly treaty reporting as well as the adaptation and mitigation measures and their role in tackling the health impact of climate change. It argues that there is limited Party reporting on health issues under the Convention's mechanisms. On adaptation to climate change, the papers surveys National Adaptation Plans of Action(NAPAs) and other literature concluding that over 44 Parties to the UNFCCC, mostly from Africa,

¹⁷⁷ Onzivu, note 102 above, 368-370.

¹⁷⁸ Ibid, page 373; Rajamani, L., "Addressing the 'Post-Kyoto' Stress Disorder: Reflections on the Emerging Legal Architecture of the Climate Regime", (2009) 58 *International and Comparative Law Quarterly*, 803-834.; Brunnée, J., "COPing with Consent: Law Making under Multilateral Environmental Agreements", (2002) 15 *Leiden Journal of International Law*, 1, at 32.

¹⁷⁹ Onzivu, note 102 above, 370-372.

¹⁸⁰ Onzivu., note 172 above.

¹⁸¹ Burleson, E., *Climate Change Consensus: Emerging International Law*, (2010) 34 *William & Mary Environmental Law & Policy Review*, 543 at 566.

¹⁸² Onzivu., note 37 above, 597-684.

had reported health as being in need of adaptation action. This emerging practice by Parties reinforces the existence of a direct human health promotion and protection mandate in international climate law. However, it also identifies the predominance of other sectoral concerns over health in the NAPAS. The paper also examined the status of health in mitigation actions. It concluded that the ongoing climate negotiations have not adequately prioritized action on strengthening the linkages between health and mitigation. Finally, the paper offers options for reform using the conceptual framework of adaptive governance as well as consideration of climate change and health efforts as a public good. It argues for climate specific legal reforms as well as enhancing the role of WHO law and policy in evolving international climate law and policy. This thinking is reflected in the other publications and culminates in the paper on adaptive governance, which brings together key themes of the thesis.¹⁸³

To conclude, this paper reinforces the centrality of health in the UNFCCC and Kyoto Protocol through adducing evidence on the health impacts of climate change. It clarifies the health objective of UNFCCC and Kyoto Protocol. It reposita a health mandate in the substantive provisions of the UNFCCC and Kyoto as well as in their implementation by Parties. It also contributes to clarifying the scope of international climate law in WHO law. Furthermore, it proposes options for reform through the concept of adaptive governance. The paper therefore makes contribution to knowledge on the development and implementation of international climate law and policy as it relates to health protection and promotion, particularly in developing countries.

¹⁸³ Onzivu., note 106 above.

6. Publication 5: Tackling the health impact of climate change: the role of domestic environmental governance mechanisms in developing countries
(International Lawyer, 2009)

This paper is published in the *International Lawyer*.¹⁸⁴ In 2013, The *International Lawyer* was ranked number 3 (after the *European Journal of International Law* and *American Journal of International Law*) of all refereed international law journals as compiled by Washington & Lee's Law Journal rankings.

This paper analyses the challenges of protecting public health in international and domestic environmental governance. Focusing on tackling the health impacts of climate change, it evaluates the role of domestic environmental health mechanisms in developing countries. The paper collates evidence that climate change is projected to have deleterious effects on public health particularly in Africa and other developing countries that lack systems of resilience to mitigate or adapt to climate change. Previous papers on climate change and health had not focused on the importance of the potential and limits of environmental governance mechanisms in developing countries.¹⁸⁵ They have also not explored the importance of domestic environmental health governance mechanisms for tackling the health impacts of climate change. It is in this context that the paper analyzes climate change and its related health challenges in developing countries as an environmental health governance issue. This links with paper 7 which considers the health and environmental challenges in Africa as a problem of

¹⁸⁴ Onzivu., note 172 above.

¹⁸⁵ Martens, W.J.M., et al., note 156 above (1995) 103 *Environmental Health Perspectives*, 458,463.

transnational environmental health governance.¹⁸⁶ The paper summarizes the evidence adduced by both the Intergovernmental Panel on Climate Change (IPPC) and WHO that climate change will increase air pollution, heat and pollen related, vector borne and water borne diseases.¹⁸⁷ It also highlights that the health effects of climate change are complex, huge, diverse and globalized, inequitable and will exacerbate existing environmental conditions.¹⁸⁸ The paper identifies an evolving body of international climate law beyond the core global climate agreements as fundamental frameworks to tackle the health impact of climate change in developing countries. In this context, the paper argues that beyond the UNFCCC and the Kyoto Protocol, WHO law and policy on climate change comprises a body of international climate law that emphasizes the importance of the role of domestic environmental health law in tackling climate change.

The paper identifies core environmental health governance mechanisms to tackle climate change in developing countries. Firstly, it identifies the beneficial role environmental health legislation can play in tackling health impacts of climate change. Such laws include framework environmental laws as well as sectoral laws. However, the paper systematically reviews the limitations of these laws in tackling climate change. In this context, the paper identifies the importance of adopting climate specific legislation to deal with the health impacts of climate change. Secondly, the paper, reflecting a coherent theme of the thesis, identifies weak institutional coordination in

¹⁸⁶ Onzivu.,note 106 above.

¹⁸⁷ Githeko, A.K. & Woodward, A., International Consensus on the Science of Climate and Health: The IPCC Third Assessment Report, in *Climate Change and Human Health, Risks and Responses*, 43,48 (McMichael AJ et al.eds.,WHO, 2003).

¹⁸⁸ Fussel, H.M., et al., *Adaptation Assessment for Public Health*, in *Climate Change and Adaptation Strategies for Human Health* 41, 48 Menne, B. & Ebi, K.L., (eds)., (Steinkopff Verlag Darmstadt 2006).

tackling the health impact of climate change despite provisions for multi-sectoral action in some developing countries. The climate change problem typically engages a range of ministries such as health, environment, meteorology and agriculture but lack of sectoral input undermines health policy. Thirdly, the paper undertakes a systematic review of National Adaptation Plans of Action (NAPAs) of Parties to the UNFCCC. Despite their limited integration of public health issues, the paper argues that NAPAs are a useful pathway to tackle the health impact of climate change. Notwithstanding the existence of such plans in a number of developing countries, the challenge has been to streamline both health and climate issues into relevant NAPAs. With bureaucracy, resource and other constraints, the author calls for the streamlining of climate change adaptation plans into sectoral public health and environmental plans. Fourthly, the paper identifies impact assessments as fundamental to tackling the health impact of climate change. The paper calls for exploring the broad range of emerging impact assessments beyond environmental impact assessments, such as health impact assessments and climate impact assessments, to address the health impacts of climate change. This proposal is developed in the later papers in which I argue for the institutionalization of evaluation in environmental health legal instruments.¹⁸⁹ Fifthly, the paper identifies the importance of health systems and infrastructure, especially the institutional role of the ministries of health, in counteracting the health impacts of climate change. However, it also stresses that the competing priorities, lack of funding, weak inter-sectoral coordination and a focus on curative medicine undermines the role of health systems at both centralized and decentralized levels in dealing with the health impacts of climate change. Sixthly, the paper continues with the theme of the importance of legal,

¹⁸⁹ Onzivu., note 106 above.

technical and financial capacity building by States to tackle the health challenges of climate change, but recognizes that this continues to be lacking in developing countries. Finally, the paper highlights the pivotal role of civil society, including communities, in participating in environmental health governance to counteract the health impacts of climate change.

This paper contributes to knowledge by introducing the importance of environmental health governance at the domestic level and this is developed in the transnational context in publication 7.¹⁹⁰ It also develops publication 1 by analyzing the scope of health protection in the domestic environmental governance of developing countries.¹⁹¹ It further reinforces health in the domestic implementation of international climate law as highlighted in publication 4.¹⁹² Existing literature focused on discussing the impact of climate change on health with limited discussion on the policy responses to this challenge. Not many publications had analyzed the legal responses to this challenge in a developing country context. This paper highlights the strengths and limits of existing environmental health law in developing countries as a potential tool to address the climate change health challenge. Furthermore, the paper identifies the evolving body of international climate law relevant to health beyond the UNFCCC and Kyoto Protocol to include applicable WHO law. It also reiterates a recurring theme in the thesis that improving health protection in environmental law requires rethinking multi-sectoralism, domestic environmental and health legislation, impact assessments, and the effective institutional coordination of health, environment and other relevant sectors. It further

¹⁹⁰ Ibid.

¹⁹¹ Onzivu., note 37 above, 605-610.

¹⁹² Onzivu., note 102, 364-382.

highlights the importance of capacity building as well as mobilization of civil society and communities. These aspects are systematically presented as pathways to improving health protection in environmental law, a theme that continues in the later publications of the thesis.

7. Publication 6: (Re) invigorating the health protection objective of the Basel Convention on Transboundary Movement of Hazardous Wastes and their Disposal, (*Legal Studies*, 2013)

This paper was published in *Legal Studies*.¹⁹³ It is considered to be one of the top 2 refereed law journals in the UK.¹⁹⁴ The paper systematically reviews the health dimensions of the Basel Convention on Transboundary Movement of Hazardous Wastes and their Disposal and options to strengthen it.¹⁹⁵ Existing works on the Convention are few, general and focused on environmental protection, trade or broad environmental health issues. The health perspective is rarely apparent, except when major waste disasters occur. The *Probo Koala* disaster which was examined in detail, demonstrates the centrality of health and its limits in the Basel Convention.¹⁹⁶ This is because the Convention's mechanisms could not promptly and adequately prevent or redress the environmental and health damage caused by the disaster.¹⁹⁷ The paper argues that the Convention's weakness risks damaging public health and the

¹⁹³ Onzivu., note 108above.

¹⁹⁴ Campbell, K., Goodacre, A.&Little, G., Ranking of United Kingdom Law Journals: An Analysis of the Research Assessment Exercise 2001 Submissions and Results, (2006) 33(3) *Journal of Law and Society*, pp. 335-363. Under this widely cited University of Stirling study of journal RAE returns as well as the 2008 RAE, it is a highly ranked journal in the UK.

¹⁹⁵ Onzivu., note 108 above.

¹⁹⁶ Id

¹⁹⁷ Id

environment, the two objectives it ostensibly promotes. This paper fills a gap in environmental legal scholarship and on the Basel Convention in particular by repositioning health in the Convention in order to promote public health and the effectiveness of the Convention. Effectiveness in this context includes compliance with requirements to conform to standards or enact programmes and behavioural change and problem solving by the treaty regime.

In the aftermath of the disaster, the *Guardian* newspaper complained about a super-injunction in favour of Trafigura (a large corporation), which was accused of dumping the devastating waste.¹⁹⁸ An injunction issued in September 2009 prohibited publication of reports from parliamentary proceedings related to the corporation's role in the public health scandal.¹⁹⁹ However, the disaster did bring to the fore the deleterious public health implications of hazardous waste. It demonstrates that while the Basel Convention has a clear human health protection objective, this has limited application in the substantive, procedural, institutional and enforcement mechanisms of the Convention. The incident highlights the institutional inadequacies of the Convention in tackling public health threats. The institutional limitations and the limited application of the health objective are suggestive of a failure of collaborative governance between the Basel Convention institutions and other stakeholders. The incident also highlights other legal issues. These include the limited role of domestic health systems in the

¹⁹⁸ Leigh, D., 'Trafigura drops bid to gag *Guardian* over MP's question', *The Guardian* (13 October 2009), available at <http://www.guardian.co.uk/media/2009/oct/13/trafigura-drops-gag-guardian-oil>, accessed 15 March 2012; Barnes, R.D. & Menon, Y., 'Enjoining Selective Forced Exposure of Figures of Contemporary Society' (2011) 10 *Connecticut Public International Law Journal* 371.

¹⁹⁹ Rusbridger, A., 'Trafigura: anatomy of a super-injunction', *The Guardian* (20 October 2009), available at <http://www.guardian.co.uk/media/2009/oct/20/trafigura-anatomy-superinjunction>, accessed 15 March 2012.

Convention, insufficient monitoring of health aspects of the Convention, limited capacity building and funding for health matters, and the inflexibility and poor design of key substantive and procedural aspects of the Convention to tackle health issues. The limited pathways to the effective integration of the health objective in the functioning of the Convention are symptomatic of challenges inherent in the implementation of international law.²⁰⁰ This is highlighted by weak monitoring, compliance and institutional coordination among relevant actors, as well as weak legal frameworks to domesticate international legal obligations.²⁰¹ Finally, the incident reveals the need to explore appropriate theoretical frameworks for policy development under the Convention to strengthen its impact on the protection of public health.

The paper argues that while environmental protection is the main thrust of multilateral environmental agreements, health is a key driver of several of them, including the Basel Convention.²⁰² Indeed, the Conference of Parties (COP) to the Basel Convention has reinforced the centrality of health in the Convention.²⁰³ To redress the limits of the

²⁰⁰ Van Aaken, A., ‘To Do Away with International Law’? Some Limits to “The Limits of International Law” (2006) 17(1) *European Journal of International Law* 289–308 at 300.

²⁰¹ Sand., note 137 above ; Victor, D.G., Raustiala, K. & Skolnikoff, E.B., (eds) *The Implementation and Effectiveness of International Environmental Commitments: Theory and Practice* (Cambridge, MA: MIT Press/London: International Institute for Applied Systems Analysis, 1998) ix; Raustiala, K. & Slaughter, A.M., ‘International Law, International Relations and Compliance’ in Carlsnaes, W., et al., (eds) *The Handbook of International Relations* 28 (2002); Kingsbury, B., ‘The concept of compliance as a function of competing conceptions of international law’ (1998) 19 *Michigan Journal of International Law* 345–372.

²⁰² Onzivu, W., ‘International Environmental Law, the Public’s Health and Domestic Environmental Governance in Developing Countries’ (2006) 21(4) *American University International Law Review* 597, 634–638; Onzivu, W., ‘Health in Global Climate Change Law: the Long Road to an Effective Legal Regime Protecting Public Health and the Climate’ (2010) 4 *Carbon and Climate Law Review* 364–382.

²⁰³ Secretariat of the Basel Convention *Bali Declaration on Waste Management for Human Health and Livelihood*, available at <http://www.basel.int/convention/XX%20Anniversary/Press%20kit/Bali%20declaration.pdf>, accessed 20 July 2010, stating that ‘the protection of human health and livelihood is at the core of the Convention and its work.

Convention in protecting health, the paper proposes options for reform to strengthen the health impacts of the Convention. First, the Parties to the Convention should adopt and implement specific mechanisms, including legally binding instruments and institutional reforms at the global and domestic levels. Secondly, collaboration between the Convention and other global health-promoting legal regimes and institutions should be enhanced by the Parties. Thirdly, other key reforms comprise the inclusion of health more broadly in state party reporting under the Convention, the adoption of a potential Protocol on Health and Waste under the Convention, the strengthening of the powers of the Basel Convention's Compliance Committee and the adoption of further mechanisms to enhance participation by private actors.

The core of the paper addresses the following issues. Firstly, it reinforces the argument that environmental treaties with a health objective such as the Basel Convention have not optimized health protection. The paper highlights the public health impacts of the dumping of hazardous wastes in developing countries especially in Africa.²⁰⁴ Secondly, it identifies a coherent legal basis for prioritizing health protection in the Basel Convention. It does so by systematically examining articles of the Convention that reinforce the treaty's health protection objective. Thirdly, the paper critiques key requirements and mechanisms of the Convention through discursive analysis of the text, reports and other literature. It analyses the implementation of the health objective, the role of regional training centres, technical cooperation and financial assistance as well as the prior informed procedure provided under the Basel Convention.²⁰⁵ It also

²⁰⁴ Onzivu., note 108 above.

²⁰⁵ *Ibid*

evaluates the Convention's compliance mechanisms including annual reporting by Parties, the role of the compliance committee, the liability regime, the ratification of the Basel Ban Amendment as well as the domestic governance of waste.²⁰⁶ The analysis concludes that these mechanisms are inadequate to robustly protect public health. Fourthly, the paper discusses the importance of soft law in implementing the health protection objective of the Basel Convention, and in this context examines the Bali Declaration on Waste Management for Human Health and Livelihood adopted by Parties to the Convention. The Declaration is significant because it reinforces the importance of monitoring the health objective of the Basel Convention. It strengthens the link between waste management and health protection and promotes multi-sectoral action by Parties and other stakeholders. This is demonstrated by calls to WHO and UNEP for action and the subsequent adoption of resolutions by the two entities encouraging their Member States to implement the Bali Declaration. The paper argues that despite its limitations as soft law, the Declaration has an operational value. It triggered action by WHO and UNEP and demonstrated the importance attached by Parties to the health objective of the Convention and the protection of public health. Finally, the paper proposes options for reform of the Basel Convention regime to promote public health through the concept of adaptive governance. This would entail continuous policy learning, experimentation, monitoring and feedback as well as pluralism of regulatory processes. The proposals in this context include reform of the substantive, procedural and institutional mechanisms of the Convention. Examples cited include the adoption of a Protocol on Waste and Health and the establishment of a

²⁰⁶ Ibid

health unit within the Basel Secretariat. Reinforcing the powers of the Compliance Committee and the role of non-state actors in the Basel regime are pivotal. The paper represents a major contribution to understanding the legal basis for health protection and the extent of the implementation of the health objective of the Basel Convention, especially in developing countries. The publication also contributes to transboundary waste policy as well as environmental health generally by encouraging Parties to the Convention as well as stakeholders to understand the linkages between health, transboundary waste and the Convention. It also sends a message to these actors by proposing options for legal and practical reforms in the context of adaptive governance to promote public health and the environment. Like the other publications in this thesis, the paper highlights a gap in law, policy and practice as well as pathways to reinforcing human health protection and improving a key environmental law regime.

8. Publication 7: Rethinking Transnational Environmental Health Governance in Africa, Can Adaptive Governance Help? Accepted for publication in the Review of European, Comparative and International Environmental Law (RECIEL) forthcoming 2014.

This paper has been accepted for publication.²⁰⁷ In 2013, the Review of European, Comparative and International Environmental Law (RECIEL) was ranked 8th out of the 28 refereed environmental and natural resources journals compiled by Washington & Lee's Law Journal rankings. The need to improve health promotion and protection in international environmental law coupled with the fragmented environmental health

²⁰⁷ Onzivu., note 106 above.

governance calls for improvements to current provision. This includes the need for a conceptual framework that informs the systematic review of environmental law regimes and reform. Building on the previous publications in the thesis, this paper proposes adaptive governance as the theoretical basis for the systematic review of the health objective and impact of environmental law regimes and of ways to strengthen them.²⁰⁸ The limited available ways to promote public health in environmental law in the developing world, especially in Africa, has become a critical issue. It is in need of scholarly rethinking if environmental and health protection mechanisms in Africa are to be strengthened.

The paper responds to this challenge by re-conceiving health protection in environmental law using a conceptual framework of adaptive governance. This emphasizes proactive rather than reactive policy making. It reflects public health governance where programmes, services and institutions emphasize prevention of disease as well as the health needs of the population as a whole.²⁰⁹ It also mirrors the precautionary approach in international environmental law which promotes action to protect the environment and human health despite limited evidence.²¹⁰ Adaptive governance contains the following elements: continuous learning, pluralism of process, policy making as experimentation, avoiding irreversible harm and monitoring and

²⁰⁸ Onzivu, W., '(Re) invigorating the health protection Objective of the Basel Convention on Trans-boundary Movement of Hazardous Waste and their Disposal' (2013) 33(4) *Legal Studies*, 621-649 ; Onzivu, W., 'The Long Road to Integrating Public Health in the Sustainable Management of Shared Freshwaters: Lessons from Lake Victoria in East Africa', (2012) 46(3) *International Lawyer* 46(3) discussing options to enhance health protection in the context of shared waters in East Africa.

²⁰⁹ Last, J.M., et al., *A Dictionary of Epidemiology* 134(3rd Edition, Oxford University Press: Oxford, 1995).

²¹⁰ Rio Declaration, 1992 Principle 15, Convention on Biological Diversity 1992, Preamble, Framework Convention on Climate Change 1992, Article 3.3, Earth Charter, para 6, Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Article 1.

feedback, all of which have beneficial qualities in policy making. However, adaptive governance has also been criticised as a strategy by the developed world to capture global policy processes to the detriment of developing countries.²¹¹

The regular reviews of legal regimes in adaptive governance are viewed as a problematic issue, as they undermine the predictability of environmental and health legal regimes which in turn could diminish their legitimacy. While adaptive governance emphasises pluralism of process, stakeholders' vested interests may pose the threat of regulatory capture of policy making in environmental health. In view of its limitations, to reinforce adaptive governance as an effective framework for Africa, the paper proposes four essential support pillars to maximize its health promoting potential.²¹²

Firstly, adaptive governance requires an environmental justice framework as an essential support pillar to address issues such as participation. However, it is argued that contemporary thinking on environmental justice is incomplete. Instead, there is a need to reorient the redistribution of environmental health harms and benefits, promoting the participation of all actors and providing mechanisms for the full recognition of all key actors in environmental law. Secondly, the paper argues for the promotion of multi-sectoral collaboration among health and environmental sectors. Environmental law is goal oriented and the actors of an environmental regulatory space derive their mandates from the objective and other requirements of an environmental law regime. Hence, both health and environmental actors must fully participate in global and

²¹¹ García-Salmones, M., 'Taking Uncertainty Seriously: Adaptive Governance and International Trade: a Reply to Rosie Cooney and Andrew Lang' (2009) 20(1) *European Journal of International Law* 167–186.

²¹² See Part IV of this contextual narrative.

domestic environmental regulation. Thirdly, the paper argues for the institutionalization of evaluation of environmental legal regimes beyond impact assessments. Finally, the paper argues for entrenching environmental ethics as fundamental to the operationalization of environmental law.

I argue that these four pillars can mitigate the weaknesses of adaptive governance in the following ways: First, environmental justice can help redistribute environmental burdens, promote equity, participation and recognition of all actors. These measures can obviate capture by vested interests, improve environmental health law making and its public character because they will entail mechanisms to consider and address the environmental justice consequences of environmental health law development and implementation. Second, multi-sectoral collaboration can ensure that all concerned sectors participate in environmental health policy development and implementation. This can prevent the dominance of sectors with vested interests and prevent regulatory capture, promote pluralism, ensure the legitimacy of legal regimes and contribute non-scientific evidence to develop and implement policy. Third, evaluation can help to identify the pitfalls in environmental health law development and implementation such as its potential capture by vested interests, its predictability, the degree of protection of the public interest in health and the environment and its efficiency and effectiveness in achieving both health and environmental objectives. It can also identify options to improve the legal regime. Fourth, environmental ethics would provide fundamental principles for environmental law development and implementation that fosters human stewardship in environmental governance. This will also promote effective regulatory balance in the implementation of both health and environmental objectives of

environmental legal regimes. Compliance with environmental ethics can in turn minimize the weaknesses of adaptive governance in Africa.

While the four pillars of adaptive governance can obviate its weaknesses, these need to be institutionalized in law and policy to improve environmental health governance in Africa. EU smart (or better) regulation provides a useful model for implementing adaptive environmental health governance.²¹³ Smart regulation continues to evolve with the EU institutionalization of the Regulatory Fitness and Performance Programme (REFIT).²¹⁴ It is addressed to EU Member States, institutions and other entities within the EU. It aims ensure a high quality of legislation by enhancing its efficiency and effectiveness throughout its policy cycle from legislative design to its implementation.²¹⁵ It emphasizes that laws must be simplified, its burdens on end users reduced, emphasizes evaluation and impact assessments and broader consultation and participation of all potentially affected by a legal regime. In the case of Africa, regional economic integration organizations such as the African Union, forums such as the IMCHE and African countries could implement smart regulation. Laws that require embedding smart regulation could be adopted domestically by States as well as supra-nationally by international organizations such as the African Union and other sub-regional institutions. This action will institutionalize the four pillars in redressing the

²¹³ Hjerp, P., Homeyer, I., Pallemarts, M. and Farmer, A. (2010), The Impact of Better Regulation on EU Environmental Policy under the Sixth Environment Action Programme , Report for the Brussels Institute for Environmental Management (Bruxelles Environnement/Leefmilieu Brussel), IEEP, London.

²¹⁴ European Commission, Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions, Regulatory Fitness and Performance Programme(REFIT): State of Play and Outlook, COM(2014)368 final

²¹⁵ European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Smart Regulation in the European Union, COM(2010) 543 final, Brussels, 8.10.2010, accessible at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0543:FIN:EN:PDF> , accessed on 26th February 2014

weaknesses of adaptive governance in Africa, while promoting democratic legitimacy, transparency and rule of law, often argued as lacking in smart regulation.²¹⁶ The push for better regulation would integrate Regulatory Impact Assessment (RIA) at the centre of the regulatory improvement process.²¹⁷ The call by OECD that its Member States pursue better regulation through the following mechanisms provides pathways in institutionalizing adaptive governance to improve environmental health in Africa: the adoption at the heart of governments of regulatory improvement as a policy, the establishment of institutions dedicated to regulatory improvement and the application of a series of regulatory improvement tools. The regulatory improvement tools include RIAs, consultation and transparency processes, exercises to reduce burdens and red tape, simplification measures, using alternatives to traditional regulation and legislating sunset provisions.

These options can in turn be reinforced under three themes as in the domestic implementation of sustainable development proposed by Ross, which resonates in the context of adaptive governance²¹⁸. Firstly, procedural requirements to ensure that certain events happen at certain times in a certain way. This approach would introduce procedural obligations in the production, use and review of adaptive governance as a strategy. These procedural obligations could, in turn, implicitly embody the substance of certain principles such as the production of the strategy, provide consultation opportunities, or require regular reports on progress. Second, it could also require that

²¹⁶ Lange, B, Publication Review: Better Regulation(Stephen Weatherill, Editor), 2008 *Public Law*, 623-626

²¹⁷ Baldwin ,R, Better Regulation: The search and the Struggle in Baldwin,R., Cave,M. & Lodge M.,Editors., *The Oxford Handbook of Regulation* 204(Oxford University Press: Oxford 2012).

²¹⁸ Ross,A., It's Time to Get Serious—Why Legislation Is Needed to Make Sustainable Development a Reality in the UK, *Sustainability*2010, 2, 1101-1127.

governments develop adaptive governance strategies as a core driver in the progressive development, strengthening and implementation of environmental health laws in Africa. It would be a point of reference and create a duty across government in all efforts to improve environmental and health governance. Third, legislating adaptive governance as a central organising principle for environmental and health governance ensures reinforcing the procedural and substantive legal obligations that promote and protect health in international and national environmental law. This could be augmented by requirements for reporting, review, publication and audit that have real consequences if breached. Therefore, persuasive mechanisms can be reoriented to implement the reworked adaptive governance as a framework for improving environmental health in Africa at both the domestic and international levels.

The paper is significant in that it identifies and demonstrates a persuasive conceptual framework for the systematic examination of the impact of environmental regimes on health and their inter-linkages and options to improve the effectiveness of the promotion and protection of public health. It also contributes to evolving scholarship on adaptive governance beyond environmental management as it applies to public health. Most critically, by developing four pillars of environmental justice, multi-sectoralism, evaluation and environmental ethics in adaptive governance, it makes a persuasive case for policy makers to embed this form of governance in tackling the difficult environmental health challenges that continue to negatively impact on developing countries, particularly in Africa. Therefore, this paper enriches discourse and policy making by clarifying the scope, merits and demerits of adaptive governance in ways that reflect its application in Africa.

The paper also demonstrates originality by making a case for including the four pillars in the concept as it applies to health, including in the context of the inter-ministerial conference on environment and health in Africa. It also embeds a conceptual framework in the thesis to re-think options to improve health protection in the development and implementation of international environmental law in developing countries, particularly in Africa.

CHAPTER V: CONCLUSION

The body of published work which comprises this thesis has focused on evaluating the health objectives and impacts of international environmental law regimes in the developing world, with a focus on Africa. The thesis has used a mix of research approaches: doctrinal, socio-legal and case study methods have been utilised in the context of a theoretical framework which draws on and develops ideas of adaptive governance. The study has demonstrated originality as evidenced by the high qualities of some of the journals that have been published in. The thesis findings have implications for future policy development and the implementation of international environmental law at both international and domestic levels to protect health in Africa and other developing countries.

The thesis also made several findings. First, international environmental law has a distinct health protection objective that requires effective follow up and

implementation.²¹⁹ Second, the inter-linkages between health and environment need to be reinforced at the international and domestic levels.²²⁰ Third, the substantive, procedural and institutional mechanisms of international environmental legal regimes with a health objective have not optimized the protection of health.²²¹ Fourth, the implementation mechanisms of environmental legal regimes have limits for the protection of public health in Africa.²²² Fifth, case studies of transboundary waste and shared freshwaters as well as climate change demonstrate the limits of environmental legal regimes for health protection in developing countries.²²³ Sixth, options for legal reform exist to improve the status quo but these are in need of a fundamental theoretical underpinning.²²⁴ Finally, a renewed adaptive governance framework reinforced by four "pillars" of environmental justice, ethics, evaluation and multi-sectoralism fills that gap

²¹⁹ Onzivu, W., "International Environmental Law, the Public's Health and Domestic Environmental Governance in Developing Countries", (2006) 21(4) *American University International Law Review*, 597-684; Onzivu, W., '(Re) invigorating the Health Protection Objective of the Basel Convention on Trans-boundary Movement of Hazardous Waste and their Disposal' (2013) 33(4) *Legal Studies*, 621-649; Onzivu, W., Re-examining the Effectiveness of Health Protection in Global Environmental Regulation, in Human Rights and Duties: Sustaining Global Ecological Integrity and Human Health through Science, Ethics and the Law, (Westra, L., Soskolne, C. & Spady, D., (Eds) (Routledge, London, May 2012).

²²⁰ Onzivu, W., 'Health in Global Climate Change Law: The Long Road to an Effective Legal Regime Protecting Public Health and the Climate', (2010) 4 *Carbon and Climate Law Review*, 364-382; Onzivu, W., The Long Road to Integrating Public Health into Sustainable Development of Shared Freshwaters in International Environmental Law: Lessons from Lake Victoria in East Africa, (2012) 46(3) *International Lawyer*, pp.867-892, Ibid,

²²¹ Ibid

²²² Onzivu, W., The Long Road to Integrating Public Health into Sustainable Development of Shared Freshwaters in International Environmental Law: Lessons from Lake Victoria in East Africa, (2012) 46(3) *International Lawyer*, pp.867-892; Onzivu, W., "International Environmental Law, the Public's Health and Domestic Environmental Governance in Developing Countries", (2006) 21(4) *American University International Law Review*, 597-684; ; Onzivu, W., Tackling the Public health Impact of Climate Change: the Role of Domestic Environmental Health Governance Mechanisms in Developing Countries, (2009) 43(3) *The International Lawyer*, 1311, Onzivu, W., Rethinking Transnational Environmental Health Governance in Africa, can Adaptive Governance Help? *Review of European, Comparative and International Environmental Law (2014) RECIEL*, accepted for publication.

²²³ Onzivu, W., '(Re) invigorating the health protection objective of the Basel Convention on Trans-boundary Movement of Hazardous Waste and their Disposal' (2013) 33(4) *Legal Studies*, 621-649; Onzivu, W., The Long Road to Integrating Public Health into Sustainable Development of Shared Freshwaters in International Environmental Law: Lessons from Lake Victoria in East Africa, (2012) 46(3) *International Lawyer*, pp.867-892.

²²⁴ Ibid.

and offers an effective conceptual framework to improve the health outcomes of international environmental law, especially in Africa.²²⁵ Publications 1 and 2 expose the underlying problem, that international environmental law has not maximized the protection of health in developing countries, particularly in Africa. They analyse commentary on specified and problematic aspects of international environmental law and health in order to map the state and impact of the health objective in international environmental law. This analysis has exposed the lack of thematically systematic analysis and views on issues of health and the environment. Examples include the eco-centric and anthropocentric approaches in international environmental law. Through this analysis, the research has increased knowledge of the inter-linkages between health and the environment viewed through the substantive, procedural and implementation mechanisms of international environmental law. Specific details have been addressed in publications 3, 4, 5 and 6, which comprise the case studies relating to the governance of shared freshwaters, climate change and transboundary waste in international environmental law. These case studies demonstrate the limits of the impact of the health objective in environmental regulation. Publication 7 provides a theoretical framework for improvement of environmental legal regimes to protect and promote health in Africa.

Specific conclusions deriving from the thesis are as follows. First, public health protection is not optimized in international environmental legal regimes. For example, global and regional legal regimes applicable to shared freshwaters focus on water quantity and access and less on water quality and public health. The case of Lake

²²⁵ Onzivu., note 108, above.

Victoria demonstrates that the anthropocentric and eco-centric divide in environmental protection, the marginalization of the social and environmental pillars of sustainability and weak environmental (and health) governance at the global, regional and domestic levels undermine health protection in international water legal regimes. Addressing both health and environment objectives in international environmental law can contribute to sustainable development. It can, however, also promote public health through the provision of technical assistance, enhanced environmental impact assessment and the development of sound health provisions and structures in national environmental laws and institutions.

Second, domestic environmental governance mechanisms can play a critical role in reinforcing the health protection objective in environmental law regimes. Relevant mechanisms that require improvement to reinforce health protection in environmental governance include multi-sectoral coordination, domestic environmental or health legislation, impact assessments, national action plans, financial and technical capacity building, and mobilization of civil society and communities. For example, tackling the health impact of climate change requires effective responses from the health sector through effective environmental health governance.

Third, the thesis concludes that the health protection objectives of legal regimes are constrained in law and fact. For example, the Basel Convention and its related instruments on technology transfer, funding, verification procedure for environmentally sound management of hazardous waste, compliance mechanisms and liability do not

provide effective protection for public health. Domestically, the weak enforcement of often outdated waste laws, poor compliance and inadequate multi-sectoral collaboration on waste and health undermines the achievement of the Convention's health objective. The limited optimisation of the health objective is concomitant with the weaknesses of mechanisms for implementation of the Convention. This was highlighted by the Convention's 2008 COP in Bali, which recommended a number of health-promoting measures to be implemented by Parties, the Basel Convention Secretariat, UNEP and the WHO. The analyses in the thesis publications, including the proposals for reform and the role of adaptive governance, can help to inform scholarly debate as well as legal initiatives to reinforce the health impact of the Convention. They could inform efforts to minimise sectoral fragmentation in environmental health governance and could also strengthen domestic legal regimes in their efforts to deal with the challenges of transboundary hazardous waste, as well as health and the environment generally.

Fourth, adaptive governance is the best model to improve health protection in the progressive development of environmental law and its implementation in Africa.²²⁶

Adaptive governance can facilitate policy experimentation, promote environmental co-regulation and provide a major impetus to effectively implement international environmental obligations at the domestic level. However, the limitations of adaptive governance are recognized. Potentially, it can facilitate capture of environmental law making and implementation by vested corporate and political interests to the detriment

²²⁶ Onzivu, W., '(Re) invigorating the Health Protection Objective of the Basel Convention on Transboundary Movement of Hazardous Waste and their Disposal' (2013) 33(4) *Legal Studies*, 621-649; Onzivu, W., Rethinking Transnational Environmental Health Governance in Africa, can Adaptive Governance Help? *Review of European, Comparative and International Environmental Law* (2014) *RECIEL*, accepted for publication.

of health, the environment and natural resource preservation and the public interest. It could also dilute the impact of environmental law regimes due to the need for constant reviews and change. However, as exemplified by IMCHE, it is argued that adaptive governance has the potential to improve environmental health in Africa if it is buttressed by additional pillars to enhance accountability, enhance binding legal commitments, prevent capture of environmental regulation by powerful vested interests, and to ensure that environmental governance protects the public interest. Therefore, adaptive governance that embeds environmental justice, evaluation, ethics and multi-sectoralism could contribute to reducing the health deficiencies of environmental law and significantly improve public health in Africa.

To conclude, this thesis represents a substantial themed enquiry into the impact of the health objective of international environmental law. The body of work has identified a number of key inter-related problems and proposed options for reform. For these reforms to be realized, the key actors in international environmental law; states, international organizations, non-state actors, communities and international and national courts will need to work together to ensure the increased effectiveness of international environmental law in the protection and promotion of public health in developing countries and Africa in particular.

ANNEX I

PUBLICATIONS

i. List of the seven publications included in the submitted thesis

- (a) Onzivu, W., Rethinking Transnational Environmental Health Governance in Africa, can Adaptive Governance Help? *Review of European, Comparative and International Environmental Law (2014) RECIEL*, accepted for publication.
- (b) Onzivu, W., ‘(Re) invigorating the Health Protection Objective of the Basel Convention on Trans-boundary Movement of Hazardous Waste and their Disposal’ (2013) 33(4) *Legal Studies*, 621-649.
- (c) Onzivu, W., ‘Re-examining the Effectiveness of Health Protection in Global Environmental Regulation’ in Westra, L., Soskolne, C. & Spady, D.,(eds) *Human Rights and Duties: Sustaining Global Ecological Integrity and Human Health through Science, Ethics and the Law*(Routledge:London,2012) 301-314.
- (d) Onzivu, W., The Long Road to Integrating Public Health into Sustainable Development of Shared Freshwaters in International Environmental Law: Lessons from Lake Victoria in East Africa, (2012) 46(3) *International Lawyer*, pp.867-892.
- (e) Onzivu, W., Health in Global Climate Change Law: The Long Road to an Effective Legal Regime Protecting both Public Health and the Climate, 2010(4) *Carbon and Climate Law Review*, 364-382.
- (f) Onzivu, W., Tackling the Public Health Impact of Climate Change: The Role of Domestic Environmental Health Governance Mechanisms in Developing Countries, (2009) 43(3) *The International Lawyer*, 1311.
- (g) Onzivu, W., ‘International Environmental Law, the Public’s Health and Domestic Environmental Governance in Developing Countries’(2006) 21(4) *American University International Law Review*,597-684.

ANNEX II

OTHER AUTHOR’S PUBLICATIONS THAT HAVE INFORMED THE THESIS

- a) Onzivu, W., International Climate Change Law, Health Promotion and Evolving Domestic Climate Law in Developing Countries, (2012) 18(1) *African Yearbook of International Law*, 257 –285.
- b) Onzivu, W., Mind That Gap: International Climate Law, Health Protection and United Kingdom’s Climate Legislation, (2012) 21(2) *European Energy and Environmental Law Review*, 79-91.
- c) Onzivu, W., Reinvigorating the World Health Organization's Governance of Health Rights: repositing an evolving legal regime, its challenges and prospects, (2011) 4(3) *African Journal of Legal Studies* 225-256.
- d) Onzivu, W., Eco-patent Commons: Implications for Technology Transfer to fight climate change,(2010) 4(1) *Carbon and Climate Law Review*, 13-29 (with Mark Van Hoorebeek,).

- e) Onzivu, W., Eco- patent Commons: Open Source Patents in Environmental Management, (2008) 55 Student Law Review, .45, (with Mark Van Hoorebeek).
- f) Onzivu, W., International Environmental Law and Global Public Health, (2002) 80(12) Bulletin of the World Health Organization" 970-974, (with Von Schirnding Y and Adede AO).
- g) Onzivu, W., Reinforcing Global Health Normative Frameworks and Legal Obligations: Can Adaptive Governance Help?, in "Global Health and International Community", (Coggon, J. & Gola, S., Editors), (Bloomsbury Publishing, London, 2013), 233-248.

ANNEX III

BIBLIOGRAPHY

1. Table of relevant legal instruments and other documents

i. Treaties

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African Charter on Human and Peoples' Rights, art. 24, adopted June 27, 1981, O.A.U. Doc. CAB/LEG/67/3 rev. 5, reprinted in 21 I.L.M. 58 (1982).

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Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, Sept. 11, 1998, 38 I.L.M. 1 (1999).

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EAC, Protocol for Sustainable Development of Lake Victoria Basin, Nov. 29, 2003, available at http://www.internationalwaterlaw.org/documents/regionaldocs/Lake_Victoria_Basin_2003.pdf.

EAC, Protocol on Environment and Natural Resources Management, Apr. 3, 2006, available at http://www.eac.int/environment/index.php?option=com_content&view=article&id=122:eac-gender-a-community-development-framework&catid=3:key-documents.

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