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WATER GOVERNANCE IN HAITI: AN ASSESSMENT OF LAWS AND INSTITUTIONAL CAPACITIES^o

Ryan B. Stoa^{*}

ABSTRACT

The Republic of Haiti struggles to sustainably manage its water resources. Public health is compromised by low levels of water supply, sanitation, and hygiene, and water resources are often contaminated and unsustainably allocated. While poor governance is often blamed for these shortcomings, the laws and institutions regulating water resources in Haiti are poorly understood, especially by the international community. This study brings together and analyzes Haitian water laws, assesses institutional capacities, and provides a case study of water management in northern Haiti in order to provide a more complete picture of the sector. Funded by the Inter-American Development Bank as part of the Water Availability, Quality and Integrated Water Resources Management in Northern Haiti (HA-T1179) Project, this study took place from January-July 2015, with the help of local experts and participating stakeholders. The results indicate that Haiti's water law framework is highly fragmented, with overlapping mandates and little coordination between ministries at the national level, and ambiguous but unrealistic roles for subnational governments. A capacity assessment of institutions in northern Haiti illustrates that while local stakeholders are engaged, human and financial resources are insufficient to carry out statutory responsibilities. The findings suggest that water resources management planning should engage local governments and community fixtures while supplementing capacities with national or international support.

^o This study was conducted within the framework of the Water Availability, Quality and Integrated Water Resources Management in Northern Haiti (HA-T1179) Project. It was made possible by funding from the Inter-American Development Bank. The views and conclusions drawn in this study are those of the author's.

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I. INTRODUCTION

In October 2014, Florida International University (FIU) initiated a 27-month program to analyze water challenges in Haiti. Sponsored by the Inter-American Development Bank, the program has four primary objectives: 1) to analyze Haitian water laws and policies, and the institutions that implement them; 2) to identify gaps in hydrological data; 3) to model future risk scenarios for the Trou-du-Nord watershed; and 4) to create a water management plan for the Caracol Industrial Park and the Trou-du-Nord watershed.

This study represents the first of the project's objectives. It is intended to fill the gap of existing knowledge on water laws, policies, and institutions in Haiti, as well as to provide an assessment of issues, challenges, and opportunities for reform. An assessment of institutional capacities in the Trou-du-Nord watershed in northern Haiti provides a case study of the complex and multi-layered challenges faced by water managers in the region, and will serve as a guide for the Caracol Industrial Park's water management plan.

The results of this study were presented to stakeholders in the Trou-du-Nord watershed, as well as national ministries, NGOs, and intergovernmental organizations, in June 2015. The workshops validated preliminary results, while making clarifications and providing important insights that contributed to the final analyses presented below. Research and development efforts world-wide are not possible without meaningful stakeholder participation; this study is no exception. In this introductory section, the scope of Haiti's water resources management challenges is broadly outlined, as well as prior efforts to analyze laws and institutional capacities that provide context to the results of this study that follow.

A. *The Water and Governance Context in Haiti*

Haiti has the lowest rates of access to improved water supply and sanitation facilities in the western hemisphere.¹ In 2002 Haiti was ranked last in the global Water Poverty Index,² and according to World Health Organization data, it is the only country in the world whose access to sanitation facilities *decreased* from 1995-2010.³ Those figures likely understate the situation considering the devastating impact of the 2010

¹ Richard Geltin et al., *Water, Sanitation and Hygiene in Haiti: Past, Present, and Future*, 89 Am. J. Trop. Hyg. 665 (2013).

² Peter Lawrence, Jeremy Meigh & Caroline Sullivan, *Water Poverty Index: an International Comparison*, 11 Keel Econ. Research Papers (2002).

³ World Health Organization: *Progress on Drinking Water and Sanitation: 2012 Update*, 39-55 (2012).

earthquake near Port au Prince, Haiti's capital and largest city. Critical infrastructure (e.g., hospitals, roads, seaports, airports, sewage systems, water treatment facilities) was destroyed, and the United States Agency for International Development estimates that 1.5 million people were displaced into some 1,500 camps.⁴ A 2014 survey found that 74% of families forced to leave their homes in 2010 still considered themselves displaced, even though they no longer lived in displacement camps.⁵ From a governance perspective, the earthquake also had the effect of shifting Haiti's water management priorities from long-term development to emergency response.⁶ These conditions were exacerbated by an unexpected cholera epidemic that hospitalized thousands and killed over 700.⁷ Water for domestic human needs has been, and continues to be, a pressing demand that remains unfulfilled.

Other sectors suffer from an acute lack of sustainably managed water resources as well. The Water Poverty Index ranked Haiti last in the world on environmental indicators, a measure which includes water quality, water stress, water management capacity, information, and biodiversity.⁸ Haiti's water management landscape is dominated by small-scale agriculture, a water-intensive industry which by 2013 accounted for more than half of Haiti's labor force, eighty percent of total water withdrawals, and almost two-thirds of Haiti's land area.⁹ Agricultural expansion has fostered widespread deforestation, which in turn leads to soil erosion, water quality degradation, drought vulnerabilities and flooding hazards, and habitat destruction.¹⁰ Today less than two percent of land area in Haiti is

⁴ Office of U.S. Foreign Disaster Assistance: Haiti – Earthquake Fact Sheet #10 (2011).

⁵ Megan Bradley, *Four Years After the Haiti Earthquake, the Search for Solutions to Displacement Continues*, (2014) (Aug. 3, 2015), <http://www.brookings.edu/blogs/up-front/posts/2014/01/12-haiti-earthquake-anniversary-bradley>.

⁶ See *supra* note 1, at reference 1.

⁷ David A. Walton M.D., M.P.H. & Louise C. Ivers, M.D., M.P.H., *Responding to Cholera in Post-Earthquake Haiti*, 364 N. Engl. J. Med. 3 (2011); See also, Matthew Smallman-Raynor, Andrew Cliff & Anna Barford, *Geographical Perspectives on Epidemic Transmission of Cholera in Haiti October 2010 – March 2013*, *Annals of the Ass'n. of Am. Geographers*, ISSN 0004-5608 (2015); Jocelyn M. Widmer et al., *Water Related Infrastructure in a Region of Post-Earthquake Haiti: High Levels of Fecal Contamination and Need for Ongoing Monitoring*, 91 Am. J. Trop. Med. Hyg. 790 (2014); and Andrea Rinaldo et al., *Reassessment of the 2010-2011 Haiti Cholera Outbreak and Rainfall-driven Multiseason Projections*, 109 Proc. Natl. Acad. Sci. 6602 (2012).

⁸ See *supra* note 2, at 14.

⁹ United Nations: Food and Agriculture Organization, *Geography, Climate and Population* (Aug. 2, 2015), www.fao.org/nr/water/aquastat/countries_regions/hti/index.stm.

¹⁰ See Richard M. Foxx, *Te Terre a Fatige 'The Earth is Tired': Reversing Deforestation in Haiti*, 27 Behav. Intervent. 105 (2012).

forested.¹¹ The fragmented nature of small-scale agriculture may provide some measure of employment to Haiti's population, but presents enormous barriers to monitoring and regulation of water resources.

These resources appear to be unsustainably exploited in part because very little information exists about water supplies and demands. In the Trou du Nord watershed in northern Haiti, for example, large-scale housing developments, mining operations, infrastructural improvements, and industrial manufacturing have either been planned or recently introduced despite the virtual non-existence of data on precipitation, climate, surface water flows, or groundwater that would normally precipitate such investments to ensure reliable water supplies exist for development.¹²

Shortcomings in water resources management can be partly attributed to forces outside of Haiti's control. The 2010 earthquake, a mountainous geography prone to hurricanes and extreme precipitation, cheap agricultural imports, and a history of brutal colonial enslavement and economic isolation have made their mark on the water sector.¹³ But by and large, Haiti's water resources management challenges are challenges of governance that go beyond the water sector. Since the Duvalier family took power in 1957, Haiti's political landscape has been marred by pervasive corruption, political (and at times violent) turmoil, and irresponsible fiscal policies that enriched a few while leaving Haiti's population with little in the way of government services.¹⁴ As is common under these circumstances, natural resources were unsustainably exploited.

Today the Haitian state continues to suffer from low levels of human and financial resources, affecting regulatory development and enforcement capacities. The breakdown of effective governance creates many challenges, among them the ability to understand how a sector is organized, who has authority to manage it, and whether that authority is matched with capacity and political will. This study targets the water sector in order to fill the gap in understanding the laws, policies, institutions, and capacities that collectively form the water governance framework of Haiti.

¹¹ *Id.*

¹² Henry Briceno, *Data Gap Analysis and Review of Available Modeling Data in the Pic and its Contributing Watershed*, 59 (2015).

¹³ See, e.g., Paul Farmer, *The Uses of Haiti* (Common Courage Press 1994); Robert Debt Heinl, Nancy Gordon Heinl & Michael Heinl, *Written in Blood: The Story of the Haitian People 1942-1995* (UPA Newly Revised Edition 2005); and Laurent Dubois, *Avengers of the New World: The Story of the Haitian Revolution* (First Harv. Univ. Press Ed. 2005).

¹⁴ See generally Kate Quinn and Paul Sutton, *The Politics of Power in Haiti* (Palgrave Macmillan 2013); and Laurent Dubois, *Haiti: The Aftershocks of History* (Metropolitan Books Henry Holt and Company, LLC 2012).

B. Prior Research

This study is not the first attempt to analyze water governance in Haiti. Of the various thoughtful articles that touch on this subject in some capacity,¹⁵ three are profiled here. Each identifies similar challenges, suggesting that shortcomings in the sector are the result of embedded or underlying conditions. Nonetheless, prior studies come to different conclusions regarding reform. While this study does not take a position on these proposals, they are provided to display the diversity in approaches recommended for the sector.

In 1998 Evens Emmanuel and Jean Dubus produced the “Bilan-Diagnostic Du Secteur Eau/Assainissement; Scénario Pour la Création d’une Autorité Nationale de L’Eau,”¹⁶ which comprehensively examined the institutions and policies responsible for composing the water sector in Haiti. The review is two-part. In the first, Emmanuel and Dubus assess the state of the water sector, and conclude that three groups of actors merit further support and scrutiny: administrative agencies, who require increased capacity; educational institutions, who should make partnerships with foreign research groups; and NGOs, who should focus their attention on water supply, sanitation, and hygiene.¹⁷ Many of the observations made in 1998 appear valid to this day.

In the second part, the authors state their case for a reorganization of the water sector. First and foremost, a national water authority is envisioned, wherein an inter-ministerial council, Water Ministry, and National Water Fund are to be established under the auspices of the Prime Minister.¹⁸ The authors advocate for a somewhat decentralized approach by creating Basin and Aquifer Commissions, but philosophically the paper places most emphasis on strengthening national administrative agencies and capacities by creating institutions devoted to water resources management.¹⁹ It is important to note that the Emmanuel-Dubus report was published before many of the laws and policies analyzed in this document were enacted, and therefore should be read with historical context in mind. That dynamic notwithstanding, many of the report’s observations appear to hold true today, and the proposals for a national water authority address the same concerns expressed in this study.

¹⁵ See, e.g., Ministry of the Environment of Haiti, *Integrating the Management of Watersheds and Coastal Areas in Haiti*, Haiti National Report (2001); Jean Andre Victor, *Synthese de la Legislation et des Politiques Environnementales*, (2006); Noel, Smucker & Victor, *Environmental Risks & Opportunities in Haiti: A Background Analysis* (2007).

¹⁶ Evens Emmanuel & Jean Dubus, *Bilan-Diagnostic Du Secteur Eau/Assainissement: Scénario Pour la Création d’une Autorité Nationale de L’Eau* (1998).

¹⁷ *Id.* at 46.

¹⁸ *Id.* at 56-57.

¹⁹ See *Id.* at 67-69.

In 2008, a research team led by the Center for Human Rights and Global Justice at the New York University (NYU) School of Law produced “*Wòch nan Soley: The Denial of the Right to Water in Haiti*.”²⁰ The study integrates human rights law and public health to assess the state of water provision in Haiti. By taking a human rights-based approach to its water sector analysis, the researchers argue that the Haitian state and foreign institutions (including the United States and the IDB) violate the rights of the Haitian people by not following through on commitments to provide water in sufficient quantity, quality, and accessibility.²¹ The findings are significant in that, while many observers place blame on Haitian institutions for an underperforming water sector, the researchers criticize international organizations for filling the gap without providing transparency or accountability. The solution, they argue, is a national water strategy that follows a rights-based approach, creating tangible obligations for the Haitian government and foreign institutions.²² The veracity of this approach likely turns on whether the right to water is found to exist in international law and in Haiti.

Finally, in 2009 Martin Bush and Emmanuel Sildor – contracted by the United States Agency for International Development (USAID) – released “*Watershed Management in Haiti: Recommended Revisions to National Policy*.”²³ The report focuses on the apparent disconnect between the Ministry of the Environment and the Ministry of Agriculture with respect to water resources management, but concludes that both ministries show substantial agreement towards, and support for, strengthening local government management of water resources.²⁴ The recommendations that follow largely support this point of agreement, calling for increased capacity to both ministries for staff in the field and at the watershed level, as well as increased support for watershed councils and local governments.²⁵ The report summarizes overlaps in jurisdiction and mandate between ministries, while largely leaving the existing water sector framework in place.

Much has changed since these research efforts were undertaken, not least of which was the 2010 earthquake that leveled much of Port-au-Prince.²⁶ In January of 2015, the parliament of Haiti was dissolved,

²⁰ Amanda Klasing et al., *Wòch nan Soley: The Denial of the Right to Water in Haiti*, N.Y.U. Ctr. for Human Rights and Global Justice (2008).

²¹ *Id.* at 2.

²² *Id.* at 54.

²³ Martin Bush & Emmanuel Sildor, U.S. Agency Int’l Dev: *Watershed Management in Haiti: Recommended Revisions to National Policy*, (2009).

²⁴ *Id.* at 33.

²⁵ *Id.* at 35.

²⁶ For a general examination of the earthquake and its aftermath, see Janet Reitman,

allowing the national government to rule by decree and sparking regular protests in the nation's capital.²⁷ Nonetheless, many of the conclusions drawn by prior researchers describe challenges Haiti continues to face today, and their proposals for reform address many of the same issues this study identifies. The following analyses is thus an affirmation, update, and, where applicable, divergence from prior research.

II. THE LEGAL AND INSTITUTIONAL FRAMEWORK

A. Institutions

1. Ministry of the Environment²⁸

The Ministry of the Environment is statutorily responsible for most aspects of water resources management, including water quality regulation, policy-making, monitoring and evaluation, inter-ministerial coordination, conservation, and enforcement. Some of these powers were explicitly inherited from the Ministry of Agriculture in recent years.²⁹ Its broad and ambitious mandate is unfortunately coupled with an acute lack of capacity in both management and technical expertise. It has too few staff to work on the many environmental challenges facing the country, and the staff it does have lack key skills, tools, and resources to effectively carry out their assignments.

2. Ministry of Agriculture, Natural Resources, and Rural Development³⁰

By contrast, the Ministry of Agriculture, Natural Resources and Rural Development has extensive resources (both human and financial) at its disposal, and exerts significant control over water resources management decisions, particularly those actions affecting irrigation and land use. It retains significant and nearly exclusive authority over irrigation and agricultural water management, although it has recently attempted to broaden its powers to include watershed management in general.³¹ Its watershed management policies attempt to bring local governments into its

Beyond Relief: How the World Failed Haiti, Rolling Stone (2011) (Aug. 2, 2015), <http://www.rollingstone.com/politics/news/how-the-world-failed-haiti-20110804>.

²⁷ Jacqueline Charles, *Haiti Launches Campaign Season for Elections*, Miami Herald (2015) (Aug. 2, 2015), <http://www.miamiherald.com/news/nation-world/world/americas/haiti/article26921350.html>.

²⁸ Ministry of the Environment: Official Site (Aug. 2, 2015), <http://www.mde-h.gouv.ht/>.

²⁹ See *infra*, note 30.

³⁰ Ministry of Agriculture, Natural Resources, and Rural Development: Official Site (Aug. 2, 2015), <http://agriculture.gouv.ht/view/01/>.

³¹ See *infra*, note 57.

policy regime, though from a legal-regulatory perspective, the Ministry of Agriculture has little statutory support for its role in establishing water resources policy. Still, it exerts significant influence in the sector due to its financial and human resources, and the importance of agriculture to the Haitian economy.³²

3. Ministry of Public Works, Transportation, and Communication³³

The Ministry of Public Works, Transportation, and Communication is responsible for water supply, sanitation, and hygiene through its *Direction Nationale de l'Eau Potable et de l'Assainissement* (DINEPA - National Directorate for Water Supply and Sanitation),³⁴ a poorly funded agency tasked with implementing the 2009 Framework Law on Water Supply,³⁵ coordinating donor assistance, regulating water service providers, and facilitating decentralization of water supply management. In addressing water supply and sanitation DINEPA is taking on one of Haiti's foremost challenges,³⁶ though it appears the agency's staff are ill-equipped to address Haiti's water supply needs and rely heavily on NGOs and international development assistance.

4. Ministry of Planning and External Cooperation³⁷

The Ministry of Planning and External Cooperation plays a coordinating role between the various government ministries, as well as the multitude of donors and donor-funded projects. Of particular interest is the *Comité Interministériel d'Aménagement du Territoire* (CIAT – Inter-ministerial Committee for the Management of the Territory),³⁸ a committee charged with coordinating actions among Ministries. The CIAT is composed of the Ministries of Agriculture, Environment, and Planning, as well as the Ministries of the Interior, Public Works, and Finance. It is chaired by the Prime Minister, and has the potential to be a strong voice in setting water

³² Agriculture remains the largest sector of the Haitian economy, despite efforts to diversify. See, e.g., Rashmee Roshan Lall, *Haiti's Employment Push Turns to Textiles as Farming Tradition Uprooted*, (2013) (Aug. 2, 2015), <http://www.theguardian.com/global-development/poverty-matters/2013/aug/21/haiti-employment-textiles-farming>.

³³ Ministry of Public Works, Transportation, and Communication: Official Site (Aug. 2, 2015), <http://www.mtpc.gouv.ht/>.

³⁴ National Directorate for Water Supply and Sanitation: Official Site (Aug. 2, 2015), <http://www.dinepa.gouv.ht/>.

³⁵ See *infra*, note 70.

³⁶ See, e.g., *supra* note 1, at introduction (“Haiti is the most underserved country in the western hemisphere in terms of water and sanitation infrastructure by a wide margin”).

³⁷ Ministry of Planning and External Cooperation: Official Site (site unavailable at time of access) <http://www.mpce.gouv.ht/>.

³⁸ Committee for the Management of the Territory: Official Site (Aug. 2, 2015), <http://ciat.gouv.ht/>.

policy. Its operational and management framework, however, is relatively ambiguous. One of its explicit components is watershed management,³⁹ but to date there is little evidence that watershed management is a priority for the committee.

5. Ministry of the Economy and Finance⁴⁰

The Ministry of the Economy and Finance coordinates the national budget approval process and helps establish priority funding targets. For that reason it plays a large role in determining how much support the ministries and local governments involved in water management will receive. In general Haiti's national budget is relatively limited, but is still relied on to provide essential water management services. A Technical Execution Unit (UTE) of the Ministry of the Economy and Finance also oversees the administration of projects affecting water resources, such as the Caracol Industrial Park.

6. Sections, Communes, and Departments

Haitian government life is divided between the national government and local collectivities.⁴¹ Sections form communes, and communes form departments. Departments form the highest level of sub-national government. In principle Haiti has embraced decentralized water management policies, which promote water management and service delivery at the lowest appropriate governance level. Accordingly, the national government has promulgated several laws transferring authority over water resources (including water supply, sanitation, and hygiene, and the development of environmental action plans) to local territories (including Sections, Communes, and Departments). However, the legislation has not clearly articulated a coordinated or strategic direction for water resources management, and has not provided local institutions with the funding or human resources necessary to carry out a successful and sustainable decentralization strategy. The laws also fail to clearly establish which ministry or ministries the municipalities should work with to develop their water resource management plans. These challenges are demonstrated by the case study of the Trou du Nord watershed below.

³⁹ Committee for the Management of the Territory: Watershed Management (site unavailable at time of access), http://ciat.gouv.ht/dossiers/dossier.php?id_dossier=13.

⁴⁰ Ministry of the Economy and Finance: Official Site (site unavailable at time of access), <http://www.mefhaiti.gouv.ht/>.

⁴¹ For an overview of the decentralization of Haitian government, see generally Sigifredo Ramirez, Andre Lafontant & Michael Enders, *Local Government Decentralization Assessment in Haiti*, U.S. Agency for International Development (2006).

7. Foreign Donors and Private Sector Actors

There are a multitude of non-Haitian actors playing a role in the water sector, including foreign governments, intergovernmental organizations, and NGOs that occupy the governance gap in the water sector created by a weak Haitian state, and private sector businesses and organizations that operate for-profit enterprises. As mentioned above, the Ministry of Planning coordinates donor activity, broadly authorizing projects and guiding donors toward areas of critical need. In practice this is a difficult task, as Haiti attracts an overwhelming number of non-profit entities seeking to make an impact.⁴²

The private sector also plays a large role in water management. Private companies offering to build manufacturing plants and provide foreign investment in Haiti have significant influence over local and national governmental affairs, and can demand water rights or shield themselves from prosecution. In other ways the private sector may organize its affairs to promote its interests. The *Société Nationale des Parcs Industriels* (SONAPI - National Society of Industrial Parks)⁴³ is an industrial and commercial autonomous body whose duty is to implement, promote, organize and manage Industrial Parks in Haiti, including the Caracol Industrial Park and Metropolitan Industrial Park. While SONAPI's capacity to craft water policy is limited, its importance to the Haitian economy gives it a voice in national affairs.

B. Laws and Policies

1. 1984 Rural Code François Duvalier⁴⁴

The Rural Code is a framework legal instrument regulating many aspects of rural Haitian life. As a general matter it does not delegate much authority to collectivities or provide a baseline from which collectivities can add localized regulations. Instead many aspects of rural life are proscribed by the national government in surprisingly specific ways. As pertains to water management, the Rural Code is similarly rigid, requiring for example that anyone seeking to make a diversion from a water source apply for a permit and that the application be investigated on-site.⁴⁵ A permit can be issued as long as the water is not already allocated and promotes the public

⁴² See *supra* note 26 for a critique of the international community's overwhelming and at times uncoordinated presence in Haiti.

⁴³ National Society of Industrial Parks: Decree (Aug. 2, 2015), <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=36838575>.

⁴⁴ 1984 Rural Code Dr. François Duvalier, Port-au-Prince, Haiti Impr. de l'État (1962).

⁴⁵ For a guide to the permit process, see generally World Bank Group: Dealing with Construction Permits in Haiti, steps 6-8 (Aug. 4, 2015), <http://www.doingbusiness.org/data/exploreeconomies/haiti/dealing-with-construction-permits/>.

interest.⁴⁶ In principle this type of water allocation doctrine is reasonable and reflects legal doctrine of other jurisdictions (regulated riparianism in the United States, for example). In this case the Rural Code appears not to appreciate how difficult implementation and enforcement might be.

In other cases the Rural Code appears to articulate a broader water management philosophy but does not follow through on that promise with subsequent support or clarification. In Article 132, for example, a landowner is entitled to use streamwater passing through his/her property as long as the land is well maintained and at least two-thirds of it is used for agriculture.⁴⁷ The passage raises a number of questions: How are we to define “well-maintained”? Who has the authority to make that determination? Why prioritize agricultural uses over all other potential uses? Why was two-thirds chosen as the threshold? Absent a broader approach towards water management, the Rural Code comes off as arbitrary and centrally imposed.

2. 1987 Constitution of the Republic of Haiti⁴⁸

The Haitian Constitution contains several provisions that indirectly address water resources management. Article 22 recognizes a right of every citizen to decent housing, education, food, and social security,⁴⁹ while Article 23 recognizes a right to appropriate means to protect human health.⁵⁰ Article 36-5 distinguishes an individual’s right to property from coasts, springs, rivers, and watercourses, which belong to the state.⁵¹ Article 52-1 imposes on citizens a duty to respect and protect the environment.⁵² Articles 253-258 broadly address the government’s role towards the environment, articulating vague principles of environmental protection.⁵³

The question is whether or not the Constitution imposes on the state or individuals a meaningful right or duty with respect to water resources. Some observers (such as the NYU research team) argue that because water is necessary to fulfill explicit rights (like food), it is an implicit right provided by the Constitution.⁵⁴ A more strict interpretation of the text would dismiss any notion of implicit rights. In any case, it is not clear what

⁴⁶ *Id.*

⁴⁷ 1984 Rural Code Dr. François Duvalier, Port-au-Prince, Haiti Impr. de l’État art. 32 (1962).

⁴⁸ Constitution of the Republic of Haiti (Mar. 10, 1987).

⁴⁹ *Id.* at art. 22.

⁵⁰ *Id.* at art. 23.

⁵¹ *Id.* at art. 36-5.

⁵² *Id.* at art. 52-1.

⁵³ *Id.* at art. 253-258.

⁵⁴ Klasing, *supra* note 20, at 41.

impact environmental rights would have even if they were explicit.

3. 1999 Ministry of the Environment Environmental Action Plan⁵⁵

The Ministry of the Environment's Environmental Action Plan created a grand vision for environmental management in Haiti. Of particular importance here is Priority Program 5: Management of Strategic Watersheds. The program calls for several implementing strategies, including land-use plans, watershed management plans, and the promotion of "conservationist agriculture."⁵⁶ Unfortunately, while the plan receives high marks for its vision and participatory approach, it fails to demonstrate how the vision will be carried out. Its goals are ambitious but the plan does not address the incremental steps that will be necessary to reach those goals. It does not, for example, address inter-ministerial coordination or establish firm commitments.

4. 1999 Ministry of Agriculture Watershed Management Policy⁵⁷

Around the same time that the Environmental Action Plan was being developed, the Ministry of Agriculture was setting in motion its own vision for water policy. The Watershed Management Policy is remarkable for two reasons. First, the policy set up a bottom-up approach towards developing watershed management plans by requiring collectivities to develop a micro-watershed plan that would be integrated into plans developed by the next highest level of government.⁵⁸ The policy asserts that financial and human resources would be made available to collectivities to undertake this process, though this has rarely been the case. Second, the policy appears to broaden the jurisdiction of the Ministry of Agriculture significantly. While the ministry was authorized to regulate water used for irrigation, it had not previously been in charge of creating watershed management plans, which are by nature cross-sectoral and address water uses other than agriculture. It is largely for this reason, and the Environmental Management Decree that followed, that the Ministry of Agriculture's Watershed Management Policy is viewed as lacking the statutory authority to wield the force of law.⁵⁹ Since the ministry is relatively well-staffed relative to other agencies this has not prevented it from exerting some control over watershed management, but there remains a disconnect between the ministry's internal policy and its statutory authority.

⁵⁵ Environmental Action Plan, MdE (1999).

⁵⁶ *Id.* at Priority Program 5 (1999).

⁵⁷ Ministry of Agriculture Watershed Management Policy (1999).

⁵⁸ For further discussion, see Bush and Sildor, *supra* note 23, at 13-14.

⁵⁹ This sentiment is shared by Bush & Sildor, see *supra* note 23, at 13-14, as well as Victor (2006), see *supra* note 15.

5. 2006 Environmental Management Decree⁶⁰

Perhaps because the Ministry of Agriculture expanded its authority over water resources management, in 2006 the Environmental Management Decree made explicit the Ministry of the Environment's authority over national environmental policy.⁶¹ This includes the right to declare eroded land to be inappropriate for agriculture, and explicitly transfer powers over forest management and water resources from the Ministry of Agriculture to the Ministry of the Environment.⁶² It also requires the Ministry of the Environment to lead the coordination effort between ministries and local governments, and creates the same bottom-up approach to environmental management planning that the Ministry of Agriculture's Watershed Management Policy created in 1999.⁶³

The Environmental Management Decree is somewhat more specific regarding roles and responsibilities, clearly vesting authority over water resources to the Ministry of the Environment, and clarifying that material support to collectivities will be provided by the central government budget. Still, by keeping authority over irrigation systems with the Ministry of Agriculture, the Decree somewhat ambiguously creates a competitive dynamic between the two ministries.⁶⁴ The Decree also doesn't provide commitments toward staffing and financing the Ministry of the Environment,⁶⁵ a vital component of any environmental management strategy.

6. 2006 Decentralization Decree⁶⁶

In line with the principle of subsidiarity,⁶⁷ the Decentralization Decree aimed to delegate certain powers to local governments. Chapter 3 of the Decree addresses the environment, imposing on sections, communes, and departments the duty to enforce logging prohibitions, protect watercourses, control pollution, and regulate livestock farming.⁶⁸ Communes are

⁶⁰ Environmental Management Decree, art. 1-162 (2006); *see generally* 11 Official Gazette of the Republic of Haiti 161 (2006) (Aug. 3, 2015), http://law.sc.edu/pathfinder/haiti/docs/20060126-environmental_management.pdf.

⁶¹ *Id.* at art. 20.

⁶² *Id.* at art. 100.

⁶³ *Id.* at art. 20, 115, 116.

⁶⁴ Article 117 of the Decree gives water use priority to ecosystems over agriculture or irrigation, but acting on this priority remains challenging.

⁶⁵ Environmental Management Decree, art. 77-9 (2006).

⁶⁶ Decret sur le Cadre de la Decentralisation, Fevrier (2006).

⁶⁷ For a discussion of the principle of subsidiarity, see Ryan Stoa, *Subsidiarity in Principle: Decentralization of Water Resources Management*, 10 *Utrecht L. Rev.* 31 (2014).

⁶⁸ Decret sur le Cadre de la Decentralisation, Fevrier, ch. 3 (2006).

specifically responsible for elaborating resource management plans and building dams and reservoirs, and departments must monitor facilities, verify impact studies, and establish protected areas.⁶⁹ The Decree may seek to empower local governments, but without a commitment to provide financial and human resources to them, a Decree of this nature cannot be fulfilled. Many sections, communes, and departments have poor or non-existent offices, part-time staff with low qualifications, and/or more pressing political concerns. The idea that sections are equipped to combat illegal logging, for example, is unrealistic. Absent a complementary plan to build capacity of local governments, the Decree has little positive impact on water resources management.

7. 2009 Framework Law on Water Supply⁷⁰

Water supply, sanitation, and hygiene is an immense problem in Haiti. According to the World Health Organization, one-third of Haitians do not have access to an improved water source,⁷¹ and four-fifths do not have access to improved sanitation.⁷² To combat the situation the government enacted the Framework Law on Water Supply. The Framework vests significant authority in the Ministry of Public Work's DINEPA, including the authority to set policy, create pricing schemes, establish water quality standards, issuing permits, enforcing violations, and mediating disputes.⁷³ These are important powers to enumerate in an implementing agency, and with the authority to set further policies and regulations, DINEPA should be well-suited, from a statutory perspective, to improve water and sanitation services. Unfortunately, the law does not commit the government to adequate funding sources, nor does it create and staff institutions or mechanisms to implement many of its provisions.⁷⁴ The Framework Law on Water Supply is a good first step, but the scale of the problem (compounded by the 2010 earthquake) is so vast that the law alone is not enough to adequately address water and sanitation issues.

⁶⁹ *Id.*

⁷⁰ Framework Law on Water Supply (2009).

⁷¹ World Health Organization, *Progress on Drinking Water and Sanitation: 2012 Update*, 45 (2012).

⁷² *Id.* at 44. This percentage of Haitians without access to improved sanitation facilities in Haiti has steadily risen since 1990.

⁷³ For an overview of DINEPA responsibilities and activities see, DINEPA: Official Site (Aug. 3, 2015), <http://www.dinepa.gouv.ht/a-propos-de-nous/>.

⁷⁴ *See also*, DINEPA: Challenges and Progress on Water and Sanitation Issues in Haiti (2012) (Aug. 4, 2015), <http://onetable.crs.org/wp-content/uploads/2012/07/pres-water-toussaint.pdf>.

C. Cross-Cutting Challenges

1. Statutory Obscurity

Successful implementation of a law or policy starts with the statutory text of the law itself. If the law is written clearly enough the implementing agency is enabled to carry out their mandate. If the law is not clearly written, or does not create means to enact its desired outcomes, or is not coherently placed in a broader legal framework, successful implementation is doomed from the start.⁷⁵ There appear to be examples of all three shortcomings here. Many of the above water laws are ambiguously written or provide too little direction for an agency and other government partners to follow. In other cases, laws are too proscriptive and burdensome for enforcement to be realistic, eroding the legitimacy of the law.

Consider the Ministry of Agriculture's Watershed Management Policy. On the one hand its policy goals give ambiguously equal weight to agricultural production and environmental conservation, ignoring the fact that production and conservation often conflict and giving ministry officials little guidance on how to resolve those conflicts. On the other hand, the policy proscribes a rigid watershed resources management plan scheme that requires micro-watershed organizations to create a plan, which is incorporated into a section-level plan, which is incorporated into a commune-level plan, which is incorporated into a department-level plan. In practice this process is burdensome on local governments who have neither the means to develop, or the authority to approve, their own plans. As a result this process is largely ignored.

2. Regulatory Capacity

In other cases the statutory text may strike a balance between ambiguity and rigidity, but does not match up with the capabilities of the implementing agency. If a law is too ambitious relative to capacity, the agency will not be able to fulfill its mandate and may have to choose between lesser outcomes the original text did not contemplate.⁷⁶ Similarly, if a law is not ambitious enough, the agency will fulfill its mandate and either waste excess capacity by doing nothing, or devote resources to additional tasks the original text did not contemplate. In the Haitian water sector the former scenario is most prevalent. The 2009 Framework Law on Water Supply, for example, vests DINEPA (through the Ministry of Public

⁷⁵ See, e.g., Hal G. Rainey, *Goal Ambiguity and Organizational Performance in U.S. Federal Agencies*, 15 *Jnl. of Pub. Admin. Research and Theory* 529 (2005).

⁷⁶ See, e.g. Susan Carrillo, *Assessing Governance and Strengthening Capacity in Haiti*, 25 *Capacity Development Briefs*, World Bank Document 42386 (2007); Jurian Edelenbos & Geert Teisman, *Water Governance Capacity: The Art of Dealing with a Multiplicity of Levels, Sectors and Domains*, 1 *Int'l Journal of Water Governance* 89 (2013).

Works) with broad powers and responsibilities over drinking water and sanitation. These include: creating pricing schemes; establishing water quality standards; issuing permits; monitoring and evaluating water quality and system performance; approving infrastructure projects; and mediating between contractors. These responsibilities are not inappropriate in principle, but considering the human and financial resources at DINEPA's disposal, and the current state of drinking water and sanitation in Haiti, the law's ambitions do not match the regulatory capacity of its implementing agency.

3. Horizontal Coordination

As the above discussion of the institutional framework demonstrates, water management authority is shared between several national level ministries. While the Ministry of the Environment enjoys broad powers over water resources management, two of the largest and most critical water users – agriculture and water supply – are governed by the Ministries of Agriculture and Public Works, respectively.⁷⁷ The Ministry of Planning and its CIAT are responsible for inter-ministerial coordination, but water sector planning is only one of many cross-cutting issues it must address.⁷⁸ Not enough is being done to facilitate cooperation and jointly find opportunities between ministries. The Environmental Management Decree assigns the responsibility for water sector coordination to the Ministry of the Environment,⁷⁹ but it is not well placed to persuade other ministries to cooperate.

Furthermore, there is little in the way of water sector coordination between donors and donor projects. Because regulatory capacity in Haiti is low, many donors have stepped into the vacuum and fulfill public services, such as housing, primary care, or infrastructural development. In each of these sectors there are coordination challenges to overcome. This is true in the water sector as well, where donors and projects carry out workplans without exploring potential benefits of cooperation.⁸⁰ Here also the Ministry of the Environment and to some extent the CIAT are in charge of coordination, but both appear overwhelmed with the task. Whether between ministries, donors, or the sector as a whole, horizontal coordination is lacking in the water sector.

⁷⁷ See *supra* note 30.

⁷⁸ See *supra* note 37.

⁷⁹ See *supra* note 28.

⁸⁰ See *generally*, Republic of Haiti: Ministry of Public Health and Population – National Directorate for Water Supply and Sanitation, National Plan for the Elimination of Cholera in Haiti 2013-2022 (2012).

4. Vertical Coordination

There is too little coordination between local governments and the national government as well. Several water law frameworks identify a role for collectivities or even impose obligations on them, such as the MARNDR Watershed Management Policy, Environmental Management Decree, or Decentralization Decree.⁸¹ And yet, the various roles and responsibilities sections, communes, and departments have with each other and the national ministries is not collectively well thought out.

For example, both the MARNDR Watershed Management Policy and the Environmental Management Decree establish a bottom-up approach whereby sections, communes, and departments must prepare natural resources management plans (MARNDR) and environmental management plans (MoE) for watersheds, which are integrated into the plans of the next highest level of government.⁸² Given the similarities between these processes and their subject matter, it would be logical to expect that they be integrated in some way to reduce redundancies and promote holistic thinking. That does not appear to be the case. Instead, to whatever extent these parallel processes are actually carried out is done so independently of each other.

5. Enforcement

If a government agency sets a policy that is subsequently violated, that agency (or another, but at least one) must be able to enforce the policy by prosecuting the violation, thereby obtaining injunctive relief, compensation for damages, or some other equitable solution. An agency can also enforce its policies by making it less likely that a violation will occur in the first place. If an agency cannot enforce a policy, actors become aware and the policy will lose meaning or effect. The water sector in Haiti suffers from a lack of enforcement for several reasons. As mentioned above, agencies have little regulatory capacity to develop policies that have a high likelihood of success, monitor water users for potential violations, or prosecute violators. Second, factors broader than the water sector's scope frustrate enforcement, such as a relatively weak justice system, or a land tenure tradition in which ownership is difficult to ascertain.⁸³ Third, the sheer scope of violations makes it challenging and potentially arbitrary to decide which violators to target. For example, Article 137 of the Code Rural made it illegal for anyone to pump water from a stream without a

⁸¹ See *supra* notes 57, 65 and 68.

⁸² See *supra* notes 57 and 65.

⁸³ See, e.g., Ryan Stoa, *The Law of Disaster and Displacement in Haiti*, RyanStoa.com (2015) (Aug. 3, 2015), <http://ryanstoa.com/blog/2015/4/14/the-law-of-disaster-and-displacement-in-haiti-part-ii>.

permit from the Ministry of Agriculture, who was required to visit the site and investigate the water use before issuing a permit.⁸⁴ If anyone was aware of this policy it was likely disregarded, as the Ministry of Agriculture is not capable of monitoring and enforcing each individual collection point. Individuals might develop a reasonable basis with which to assume the policy is outdated or no longer valid, and punishing some violators in this scenario might be deemed inequitable.

Enforcement problems arise when donor-funded projects take on a large role in the water sector as well. On the one hand, donors are often based abroad, with foreign staff, bank accounts, and constituencies. This makes it difficult for the Haitian government to insist that its policies be respected when donor projects adopt their own approach. On the other hand, donor projects carry out some important public services (such as clean water provision) and therefore take on a government-like role, but lack the authority to prosecute violations (such as overconsumption of a well or dumping pollutants into a river).

6. Financing

An undercurrent of this assessment is that the water sector in Haiti is under-funded. Developing a coherent and integrated legal framework, building regulatory capacity, establishing and staffing coordination mechanisms, and enforcing policies requires money. Haiti is notoriously poor, with meager tax revenues and an economy reliant on small-scale agriculture.⁸⁵ Low levels of education and corruption are common.⁸⁶ The capital was hit hard by the 2010 earthquake, and while foreign countries and international organizations promised billions of dollars in aid, those funds appear to be tightly controlled.⁸⁷ As a result the Haitian government has a modest budget for public services, and what budget does exist provides little in the way of water resources management.⁸⁸ This is most apparent when observing regulatory capacity, as small teams of ministry staff are tasked with ambitious national mandates. Low levels of financing have many indirect impacts as well. A watershed management plan cannot be

⁸⁴ 1984 Rural Code Dr. François Duvalier, Port-au-Prince, Haiti Impr. de l'État art. 137 (1962).

⁸⁵ Mario Silva, *Island in Distress: State of Failure in Haiti*, 23 Fla. J. Int'l L 49, 65 (2011).

⁸⁶ *Id.*

⁸⁷ See, e.g., Laura Sullivan, *In Search of the Red Cross' \$500 Million in Haiti Relief*, NPR/ProPublica Report (2015) (Aug. 3, 2015), <http://www.npr.org/2015/06/03/411524156/in-search-of-the-red-cross-500-million-in-haiti-relief>.

⁸⁸ Vijaya Ramachandran & Julie Walz, *Haiti: Where Has All The Money Gone?*, Center for Global Development, Policy Paper 004 (2012).

developed if stakeholders are not compensated for their time or cannot afford to take time off work to participate in the process. Violations of water law are unlikely to be enforced if the injured party cannot afford representation and an administrative agency will not take action. And a grand vision or philosophy for water law in Haiti will remain illusory if not coupled with a commitment to finance ambitious reforms. There may be budget-neutral solutions to water sector problems, but many solutions will require investment.

III. INSTITUTIONAL CAPACITIES IN THE TROU DU NORD WATERSHED

The first phase of this study collected and analyzed the laws, policies, and institutions involved in water resources management in Haiti. Results from that phase suggest that the laws and policies affecting water resources create a fragmented and uncoordinated water management framework, in which national ministries have overlapping mandates and rarely coordinate their efforts effectively. In addition, while the legal framework transfers significant management authorities (and responsibilities) to local governments, there is little else in the way of statutory or regulatory guidance for these governments to rely on. For that reason, the legal framework creates broad ambiguities regarding how local governments are to be financed, staffed, or otherwise carry out their water management duties. These uncertainties could, in theory, create the interpretational space needed for local governments to experiment with water management strategies and techniques in ways that foster resilience and increase sustainability.⁸⁹ In practice, it seems more likely that opaque legal mandates would create confusion and leave local governments ill-equipped to tackle the daunting challenges of water management.

The following case study of institutional capacities in the Trou du Nord watershed in northern Haiti suggests that most agencies and stakeholders have neither the human nor the financial resources in place to fulfill their mandates. Some, however, such as DINEPA's local representatives or the University of Limonade, are relatively well-staffed and exhibit the continuity of presence needed to justify targeted capacity building efforts. Others, such as the sections and communes in the region, may have low levels of capacity in water resources management but merit engagement in order to secure broad participation in water management planning efforts. The institutional capacity analysis that follows has been conducted with an

⁸⁹ See, e.g., Ryan Stoa, *Florida Water Management Districts and the Florida Water Resources Act: The Challenges of Basin-Level Management*, 7 Ky. J. Equine, Agric. & Nat. Resources L. 73 (2014).

eye towards informing the final component of the IDB project funding this study: an integrated water resources management plan for the Trou-du-Nord watershed.

A. Institutional Capacity Assessments

1. Communes⁹⁰

The Trou du Nord river is located in the Trou du Nord Arrondissement, a subdivision of the Northeast Department of Haiti. The Arrondissement contains four communes: Caracol, Saint Suzanne, Terrier-Rouge, and Trou-du-Nord.⁹¹ These communes comprise the local government bloc of stakeholders most integral to a participatory water management planning strategy, as they represent the core geographic regions of the watershed, while exhibiting a level of regulatory and management activity that lower levels of government (i.e., sections within the communes) lack. For the most part the four communes do not employ any full-time staff dedicated to water resources, though some activities fall within the broad scope of water management. More important, perhaps, is the local support and buy-in that would be needed from each commune to effectively carry out a water management plan that modifies the status quo in any meaningful way.

Caracol is a flood-prone coastal commune on Caracol Bay, at the mouth of the Trou-du-Nord river. It is sparsely populated, but due to the Caracol Industrial Park's presence, demographics are in flux and electricity is reliable. The commune reports a total annual budget of less than \$195,000,⁹² of which over 40% comes from a European Union development project.⁹³ The 39 staff receive an annual salary of around \$4,320, but none are dedicated to water management *per se*. A significant portion of commune tasks pertain to waste management, accomplished with wheelbarrows and two motorcycles. There are no vehicles, nor is there a disposal site in the commune. While commune staff do not engage in water management themselves, they do work closely with DINEPA staff on water

⁹⁰ Data and information provided throughout this sub-section is attributed to the following sources: 1) field observations of the author and colleagues, in October 2014, March 2015, and June 2015; 2) stakeholder interviews conducted by Claudel Noel from May – July 2015 (unpublished; on file with author); and 3) discussions arising from stakeholder review of this research in June 2015 (See Section IV below).

⁹¹ Haiti-Reference: Districts and Cities of Haiti (Aug. 3, 2015), <http://haiti-reference.com/pages/geographie-et-tourisme/divisions-territoriales/arrondissements-et-communes/>.

⁹² United States dollar figures throughout this section are converted from Haitian Gourdes, at the 7/31/15 exchange rate of 55.4 Gourdes/Dollar.

⁹³ See Delegation of the European Union in Haiti: Interim Program in Support of Governance and Local Investment (LIMS), Project Sheet (Aug. 3, 2015), http://eeas.europa.eu/delegations/haiti/projects/list_of_projects/280311_fr.htm.

projects when necessary.

On the opposite end of the watershed, the commune of Saint Suzanne sits at the source of the Trou-du-Nord river and comprises a significant portion of the watershed's catchment area. The overall budget and staff salaries are similar to those of Caracol, though in practice staff are often not paid on time. The office has one functioning computer, one motorcycle, and no human or financial resources dedicated to water management. DINEPA's presence is minimal, supplemented by periodic wells drilled by international NGOs. Staff conduct street cleaning, but lack an official disposal site. Hygiene facilities are minimal to non-existent.

The communes of Terrier-Rouge and Trou-du-Nord lie between upstream Saint Suzanne and downstream Caracol. Terrier-Rouge is the eastern commune, sitting directly on the Route Nationale of the northern transportation corridor. The industrial park has financed new housing projects and reliable electricity in the commune. A municipal engineer on staff facilitates the issuance of construction permits, and the commune has hired eight staff to conduct reforestation work. Most other staff are engaged in street cleaning. The commune lacks a waste disposal site, though plans are in place to build a site capable of serving multiple communes. DINEPA's presence, and hygiene facilities, are minimal and supplemented by international NGOs. The overall budget and staff salaries are similar to those of Caracol, with neither dedicated to water management in any meaningful way.

Finally, the Trou-du-Nord commune forms the western flank of the watershed. The river flows through the commune before passing by the industrial park. While no housing projects have been constructed its proximity to the park has enabled reliable electricity throughout the commune. The commune is relatively well-staffed, with an engineer on hand to issue construction permits, and staff engaged in waste management and small-scale hygiene projects. However, little infrastructure is available for these purposes, as the commune has only one tricycle and some wheelbarrows, no disposal site, and a dysfunctional water supply system.

2. National Ministries⁹⁴

The statutory or policy framework outlined in the first stage of this study placed significant emphasis on the principle of subsidiarity, or the idea that water management should take place at the lowest appropriate

⁹⁴ Data and information provided throughout this sub-section is attributed to the following sources: 1) field observations of the author and colleagues, in October 2014, March 2015, and June 2015; 2) stakeholder interviews conducted by Claudel Noel from May – July 2015 (unpublished; on file with author); and 3) discussions arising from stakeholder review of this research in June 2015 (See Section IV below).

governance level.⁹⁵ The Framework Law on Water Supply, Environmental Management Decree, and Agricultural Watershed Management Policy envision a large role for local governments.⁹⁶ The Decentralization Decree explicitly addresses this strategy,⁹⁷ but even in 1984 the Rural Code tasked local governments with carrying out varied and relatively complex regulatory activities.⁹⁸ To implement decentralized policies, national ministries created regional offices, with staff in place to represent the ministry and carry out its mandate. Local representatives of national ministries in the Trou-du-Nord watershed are therefore a potentially fruitful partner, in the sense that they can marshal ministry resources toward local initiatives, while remaining knowledgeable of conditions on the ground. Unfortunately there is a stark contrast between the regional capacities of DINEPA and the Ministry of Agriculture, who are well-staffed in the region, and the Ministry of Environment, CIAT, and UTE, whose presence is marginal to non-existent.

The Ministry of the Environment, with statutory responsibilities over water resources management (and more broadly, natural resources management), environmental policy-making, enforcement, and inter-ministerial coordination, has a conspicuously limited presence in the Trou-du-Nord watershed. The Ministry does not have regional representative in the Northeastern Department, with only one staff member assigned to a regional office in nearby Cap-Haitien. The lone representative is unable to fulfill the broad mandates of the Ministry of the Environment in the region, nor capable of working closely with Arrondissements, Communes, or Sections to assist local governments with natural or water resources management planning.

The same is true for CIAT and UTE, divisions of the Ministries of Planning and Economy, respectively. Although CIAT has been tasked with coordinating the water sector, it principally carries out those responsibilities in the capital city, Port au Prince. UTE, with oversight authority of the Caracol Industrial Park, has an occasional presence in the region but does not maintain a permanent office in the Department.

DINEPA, by contrast, has a relatively strong presence in the Trou-du-Nord watershed. The agency has established a decentralized staffing structure, with regional organizations in place in each department, and many urban centers. Nonetheless, the 29 DINEPA staff overseeing the Trou-du-Nord watershed reported a highly centralized decision-making process, in which officials at the Ministry's headquarters in Port au Prince

⁹⁵ See also *supra* note 67.

⁹⁶ See *supra* notes 70, 65 and 57.

⁹⁷ See *supra* note 68.

⁹⁸ 1984 Rural Code Dr. François Duvalier, Port-au-Prince, Haiti Impr. de l'État (1962).

dominate policy-making and dictate the agency's strategic direction. Still, DINEPA's water supply, sanitation, and hygiene provision mandate is well supported by staff in the watershed, all of whom are dedicated to these tasks, and therefore a component of water management. Staff make between \$6500-\$13000 annually,⁹⁹ and all have completed their secondary education. The transportation infrastructure is ample, complemented by basic laboratory equipment. Considering the scope of the challenge throughout Haiti, staff overseeing the Trou-du-Nord region are unsurprisingly outmatched, and little is being done to treat wastewater or monitor water quality in the watershed. Still, the local staff are engaged in water management activities and equipped to carry out basic water supply projects.

The Ministry of Agriculture is similarly well-represented in the Trou-du-Nord watershed. The ministry's northeastern regional office employs 60 staff, including staff placed in Communal Agriculture Bureaus (local offices for each commune in the department). Despite the decentralized nature of the Ministry's Watershed Management Policy, reports on the ground indicate that the national office of the ministry maintains tight control over policy-making and budgetary allocations, creating heavy reliance from regional offices on the ministry's headquarters. Staff are compensated similarly to DINEPA officials, but the Ministry of Agriculture struggles to retain engineers or agronomists due to the higher wages paid by the many agricultural projects sponsored by international NGOs.¹⁰⁰ More than half of the ministry's staff are dedicated to water management, most in terms of irrigation. Trou-du-Nord offices are hampered by limited access to data or modeling on climate, precipitation, surface flows, groundwater stores, or soil quality that would enhance agricultural planning. Nonetheless, the agency appears knowledgeable of local conditions and has a meaningful presence in the watershed.

3. Caracol Industrial Park¹⁰¹

Perhaps the most significant development for the Trou-du-Nord watershed in recent history has been the construction and operation of the Caracol Industrial Park. While the park has yet to reach full capacity, it is

⁹⁹ With benefits, such as a government pension, work insurance, vehicles and petty cash to conduct field work.

¹⁰⁰ The Faculty of Agronomie and Veterinary Medicine at the State University of Haiti has a similar retention problem.

¹⁰¹ Data and information provided throughout this sub-section is attributed to the following sources: 1) field observations of the author and colleagues, in October 2014, March 2015, and June 2015; and 2) stakeholder interviews conducted by Claudel Noel from May – July 2015 (unpublished; on file with author).

already making an impact in the region.¹⁰² As a large apparel manufacturer, the Park represents both a challenge and an opportunity. A challenge because the scale of industrial and economic development projected for the Park at full capacity may have negative impacts on the watershed's resources. Water withdrawals may reduce freshwater flows in the Caracol Bay estuary, pollutant discharges may degrade water quality, and forest clearing may increase the risk of flooding. Fortunately these risks can be mitigated, in part due to the opportunity the Park represents for the watershed. With significant funding from the IDB, USAID, and foreign investors, the Park has the financial resources to carry out the watershed studies, monitoring programs, and mitigation projects that the aforementioned government officials cannot. The Park's dual nature as both threat and solution therefore makes it a vital stakeholder in the development of a watershed management plan.

With regard to water management, the Park's structure breaks down into a water extraction division and a water treatment division. The water extraction team is employed by SONAPI, are hired as consultants without benefits, and focus on the three currently operating pumping stations that draw water from the Trou-du-Nord watershed. There are eight members of the extraction team, all relatively well-educated. The infrastructural resources are minimal, however, with no computers or vehicles to assist staff with maintaining the pumping stations. Procurement of parts is time-consuming as well, with policy mandating Haitian sourcing instead of the cheaper and more accessible parts coming from the Dominican Republic. The water treatment division is managed by a private contractor, using a modified wetlands treatment process to purify water released back into the Trou-du-Nord river and, ultimately, Caracol Bay. Staff consist of international experts and local Haitians, and infrastructure appears accessible and well-maintained.

4. Limonade University

The State University of Haiti's Limonade campus opened in 2012, with \$30 million of investment contributed by the Dominican Republic.¹⁰³ It is

¹⁰² For contrasting views on the early returns of the Park, see Mary Anastasia O'Grady, *Hillary's Half-Baked Haiti Project*, *The Wall Street Journal* (2015) (Aug. 3, 2015), <http://www.wsj.com/articles/mary-anastasia-ogrady-hillarys-half-baked-haiti-project-1421018329>; and Henri-Claude Muller-Poitevien, *A WSJ's Columnist Disregarded About Haiti. . . The Facts*, *The World Post* (2015) (Aug. 3, 2015), http://www.huffingtonpost.com/henriclaudemullerhenriclaude-muellerpoitevien/what-the-wsjs-columnist-d_b_6459892.html.

¹⁰³ *Caribbean Journal: Haiti Officially Opens Roi Henri Christophe Campus in Limonade* (2012) (Aug. 3, 2015), <http://caribjournal.com/2012/09/22/haiti-officially-opens->

the most modern and well-equipped university campus in northern Haiti, and sits less than ten kilometers from the Trou-du-Nord river. While the academic functions of the university remain under development, the professional staff and students represent a promising partner for water management planning in the region. While the university does not directly engage in public water resources management, it has some capacity to contribute to management planning. Faculty in the fields of hydrology, hydrogeology, and sustainable development are familiar with best practices in the field of water management.¹⁰⁴ The proximity of the university to the Trou-du-Nord makes the river an attractive study area for scholarly research and experiential student learning. The campus provides modern facilities within which water management planning can take place in a professional and efficient manner. The university is not a political agency with fluctuating interests, nor an international organization with little local history. While the laboratory facilities are undeveloped and incapable of carrying out periodic water quality or quantity testing in the watershed, there is interest to match future investments. Finally, there appears to be less turnover in an academic setting than in government offices, providing a potential source of continuity in the region.

B. Implications for Water Resources Management Planning

Field research conducted on institutional capacities should be understood in context. This study provides a snapshot of existing capacities as of 2015, but capacities shift from year to year.¹⁰⁵ Feedback provided suggests that the existing capacities reflect long-standing limitations in water governance – the dominance of the Ministry of Agriculture vis a vis the Ministry of the Environment, for example, has been the norm even since the Environmental Management Decree transferred many powers to the Ministry of the Environment. In addition, while the institutions analyzed above were limited in their abilities to carry out sustainable water management policies, not to mention their statutory mandates, the deficit in human and financial resources is being periodically filled by the multitude of international NGOs and foreign donors in the region.¹⁰⁶ These

roi-henri-christophe-campus-in-limonade/#.

¹⁰⁴ E.g., Claudel Noel & Virginie Deystunder see generally, University of Haiti: Official Site (Aug. 3, 2015), <http://www.ueh.edu.ht/admueh/index.php>.

¹⁰⁵ For a snapshot of Haiti's shifting capacities across a variety of indicators, see The World Bank: Haiti – World Development Indicators and Global Economic Prospects (Aug. 4, 2015), <http://data.worldbank.org/country/Haiti>.

¹⁰⁶ See, e.g., Madeline Kristoff & Liz Panarelli, *Haiti: A Republic of NGOs?*, 23 United Institute of Peace Brief 1 (2010); and Kathie Klarreich & Linda Polman, *The NGO Republic of Haiti*, The Nation (2012) (Aug. 3, 2015), <http://www.thenation.com/article/ngo-republic-haiti/>.

organizations engage in a variety of water management activities, including drilling wells, building latrines, conducting research, providing training, and supporting government offices.¹⁰⁷ While influential, they were not the focus of this study in part because a robust water management plan for the Trou-du-Nord depends most crucially on leadership and engagement from domestic stakeholders. In addition, while government agencies may shift priorities or incur staff turnover, their presence and organizational structure remains relatively constant (or changes relatively slowly), while internationally-managed projects often operate intensely in a region for a period of years before leaving, and are thus more difficult to comprehensively integrate into the water management framework. Nonetheless, international organizations remain key partners, with significant potential contributions to water governance.

1. Strategic Governance Capacity Building

The capacity assessments of communes in the Trou-du-Nord Arrondissement, national ministries, the Caracol Industrial Park, and Limonade University suggest that capacity building aimed at improving water governance in the watershed be mindful of the characteristics and discrepancies between these organizations. At the moment, for example, it does not appear that CIAT, UTE, or most importantly, the Ministry of the Environment are able or willing to maintain a presence in northern Haiti, much less the watershed. This is problematic, as the Ministry of the Environment is legally responsible for watershed management planning and would be the natural lead on a planning effort in the Trou-du-Nord. However, it appears that whatever staff are present in northern Haiti are fully engaged and overwhelmed. This is not a conducive environment for a training-based approach to capacity building, as the opportunity costs of attending training may outweigh the benefits obtained. Even a staffing-based approach, in which external funds are dedicated to growing the labor force in the Ministry, may not be sufficient to reach a threshold in which the Trou-du-Nord receives sufficient regulatory attention.

The Ministry of Agriculture, on the other hand, has ample staffing and local offices in each commune, creating a robust presence in the watershed. While staff are primarily focused on irrigation, the prevalence of agriculture in the region justifies a strong role for ministry officials in the planning effort. The centralization of policy-making and financial control is limiting, but should not impede efforts to diversify skill sets within local ministry offices.

Similarly, DINEPA's strong presence in the region could be

¹⁰⁷ The institutions canvassed reported working with the IDB, USAID, FAO, EU, Haiti Outreach, and Living Water International, among others.

productively supplemented by training and experiential learning in water management. While this is already taking place with the help of international NGOs engaged in water supply, sanitation, and hygiene services, there is room for placing these activities within a broader water management paradigm. A consideration of the multiple uses and demands on water resources would benefit DINEPA and the Trou-du-Nord watershed.

Capacity building of communes – Caracol, Saint Suzanne, Terrier-Rouge, and Trou-du-Nord – is more than justified, but on a more general governance level than a water management-focused approach. Commune staff have little in the way of equipment, training, or policy influence. Attaining a level of capacity in which communes can issue permits, monitor compliance, and enforce violations would require significant investments and time that may not be available prior to development of the Trou-du-Nord water management plan. Whether or not these elements are needed to maintain a robust management plan remain to be seen, but for purposes of this project, a strategy of engagement is likely to be more appropriate at this stage.

The Caracol Industrial Park is not an obvious beneficiary of capacity building arising from a Trou-du-Nord water management planning effort, despite its strong presence. Many of its staff appear well-trained in water management, are focused on discrete roles, or do not appear likely to be permanent fixtures at the park. The inverse is true of faculty and staff at Limonade University, where continuity is likely and interest is broad, but existing capacities do not approach the university's capacity ceiling. Because the university is a relatively impartial actor with a stake in the Trou-du-Nord watershed's sustainability, it is an ideal target of capacity building, whether focused on faculty, students, or infrastructural resources.

2. Strategic Engagement

A successful water management plan engages stakeholders to ensure broad participation, support, and long-term continuity.¹⁰⁸ Too often stakeholder engagement is a platitude, involving little more than public workshops. One of the objectives of this study, however, is to provide an

¹⁰⁸ There is a wealth of research on the subject of stakeholder engagement, particularly with respect to natural resources and water resources management. See, e.g., Timothy Lynam et al., *A Review of Tools for Incorporating Community Knowledge, Preferences, and Values Into Decision Making in Natural Resources Management*, 12 *Ecology & Society* 5 (2007); Gregg B. Walker, Susan L. Senecah & Steven E. Daniels, *From the Forest to the River: Citizens' View of Stakeholder Engagement*, 13 *Human Ecology Review* 193 (2006); Emma L. Tompkins, Roger Few & Katrina Brown, *Scenario-based Stakeholder Engagement: Incorporating Stakeholder Preferences into Coastal Planning for Climate Change*, 88 *Journal of Env'tl. Mgmt.* 1580 (2007).

institutional capacity analysis of water management in the Trou-du-Nord watershed in order to foster a more thoughtful approach to stakeholder engagement. In this case, the various stakeholders bring unique contributions to the table, with implications for stakeholder engagement.

The Ministry of the Environment's limited presence in the region as a whole, for example, creates a dilemma for the Trou-du-Nord planning effort. On the one hand, the watershed would benefit from whatever attention the ministry can provide to it, considering the many other competing issues in front of its staff. On the other hand, it is not clear the ministry can maintain a continuous presence throughout the planning process and beyond. The ministry was unavailable for comment on this study, for example, and did not participate in validation meetings in June 2015. Most likely the ministry should be continuously invited to participate in water management planning, but not extensively relied on to carry out planning functions.

The four communes, on the other hand, have a large presence in the watershed despite their limited governance capacities. This makes them ideally suited to focus on community mobilization, public awareness raising, and to provide continuous feedback on the water management plan from the citizens and water users they represent and interact with on a daily basis. The communes may play their own roles in the planning process as well. Saint Suzanne, as the "source" commune, may contribute by monitoring changes in land use or water demands in the catchment area that may influence downstream users. Caracol, similarly, can be equipped to monitor outflows as the "mouth" commune. Trou-du-Nord and Terrier-Rouge, as the more urban centers of the region, may be responsible for management functions such as the organization of watershed management council meetings.

DINEPA and the Ministry of Agriculture, with their strong presence and ongoing water management activities in the watershed, must be centrally involved. Both agencies would benefit from participation in an integrated, sector-wide planning process that considers the various competing demands on water resources. Both agencies have large staff in place to carry out their statutory mandates, suggesting that cooperation and synergistic potential is high. The influence of national offices in limiting policy-making and financial control is limiting, but can be overcome collectively more easily than alone. The agencies also have the greatest potential to enforce violations of the plan. Communes lack capacity and cross-jurisdictional authority, while SONAPI and Limonade University are less closely integrated with state functions.

SONAPI and the Caracol Industrial Park, as the major economic actors in the watershed, are equally important. While neither may be appropriate

for capacity building efforts, ensuring that operators of the park are engaged and buy into the Trou-du-Nord water management plan is a necessary element of the planning process. Without the park's support and participation, the plan is unlikely to be carried out effectively, if at all. The Park's resources, as mentioned above, also represent an opportunity to initiate meaningful water quality and quantity testing in the watershed.

Finally, Limonade University's focus on research and education can be harnessed to serve as the intellectual, research, and training center of the water management planning process. Engaging faculty to participate in sponsored research, and encouraging students to learn water management skills, is a long-term investment in the watershed.¹⁰⁹ The university is young, and successful engagement into the planning process may guide the university's academic and organizational priorities toward water resources, in the Trou-du-Nord watershed and beyond.

IV. RESULTS VALIDATION AND FURTHER RESEARCH

An integral component of legal and institutional field research is results validation. Particularly for a study of this nature, in which the legal or official backdrop is contrasted by realities on the ground, stakeholders play a large role in complementing and calibrating research results. While this study was reviewed by outside experts, two validation workshops were conducted in Haiti in mid-June, 2015. Stakeholders were presented with the preliminary results of the legal and institutional analysis, as well as data collected during the institutional capacity assessment phase. Finally, stakeholders were presented with a list of oft-cited and potential reforms in order to gauge priorities and reform efforts likely to receive a high return on investment. These reform options included the following:

Establish Water Use Priorities. A national water strategy is lacking at present in Haiti. This is not particularly unique – the United States infamously lacks a national strategy for water management, for example.¹¹⁰ But a water strategy that prioritizes water uses and articulates a vision or philosophy for water resource management could help guide decision-makers when allocating financial or human resources, approving permits, or

¹⁰⁹ See, e.g., Bruce Missingham, *Participatory Learning and Popular Education Strategies for Water Education*, 150 *Journal of Contemporary Water Research & Educ.* 34 (2013); L. Douglas James, *A Historical Perspective on Water Resources Education*, Utah State University, 20th Annual Meeting of the Water Resources Planning and Management Division of the American Society of Civil Engineers (1992) (Aug. 3, 2015), <http://opensiu.lib.siu.edu/cgi/viewcontent.cgi?article=1428&context=jcwre>.

¹¹⁰ See generally, Ryan Stoa, *Droughts, Floods, and Wildfires: Paleo Perspectives on Disaster Law in the Anthropocene*, 27 *Geo. Int'l Envtl. L. Rev.* 393 (2015).

when prioritizing enforcement of violations. Haiti might, for example, deem water supply, sanitation, and hygiene a priority use over all other water uses. That would be in line with customary international water law, as instruments such as the 1997 United Nations Watercourses Convention or the 2004 Berlin Rules on Water Resources identify vital human needs as a priority over all other water uses. Going further, a national strategy could prioritize agriculture/irrigation or environmental protection to be a priority over industrial, commercial, recreational, or energy uses.

Articulating priority of use is the easy part, however. Carrying out that vision is challenging on a number of fronts: 1) it may require restructuring of the national budget and human resources; 2) the established priority of use may not be in the public interest in each instance in which it is applied; and 3) enforcement of the strategy and priorities requires cooperation from ministries and local governments. Merely articulating priority of uses may still make an impact however. Ministries (e.g., Agriculture, Environment, Public Works) that issue permits for using water resources will have a guide from which to base decisions and national priorities, and courts will have a persuasive legislative source of authority to resolve conflicts between water users.

Consolidate Authority. As proposed by Emmanuel-Dubus in 1998,¹¹¹ Haiti could consolidate authority over water resources management into one national-level ministry. Consolidating authority in this manner would confer several advantages. First, it would reduce the need for enhanced coordination between the various ministries with a role in water resources management, since those activities would be consolidated into one ministry. While the ministry itself would need to ensure coordination internally, it is likely that it could do so more efficiently than is presently the case, and might benefit from the opportunity to build synergies between, for example, staff tasked with hydrological data monitoring and urban water suppliers. Second, a water ministry would give foreign donors – who have a significant presence in the water sector – with one point of contact (or at least far fewer points of contact) with which to collaborate and carry out water projects. Donors often carry out their projects without capitalizing on opportunities to work with national ministries, and a single water ministry would increase the potential for Haitian involvement in foreign projects. Similarly, a water ministry would be an elegant way to build relationships between the national and local governments. There is confusion at present regarding the obligations of local governments and whom at the national level they should be working with. A single water ministry may clarify the roles and responsibilities of local officials, and generally streamline the

¹¹¹ Emmanuel, *supra* note 16.

working relationship between national and local governments.

Of course, a restructuring of this nature has several costs. For one, existing ministries would have to give up certain powers over water management. In some cases that might not be strategic. The Ministries of Agriculture and Public Works already have significant expertise over irrigation and water supply, respectively, and transferring those powers to a single water ministry may disrupt existing administrative structures that are working well enough. It is also not clear what role the Ministry of the Environment would have in water resources management if a water ministry were created. The Ministry of the Environment is ostensibly responsible for many aspects of water management already, but struggles to carry out its mandate. Removing that authority and placing it in a new ministry may not overcome the obstacles the Ministry of the Environment is facing – the new ministry may simply inherit those problems.

Strengthen Coordination. As mentioned above, the water sector in Haiti struggles with a lack of coordination between national ministries (horizontal) and between national and local governments (vertical). Stakeholders also complain of a lack of coordination between them and foreign donors. Accordingly, attention can be paid to creating a coordinating body for water resources management in Haiti. The Ministry of Planning and its CIAT currently occupy this space, but they are tasked with coordinating all inter-ministerial and donor activities. Given that all-encompassing mandate, it is not surprising that water sector coordination receives insufficient attention. Creating a body whose sole task is to coordinate between water sector stakeholders would presumably lead to opportunities for collaboration, increased learning outcomes, and fewer redundant initiatives. The coordinating body could be a stand-alone, independent government body, or logically placed in the Ministry of Planning or a newly created water ministry.

Like any coordinating or inter-institutional body, an inter-ministerial entity specific to the water sector is only as productive as its participating members want it to be. The coordinating body is unlikely to wield powers capable of compelling action; rather, action will depend on members seeking to collaborate and improve water resources management. It is likely that “win-win” opportunities exist in Haiti’s water sector that are not being capitalized on due to a failure of communication between stakeholders. In those cases a coordinating body would prove successful. But just as likely is the reality that some water resource reforms are a “win-lose” proposition, and in those cases, a coordinating body will struggle to persuade potential losers to take action. In those cases, a coordinating body will represent an empty forum for talk and little action.

Build Capacity. Building capacity is a popular and uncontroversial

recommendation for many institutions in many countries, and is a favored approach to development by many foreign donors.¹¹² Building capacity often means improving the quality and quantity of human resources in key institutions. The Ministry of the Environment, for example, has the power to manage natural resources in Haiti, but little in the way of qualified environmental experts capable of assessing resource issues and acting to remediate them. This is a recurring problem throughout the water sector, as local governments lack appropriate expertise to manage water resources and ministries lack the staff (or tools) to carry out their mandates. Therefore, building capacity by investing in people and water education in Haiti is a promising opportunity. This can be accomplished in a few different ways, including investments in Haitian educational institutions (supporting university courses in water resources management, for example), short-courses for water sector professionals, and incentives for highly-qualified experts to take and stay in government positions.

As much as capacity building is favored by the donor community, it still remains an elusive goal. It is difficult to quantify or monitor investments in human resources and the impacts they might have, and the results can often take years or decades to come to fruition.¹¹³ Furthermore, building capacity runs into a brain drain dilemma for investors: once someone receives training and expands their skill-set, they increase their market value and may find more lucrative employment elsewhere, thereby negating the impact of the original investment.¹¹⁴ This effect can be dampened by focusing on building a long-term source for water education (e.g., universities), but that approach is less likely to produce the immediate impacts donor projects may be looking for.

Increase Financing. The Haitian government and foreign donors must make budgetary decisions that allocate funds between a myriad of worthy sectors and projects. Ideally each sector would receive funding amounts

¹¹² See, e.g., United Nations: Sustainable Development, International Networking for Capacity Building in Integrated Water Resources Management (2006) (Aug. 3, 2015), <https://sustainabledevelopment.un.org/index.php?page=view&type=1006&menu=1348&nr=1560>; The World Bank: Projects & Operations, GZ-Water Sector Capacity Building (2011) (Aug. 3, 2015), <http://www.worldbank.org/projects/P117443/gz-water-sector-capacity-building?lang=en>; The World Bank: Projects & Operations, Technical Assistance for Water-sector Capacity Building (2009) (Aug. 3, 2015), <http://www.worldbank.org/projects/P112097/technical-assistance-water-sector-capacity-building?lang=en>; U.S. Agency Int'l Dev: Water and Development Strategy 2013-2018 (2013).

¹¹³ See, e.g., Sarah Ford et al., U.S. Agency Int'l Dev, *Challenges Encountered in Capacity Building*, 1 Technical Brief (2010).

¹¹⁴ Segun Joshua, Ilemobola P. Olanrewaju & Onome Ebiri, *Leadership, Brain Drain and Human Capacity Building in Africa: The Nigerian Experience*, 3 Research Journal in Organizational Psychology & Educ. Studies 283 (2014).

commensurate with the total needed to create a healthy economy and a healthy environment, but that is not always the case. It may be that the Haitian water sector does not have structural or policy issues but simply an imbalance between the costs needed to sustainably manage water resources and the funding it actually receives. Costs can incur in the short-term (paying staff salaries), while benefits emerge in the long-term (building capacity). Either way, a well-functioning public sector requires financing, and injecting more into the water sector would alleviate many concerns.

Of course, funding is scarce and budget allocations have an opportunity cost. Investing more money in water resources management might mean less money for primary education or public healthcare. The benefits of sustainable water resources management confer on future generations, but politicians have concerns rooted in the present. Haiti is by many metrics the poorest country in the Western Hemisphere,¹¹⁵ and public funds are lacking in many sectors.¹¹⁶ Donors may provide relief but necessarily have their own interests to be mindful of. Finally, there is no guarantee that an increased investment in the water sector would lead to a sustainably improved environment if other structural issues persist.

Promote Subsidiarity. A central tenet of Integrated Water Resources Management (IWRM) – an emerging and popular water management philosophy – is that water management should take place at the lowest appropriate governance level (echoing the principle of subsidiarity). In theory, this would place decision-making authority in the hands of stakeholders with the most localized knowledge of a particular water resource, foster innovation and management tailored to the local environment, reduce inefficiencies of national level bureaucracy, reduce transboundary conflicts by creating institutions around the boundaries of the water resource itself, and encourage local stakeholder involvement. Decentralization need not be a zero-sum game in which national level ministries lose out either – national administrative agencies are often happy to share responsibilities with local governments.

In practice, however, decentralization can lead to perverse results.¹¹⁷ Local governments in Haiti are already responsible for a wide variety of tasks related to water resources management, and often fail to fulfill those obligations. At the heart of the failure is a lack of financial and human resources being dedicated to support local governments in carrying out these obligations. If these entities are not equipped to handle an increase in

¹¹⁵ See *supra* note 85.

¹¹⁶ See, e.g., World Bank Group: Haiti - Public Expenditure Management and Financial Accountability Review, (2008) (Aug. 3, 2015), <http://elibrary.worldbank.org/doi/book/10.1596/978-0-8213-7591-4>.

¹¹⁷ Stoa, *supra* note 67.

responsibility, decentralization merely shifts the burden of public responsibility from one agency to another. In Haiti a strong push for decentralization must be accompanied by a commensurate increase in financial and human support.

A. Stakeholder Review: Limonade, Haiti, June 16, 2015

The first stakeholder workshop was conducted at the State University of Haiti Limonade campus on June 16, 2015. The workshop brought together four of the five core institutions identified in this study as most crucial to ensure successful implementation of a Trou-du-Nord water management plan: representatives from the communes, DINEPA, the Ministry of Agriculture, and Limonade University were in attendance.¹¹⁸ The objectives of the workshop were three-fold: 1) to solicit feedback from local communities and ministry officials on the preliminary results of the legal and institutional framework analysis; 2) to solicit feedback from local communities and ministry officials on the preliminary results of the institutional capacity assessments; and 3) to initiate the Trou-du-Nord water management planning process through direct stakeholder engagement, and to lay the foundation for future collaboration.

Stakeholder feedback can be consolidated into three broad reactions.¹¹⁹ First, there was general agreement that the conclusions of the legal analysis (again, that water governance in Haiti is fragmented across national ministries and local governments, and that statutory ambiguities frustrate coordination and implementation) are accurate and reflect the realities of water governance in Haiti and in the Trou-du-Nord region. Stakeholders expressed frustration that procedures for implementation are not provided by implementing legislation or national regulations, while national ministries provide little in the way of guidance or capacity support. Second, despite the absence of the Ministry of the Environment, the importance of ecosystem services and environmental principles were repeatedly mentioned as an important aspect of water management that is currently lacking in Haiti. Finally, when pressed to identify sector-wide reforms that would be likely to improve water governance in Haiti, stakeholders concentrated on two. First, the lack of agency capacity was repeatedly mentioned as a limiting factor in, and partly responsible for preventing, effective water governance. Second, the creation of a Ministry of Water was promoted as a more effective mechanism to consolidate water management authority and coordinate the sector. The feedback from

¹¹⁸ Representatives from the Caracol Industrial Park did not attend, nor did staff from the Ministry of the Environment.

¹¹⁹ A report of this workshop, prepared by Professor Claudel Noel of Limonade University, is not published but is on file with the author and available upon request.

stakeholders largely validates the preliminary research of this study, but also suggests that water management planning in the Trou-du-Nord watershed should take advantage of the breadth of stakeholder knowledge available.

B. Stakeholder Review: Port au Prince, Haiti, June 18, 2015

The second stakeholder workshop was conducted in Petionville, on the outskirts of Port au Prince, on June 18th 2015.¹²⁰ The workshop was attended by most of the national agencies involved in water management, including the Ministries of Agriculture, Environment, Public Works (DINEPA), Planning (CIAT), and Economy (UTE). Given the participation of national-level ministry officials, however, this workshop was less focused on the Trou-du-Nord watershed area. Instead, the national implications of the legal and institutional research results were prioritized, with an eye toward how national policies would have a “downstream” impact on local governments tasked with carrying out extensive mandates they generally lack the capacity to fulfill.

Just as stakeholders in the Trou-du-Nord watershed affirmed the preliminary results of this study, so too did the representatives from national ministries. However, the points of emphasis diverged somewhat, with national ministries placing more emphasis on insufficient capacities (such as infrastructure, technology, and experienced staff) rather than incoherent or contradictory statutory mandates as a reason for dysfunctional water governance in Haiti. The discussions suggested that national ministries adhere more to some policies than to others, and largely adopt their own internal priorities (e.g., the Ministry of Agriculture’s Watershed Management Policy). This may be a response to the lack of enforcement or coordination in the sector as a whole. Stakeholders were also concerned about their reliance on international NGOs and foreign donors for capacity support. This dynamic is not new in Haiti,¹²¹ but it bears consideration that self-sufficiency in the water sector is an expressed goal of both donors and national ministries. Regarding potential reforms, the national ministries were less enthusiastic about a Ministry of Water than the local governments and ministry representatives, but echoed the need for enhanced agency capacities.

C. Suggestions for Further Research

The results of this water governance study have several implications for further research. This study showed that, on paper, water laws and policies

¹²⁰ A report of this workshop, prepared by Professor Urbain Fifi of Quisqueya University, is not published but is on file with the author and available upon request.

¹²¹ See *supra* note 106.

are contradictory and fragment the sector, while isolating local governments from resources needed to carry out their mandates in a supposed decentralization framework. In addition, the case study of the Trou-du-Nord watershed demonstrated that institutional capacities to manage water resources sustainably and in an integrated way are limited. Several lines of research extend from these conclusions.

First, while this study was able to analyze national-level institutions and agencies in a general way (e.g., the Ministry of the Environment does not sufficient capacity to set and enforce environmental policy), a comprehensive and detailed analysis of institutional capacities at the national level is needed to broaden understanding of water governance in Haiti. Similarly, this study's results paint a picture of a dysfunctional water sector, but it is not clear if the dysfunction is the result of factors unique to the sector, or if cross-cutting governance challenges throughout Haitian political life manifest themselves just as well in the water sector. Most likely cross-cutting challenges appear in the sector along with unique characteristics that present obstacles to water governance in many countries, but ascertaining the primary sources of dysfunction may prove useful to future development efforts. Finally, while this study has investigated the laws, institutions, and institutional capacities related to water governance, other natural resources have received little research attention to date. Coastal resources management, for example, is the focus of several recent development projects,¹²² but a comprehensive assessment of the major governance forces shaping coastal zone management is lacking. Governance may be the most important element of natural resources management, but in Haiti, the most basic questions (What law governs? Who is in charge? What is being done?) often go unanswered. This study has attempted to answer some of those questions for water governance, but much research and implementation lies ahead.

V. CONCLUSION

This study comprised three distinct yet integrated research phases. In the first phase, the legal and institutional analysis paints the picture of a water sector in Haiti that is highly fragmented and lacks coordination. While some laws are reasonably constituted, many others lack specificity with respect to roles and responsibilities. In addition, many laws do not realistically take into account the institutional capacities of national

¹²² See, e.g., Critical Ecosystem Partnership Fund, *New Marine Protected Area Created in Northeastern Haiti*, (2014) (Aug. 3, 2015), http://www.cepf.net/news/top_stories/Pages/New-marine-protected-area-created-in-northeastern-Haiti.aspx.

ministries or local governments. As a result, the legal framework for water resources management in Haiti provides insufficient guidance to agencies and stakeholders.

In the second phase, capacity assessments of institutions in the Trou-du-Nord watershed in northern Haiti demonstrated that local governments and agencies have insufficient capacities to carry out complex and integrated water resources management activities, with implications for future management planning efforts. Efforts to develop a water management plan for the Caracol Industrial Park and the Trou-du-Nord watershed, in particular, should account for the existing capacities of institutions in the region by tailoring the plan's stakeholder participation and capacity building strategies.

In the last phase, stakeholder workshops were conducted in the Trou-du-Nord watershed and in Port-au-Prince to validate the preliminary results of this study and solicit additional insights. The workshops made clear that while institutional capacities are low, stakeholders have a keen awareness of the limitations of those institutions. At both the national and watershed level, government representatives acknowledged that water governance in Haiti is sorely underdeveloped, while pressing for more engagement and research from the international community. The goal of this study was to contribute to the emerging body of research on the Haitian water sector in order to promote development and reform. While water governance in Haiti remains a challenge, this study hopes to have painted a clearer picture of the landscape and its obstacles.