A POLITICAL ECOLOGY OF THE CITARUM RIVER BASIN

Exploring "Integrated Water Resources Management" in West Java, Indonesia

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Abstract

Over the past twenty years, the Indonesian government and international development agencies have ranked the Citarum River among the most polluted rivers in the world. Pollution, flooding, sedimentation, deforestation, and over-pumping of ground water, combined with inadequate policy enforcement and poor coordination between government agencies are compromising Indonesian livelihoods. In 2007, the Asian Development Bank (ADB) loaned Indonesia $500 million to implement "Integrated Water Resources Management" (IWRM) as a "best practices" management intervention to solve the "crisis" by "making decisions at the lowest appropriate level."

To appraise IWRM success, this paper explores, (1) historical trajectories leading to water privatization measures and IWRM; (2) integration of "local ground realities" during West Tarum Canal (WTC) project implementation by IWRM managers; (3) which "local ground realities" implementers must consider as IWRM enters the peri-urban village of Sukamaju.

Methodologically, I draw upon IWRM literature, Global Water Partnership's (GWP) IWRM-ToolBox, Dublin Principle II, ADB planning documents, a two-month water pollution field investigation in Sukamaju, and personal interviews of residents, management officials, and government leaders. Lower basin findings show failures to effectively resettle and compensate residents. Upper basin findings reveal a complex water pollution problem entangled in livelihood and policy contradictions, leading to persistent pollution.

My findings demonstrate that IWRM rhetoric borrows heavily from Dublin Principle II and GWP, and that IWRM management practices are inadequately informed by local realities. This investigation aims to aid implementers by critiquing past failures so that project officials can address future challenges as IWRM makes its way throughout Indonesia.

Introduction: An IWRM Solution to the Citarum River Crisis

The Citarum river basin begins in the rolling foothills of Mount Wayang near the city of Bandung in the province of West Java[1]. From here the river descends north, winding through green plains until it makes its exodus at the Java Sea slightly east of Indonesia's capital, Jakarta (Whitten *et al,* 1996). The complex river basin spans 13,000 square kilometers, serves about 600 textile factories and twenty-eight million people (Cita-Citarum, 2012). It supplies Bandung with its total water budget and Jakarta with eighty percent of its water (ADB, 2008). In the past twenty years the Citarum river basin has experienced mounting environmental pressures due to rapid, intensified industrial and agricultural development associated with Indonesia's engagement with various world markets. Technological advancements such as hydropower and large-scale irrigation, while allowing for industrial and agricultural growth, have led to sedimentation, flooding, and erosion in parts of the basin that were previously forested or undeveloped (Dove *et al*, 2005). Industry accounts for 47.1 percent of Indonesia's GDP (CIA.gov) but externalizes environmental costs through the discharge of chemical wastewater including heavy metals, detergents, and dyes directly into the river despite environmental laws that ban such practices (Loebis *et al,* 1993). There are no sanitation or waste disposal systems in most of the basin so domestic households also discharge their biological waste directly into the river (ADB, 2009). These conditions have caused a major public health crisis, as residents of the river basin regularly complain of skin rashes,[2] stomach problems, hair loss, and other ailments (Author's interviews, Sukamaju, 7/20/2011-8/20/2011). Even though Citarum water is known to be dangerous, residents continue to use it for drinking, bathing, and cleaning, as it is often their only option.

The deterioration of the Citarum river basin has had additional livelihood consequences for Indonesians. In particular, many residents have abandoned practices of rice paddy farming and fishing because the river is too toxic to sustain life either in the water, or along the riverbanks. Pepin, a resident who has relied on the river his entire life recalls, "we used to catch a lot of fish in this water…now the fish are all dead, and it's not just rubbish…sometimes we even find dead bodies here." Pepin no longer fishes but rather collects garbage bags from the river[3] and sells them in local markets for pennies on the dollar (Ibrahim for Aljazeera, 2010).

Given its geographic scale, the number of people dependent on the Citarum for their basic needs, industrial use, and the political economic significance of the river basin, the declining health of the Citarum is an obvious concern for the Indonesian government. As a result, in 2007, the Indonesian government borrowed USD $500 million from the Asian Development Bank (ADB) to develop a management plan aimed at cleaning and restoring the river basin. The project that followed was a management model called "Integrated Citarum Water Resources Management Investment Program" (ICWRMIP) or simply, "IWRM" (ADB, 2008). For the Citarum, IWRM officials conceptualize water management problems as a combined environmental and governance crisis caused by human impacts on the river basin. According to this logic, such impacts have led to deterioration in hydrological function of the river and the inability of agencies to effectively manage water resources under such conditions. In particular, IWRM is conceptualized out of assumptions that water management has been 'uncoordinated' and 'un-integrated' and that various ministries and financial sectors work independently rather than together to solve water problems in the basin (Dove *et al,* 2005; Molle, 2008).

1 See Appendix A, Figure II for a map of this basin.
2 See Appendix A, Figures III-V for images taken during fieldwork.
3 See Figure I located on page 103.

In Indonesia more generally, and in the Citarum river basin in particular, the government has long been blamed for inefficiency, corruption, and poor management practices associated with water (ADB, 2008; Figueres *et al*, 2003). IWRM proponents in Indonesia and the broader research community (Dove *et al,* 2005; Molle 2008; Hadipuro, 2008, 2010; Saravanan, 2008) agree that management activities in both the upper and lower basins have taken place without appropriate regard for impacts on other regions (the upstream-downstream management dilemma). With human settlement in the Citarum river basin occurring at the highest population density of any other river basin in Indonesia, issues of social inequity and power asymmetries add yet another dimension to an already multi-layered problem. These problems serve as the basis for the 'Citarum River Crisis' that an IWRM approach seeks to remedy through various defined pathways.

Stakeholders throughout the basin hotly contest ICWRMIP as they claim participation, consultation, and implementation has been carried out poorly, if at all. This inquiry considers various stakeholders' claims and in doing so, focuses on the intersections between project implementation, local realities, and IWRM and GWP rhetoric. In this investigation, I ask, "Did IWRM implementation in the West Tarum Canal (WTC) settlement of the lower basin consider local conditions and what can implementers expect when they reach the upper basin village of Sukamaju?" In answering these questions, I conducted a review of ADB planning documents, official NGO complaints, and attendant IWRM and GWP literature. In particular, I draw upon Francois Molle's analyses of nirvana concepts, narratives, and models and Michael Goldman's ideas of green-neoliberalism to capture the ways in which IWRM is promulgated, implemented, and ultimately falls short in the WTC. To investigate IWRM implementation and prospective implementation, I conducted seventy- eight interviews with villagers, local, regional, provincial, and national government officials, NGO members, ADB representatives, and IWRM implementers over a period of three months in West Java. Additionally, I examined the historical trajectories of regulatory frameworks and partnerships between the World Bank, the ADB, the GWP, and the Indonesian government. I show how these actors mobilize various narratives and policies to produce ideas about what constitutes 'best practices' in water management with an emphasis on how this transfers into project implementation at the local level in two different sites in the river basin.

I. Setting the Stage: History and Intervention in Indonesia's Water Sector

To understand how IWRM ended up in the Citarum river basin, it is important to explore the pathways that led to this particular moment in time. In the 1990s IWRM emerged within a "green-neoliberal" political climate described by Goldman and Wade as a World Bank regime of training, outreach, development projects, and regulatory frameworks that combine a "finance ministry agenda" of neo-liberalism and the "civil-society agenda" of social justice and environmentally sustainable development (Wade, 2002, Goldman, 2005: 4-5). During this "revisionist neoliberalism" period, the World Bank attempts to recover from a neoliberal backlash of the 1980s by encouraging state agencies to collaborate with NGOs to increase efficiency and include all stakeholders in the development process (Stokke and Mohan, 2001: 19; Goldman, 2005: 6). In the 1980s, world leaders like Margaret Thatcher and Ronald Reagan attacked public utilities for poorly managing water resources and thus pushed the private sector to take a greater role in caring for "basic needs" such as water provision. Following suit, the World Bank and the IMF provided lending to developing countries like Indonesia

through "Structural Adjustment Programs" (SAPs), which imposed fiscal austerity, financial deregulation, trade liberalization, and water privatization. The impact of SAPs on access to water was for the most part detrimental to the poor and medium-poor. Privatization ultimately produced higher water prices because rates were increased in order to obtain full cost recovery. The result was that poor and medium-poor, who in theory should benefit from the private sector taking a greater role in providing basic needs, were in reality pushed further into poverty because access to water became unaffordable with price increases (Ray, 2012, Bakker, 2006). In Jakarta, the majority of new beneficiaries under privatization were located in wealthy neighborhoods like Menteng and Pondok Indah, where the rich, middle-class, and industries received improved water services (Harsono, 2003, Bakker, 2006).

In response to SAP failures to get water to the poor widespread protests against World Bank projects erupted (Goldman, 2006: 7). With its reputation at stake, the Bank reformed its image by incorporating social and environmental dimensions into its existing neoliberal agenda. By 1992, the Rio Summit on Environment and Development (which produced the first IWRM definition), the Dublin Conference on Environment and Water (which produced Dublin Principles I – IV), and the World Bank's emphasis on "decentralization and market-oriented reforms" had converged to produce the World Bank's "green-neoliberal" strategy on "sustainable water resources management" (Ray, 2012, Goldman, 2005). The World Bank was on its way to "greening" its global development efforts through a framework of knowledge production that involved training and capacity building among civil-society actors from development agencies (like the ADB), NGOs, universities, and government agencies. By the early 1990s this World Bank-style of green-neoliberalism had become an economic agenda that penetrated Global South economies (Goldman, 2005: 4-6). Indonesia was no exception, as the privatization of its water and the implementation of IWRM soon followed.

In the context of green-neoliberalism, Indonesia's adoption of privatization and IWRM was enabled through four key interventions: (i) a $92 million loan from the World Bank in 1991, (ii) the official privatization of water by President Wahid in 2000, (iii) the adoption of a World Bank decentralization regulatory framework to accommodate IWRM in 2004-05, and (iv) a $500 million loan from the ADB used to implement the "Integrated Citarum Water Resource Management Investment Program" (ICWRMIP) in 2008.

The most commonly used definition of IWRM from the Global Water Partnership (GWP) states,

> IWRM is a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (GWP, 2008; Molle, 2008).

The ADB, the Indonesian government, project officials, villagers, and NGOs talk about IWRM as a participatory, place-based, integrative management strategy. The GWP, with over 2,000 members, serves as the primary knowledge bank for IWRM and fosters IWRM through its activities, website, and attendant literature. GWPToolBox.org promotes IWRM as a place-based model that utilizes an IWRM 'ToolBox' meant to adapt to any location within a river basin. According to GWP, the ToolBox should "vary from place to place, from society to society, and tools should be selected to fit local contexts" (GWP, 2008). GWP's website describes the ToolBox as,

> an information exchange platform where experiences are shared to help develop the body of knowledge which can enable all those engaged in water issues to work together to build water security and sustainable water for all (…) facilitates the prioritization of actions aimed at improving water governance and management (…) facilitates professionals and specialists to engage with a broader community for the solution of water related problems" (GWP, 2008).

In considering that IWRM and the GWP-Toolbox aims for decisions to be made locally at the lowest possible level, I turned to the WTC case. In researching how these interventions materialized on the ground, I learned that state-led IWRM implementation in the West Tarum Canal settlement of Bekasi had been problematic and disputed by many residents and NGO members. Thus I hypothesized that based on the West Tarum Canal case, that Sukamaju Village would have "a consequent high likelihood of reproducing paternalistic, technocratic and bureaucratic top-down conventional approaches, modified only by whatever degree of participation is allowed" (Molle, 2008: 134).

A. Intervention I: 1991 World Bank Loan and Public-Private Partnerships

The first key intervention occurred in 1991, when Jakarta's municipal water utility, PAM Jaya, borrowed $92 million from the World Bank to improve and modernize its infrastructure (World Bank, 1994) in an effort to make Jakarta's waterworks an attractive investment to foreign capital. Over the next couple of years, the World Bank appointed consultants to guide PAM Jaya on how to facilitate water privatization. By 1993, foreign investment firms Thames Water Overseas Ltd. and Suez were in Indonesia working with Suharto's regime toward privatizing Indonesia's water. Thames allied with Suharto's son Sigit Harjojudanto and formed a local company of which Sigit was given twenty percent interest. Suez hired Bernard Lafrogne, an engineer who had previously worked as a consultant for PAM Jaya and on an Indonesian Word Bank project. Lafrogne was to be Suez's "point man in the move to privatize Jakarta's water." Suez also hired Anthony Salim, one of Suharto's loyal followers and CEO of the Salim Group (one of Indonesia's largest companies) who had previously partnered with Suez to construct a water treatment plant. Lafronge and Salim of Suez, concerned about alienating Suharto by competing with his son's company (the one created in the Thames alliance), approached the Public Works Minister and a negotiation was made to split Jakarta's water business in half. Under this deal, each company got an equal piece of Jakarta's pie (Harsono, 2003, 2012, Bakker, 2006).

Coinciding with the end of the Cold War, Suharto had established an "Openness" policy during a period of economic and social liberalism. Laws that had previously restricted foreign investment and the purchase of Indonesian land were rewritten, allowing for a freer flow of capital (Vickers, 2005: 198). Suharto, with World Bank aid, opened Indonesia's natural resources and markets to foreign companies. Jakarta had become the "New Tiger of Asia" (Vickers, 2005: 198). Its economy was growing at seven percent per year, inflation was low, and shopping malls, fancy office buildings, and McDonald's lined the streets. While the new form of liberalism boosted the urban economies of Jakarta, Bali, and Batam, the poor continued living in urban slums without access to running water or electricity (Vickers, 2005: 199, Harsono, 2012). Furthermore, Jakarta's water networks, which were built in 1928 by Dutch colonialists, did not keep up with Jakarta's growth and were falling apart (Bakker, 2006, Harsono, 2012).

With Indonesia's economy booming, but its water delivery system failing, both the private companies and the Indonesian government decided water privatization would fix the problems that PAM Jaya couldn't manage. Thus, Suez and Thames signed contracts with the Indonesian government enabling them to take control over the distribution of Jakarta's water (Harsono, 2003, 2012). The contracts forced PAM Jaya to hand over control of the entire water infrastructure system to the private companies including raw water supplies, treatment plants, meters, billing, and even their office buildings. Meanwhile, the water company executives did not work at PAM Jaya facilities, rather they worked from lavish office buildings in the business district of Jakarta (Harsono, 2003, 2012). The contracts also required the private companies to hire 3,000 PAM Jaya workers to help operate the system (Harsono, 2003, 2012).

Just three weeks after the contracts were signed in June 1997, the Asian Economic Crisis hit Indonesia. Employment rates plummeted, inflation skyrocketed, and news that Suharto-backed businesses were partially responsible for breaking state-owned banks all converged. PAM Jaya workers and students took to the streets rioting (Vickers, 2005, Harsono, 2013). For the next year, Indonesia's economic crisis intensified with over 2500 people allegedly being raped and killed in the violence. Because of this upheaval, the entire nation forced Suharto's abdication, ending thirty-two years of authoritarian rule (Vickers, 2005).

The street riots associated with Suharto's downfall were so dangerous that Thames and Suez executives fled Jakarta. On May 23, 1998, Rama Boedi, president of PAM Jaya met with the few remaining Thames and Suez officials demanding that the privatization of water was illegal and corrupt and that PAM Jaya was cancelling the contract and taking control of Jakarta's water. With the city's water works temporarily placed back in the hands of PAM Jaya government officials, chaos mounted as Thames and Suez executives left only three days worth of water treatment chemicals behind, placing over seven million residents at risk of contracting waterborne diseases (Thames and Suez claimed they left twenty days worth of chemicals) (Harsono, 2010). Additionally, PAM Jaya workers, fearful of losing their jobs, began rioting daily in favor of privatization reversal. This "crisis moment" is perhaps best illustrated by a quote from investigative journalist Andreas Harsono,

> PAM Jaya workers held frequent protests seeking to reverse the privatization. They worried that their wages would be cut or they would lose their jobs. Some workers welded PAM Jaya warehouses shut to keep the foreign companies from using equipment stored in them. An angry union leader even threatened Lafrongne (Suez official) with a knife. Police were called but the case was closed aster the leader apologized to Lafrongne. Jakarta's parliament supported workers and at times called for deadlines to force concessions but the companies hung tough, aware that the government world be leery of an outright cancellation because of its effects on much needed foreign investment (Harsono, 2003, 2012).

Despite this show of support for the reversal of privatization, President Abdulrahman Wahid worried that if Indonesia feuded with the two multi-national companies, Thames and Suez, it might scare off foreign investment (Harsono, 2010). President Wahid thus issued Presidential Decree No/96 in 2000, officially privatizing Jakarta's water supply (Hadipuro, p.6, 2010).

B. Intervention III: Adoption of a World Bank decentralization regulatory framework to accommodate IWRM in 2004-05

Privatization did nothing to combat the deteriorating conditions of the Citarum River Basin. With mounting public concern over Indonesia's declining water quality, the Indonesian government began to take serious action in 2003. In collaboration with the World Bank, they drafted the "Law on Water Resources in Indonesia," Law No. 7/2004, and "Decentralization" Laws No. 33 & 34/2004 (ADB, 2008: 24), to provide a legal framework for IWRM and the profit driven sector it supports (Hadipuro: 1-4, 2008).

According to the ADB, their water policy, which was approved in 2001, promotes national water sector reform in Indonesia including IWRM and improved water services for the poor. As such,

> a Technical Assistance team (TA) will help the Indonesian government develop and implement IWRM strategies so that they can achieve their World Summit for Sustainable Development commitments. The TA will strengthen the policy, regulatory, and institutional framework for improved IWRM planning and implementation at the national and local levels. The impacts are expected to include clearer definition and delineation of functions among national and local agencies and strengthened capacities of water management and regulatory agencies. In addition, an adequate and reliable database will be established to help with the coordination of plans and implementation of programs across sectors with respect to water supply and demand management (ADB, 2006).

In the case of the IWRM West Tarum Canal Rehabilitation project, a "reliable database" that would help with "implementation" did not surface during my fieldwork, or when I conducted a review of the literature or ADB planning documents. If such a database does exist, it would be helpful to reference it to further determine how IWRM was implemented in the West Tarum Canal case.

C. Intervention IV: $500 million ADB loan to implement the "Integrated Citarum Water Resource Management Investment Program" (ICWRMIP) in 2008.

With the appropriate policy and regulatory framework in place, the Indonesian government drafted a $2 billion Citarum River IWRM restoration plan. $500 million of this would come from the ADB, with the remaining $1.5 million to be determined a few years after the project was underway[4]. The government began to implement this plan as the "Integrated Citarum Water Resource Management Investment Program" (ICWRMIP) on December 4, 2008 when the loan was formally approved (Fitriawan, 2008).

As mentioned, ICWRMIP turned out to be a management model that intensified debate and conflict among various stakeholders. In a broad effort to secure additional water to Jakarta, the ADB and the Indonesian government partnered to relocate people living along the West Tarum Canal[5] in the Bekasi region. This relocation was the first phase of ICWRMIP, also known

4 No additional funding has been secured as of the date of this thesis.

5 This manmade canal diverts 80 percent of Jakarta's water from the lower reaches of the Citarum.

as the "ADB Resettlement Plan" (ADBRP), which was completed in 2011. Currently, new ICWRMIP project activities are being implemented in the upper basin, where a River Basin Organization (RBO)[6] called "Balai Besar Wilayah Sungai Citarum" (BBWSC) functions both as an implementation arm for ICWRMIP and as a government agency, using state funds to back community conservation projects proposed by local NGOs in the village of Sukamaju. In reaction to these projects, NGO members, legal aid institutions, farmers, fisherman, and residents living along the river basin have formed a coalition known as Aliansi Rakyat Untuk Citarum (ARUM) to contest ICWRMIP and ADBRP activities (Al'Afghani: 3, 2006).

II. The "Citarum River Crisis": IWRM as a Nirvana Concept

IWRM in the Citarum is an interventionist management approach aimed at fixing the perceived "Citarum River Crisis." In the Citarum River Basin, IWRM represents water management problems as a combined environmental and governance "crisis" caused by an overabundance of anthropogenic impacts on the river basin. According to this logic, impacts have led to deterioration in hydrological function of the river (flooding, sedimentation, erosion, pollution, groundwater deficits) and the inability of agencies to effectively manage water resources under such conditions. In particular, IWRM assumes that water management has been "uncoordinated" and "un-integrated," and that various ministries and financial sectors work independently rather than together to solve water problems in the basin (Dove *et al,* 2005, Molle, 2008).

In Indonesia more generally, and in the Citarum River Basin in particular, the government has long been blamed for inefficiency, corruption, and poor management practices associated with water (ADB, 2008, Figueres *et al*, 2003: 52-54). IWRM proponents in Indonesia and the broader research community (Dove *et al,* 2005*,* Molle, 2008, Hadipuro, 2008, Hadipuro, 2010, Saravanan, 2008) agree that management activities in both the upper and lower basins have taken place without appropriate regard for the impacts on the other regions (the upstream-downstream management dilemma).

Water managers tackle water quality and water supply problems independent of one another rather than linking them. Groundwater over-pumping and mismanagement of surface water occurs without concern for their connection to one another and to the land, further exploiting the river basin in complex ways. These problems serve as the basis for a perceived "Citarum River Crisis" that an IWRM approach seeks to remedy through various defined pathways.

Following the 1992 Dublin Conference, both Dublin Principle II and IV sought to solve such crises through the endorsement of a participatory management framework (IWRM) and through treating water as an economic good (privatization). Dublin Principle II states; "Water development and management should be based on a participatory approach, involving users, planners, and policy makers at all levels (and decisions should be made at the lowest appropriate level)." Here, in Dublin Principle II, IWRM rhetoric of "localized management" begins to emerge. Dublin Principle IV states; "Water has an economic value in all its competing uses and should be recognized as an economic good" (GWP, 2008). The fourth principle is closely linked to IWRM in West Java, as IWRM closely followed the institution of water privatization in Jakarta in 2001.

6 RBOs are a key component to the organizational structure laid out by the IWRM model.

According to researcher Francois Molle, the GWP definition of IWRM[7], which stresses the three 'E' goals of Efficiency, Equity, and Environmental sustainability, suggests these goals can be met concurrently. Molle also argues that the use of the word 'maximize' in this definition implies that problem-solving can be achieved through a rational approach, sound science, and expert knowledge (Molle, 133:2008). In further examining how IWRM rhetoric is imbued with nirvana, Molle addresses the 2007 USAID definition of IWRM:

> A participatory planning and implementation process, based on sound science, that brings stakeholders together to determine how to meet society's long-term needs for water and coastal resources while maintaining essential ecological services and economic benefits. IWRM helps to protect the world's environment, foster economic growth and sustainable agricultural development promote democratic participation in governance, and improve human health (USAID, 2007).

Each of these ideologies and definitions, as Molle demonstrates, are imbued with idealism and nirvana that do little to account for real world conditions. Molle's nirvana-concept of IWRM is clearly at work in the Citarum River Basin. The ADB, the Indonesian government, project officials, villagers, and NGOs talk about IWRM using "participatory," "place-based," "integrative" language even as they readily provide multiple results that are counter to such lofty goals. Borrowing heavily from Molle's analysis, IWRM as a "nirvana-concept" presents two major problems (Molle, 2008). First, it's "an attractive yet woolly consensual concept," often lacking the clarity and substance necessary to account for the socio-political dimensions of water management in a particular location. Secondly, groups looking to mobilize or legitimize their agendas readily cling to nirvana concepts such as IWRM (Molle, 2008). Groups looking to mobilize or legitimize their agendas can be seen throughout the Citarum River Basin, as the agendas of government officials and agencies, village-level NGOs, large-scale NGO coalitions, and development agencies readily employ IWRM rhetoric, narratives, and discourse when claim-staking. However, as I witnessed throughout the basin, coordination between agencies was poor and participation meant to occur at the "lowest level" often merely reflected or exacerbated power asymmetries that the IWRM model seeks to even out.

In thinking about how IWRM is promoted as a "localized model" as opposed to a "formulaic model," the Global Water Partnership (GWP) offers significant insight. The GWP, with over 2,000 members[8], serves as the primary knowledge bank for IWRM and "fosters" IWRM through its activities, website, and attendant literature. GWP's "GWPToolBox.org" promotes IWRM as a "place-based" model that utilizes an IWRM "ToolBox" which is meant to adapt to any river basin location. According to GWP, the ToolBox should, "vary from place to place, from society to society," and "tools should be selected to fit local contexts" (GWP, 2008).

As I demonstrate, claims made by the GWP ToolBox, while idealistic and attractive, do not transfer into ground reality when implemented in the West Tarum Canal settlement. In considering that IWRM and the GWP Toolbox aims for decisions to be made locally at the lowest possible level, I will now look at the cases West Tarum Canal and Sukamaju Village. In doing

7 Mentioned earlier but repeated here: "IWRM is a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems" (GWP, 2008, Molle, 2008).

8 "water experts, development agencies, public institutions, government agencies, private companies, professional organizations, academic institutions" (GWP, 2008).

so, I examine how IWRM officials interpret water problems in each community, how IWRM officials propose to fix these problems, and ultimately how an IWRM approach does not account for ground reality.

III. IWRM Implementation: The West Tarum Canal (WTC) Resettlement

The WTC is 68.3 kilometers long featuring a 100-meter right-of-way with fifty meters on each side of the man-made canal9. According to the ICWRMIP, the main goal of rehabilitating 54.2 kilometers of the WTC was to increase the flow and quality of water to Jakarta, which receives eighty percent of its surface water from the WTC. Additionally, the canal supplies industrial establishments and approximately 56,000 hectares of farmland with water. The WTC runs through three districts: Kabupaten Karawang, Kabupaten Bekasi, and Kota Bekasi. Thirty-two villages fall within these districts. The WTC rehabilitation was estimated to cost $1.87 million and is the first of a series of ICWRMIP projects.

According to the "ADB Resettlement Planning Document" (ADBRPD), 872 "affected households" (AH), twenty government agencies, and approximately forty-six hectares of land were cleared of structures and vegetation. The ADBRPD states that an AH "includes all members residing under one roof and operating as a single economic unit, who are adversely affected by a project or any of its components" (ADB, 2008). Additionally, the ADBRPD states "None of the occupants of affected land have any legal claim over the affected property, as it is within the established right-of-way of the WTC[10]" (ADB, 2008). Finally, section III.B.34.c of the ADBRPD states, "All affected people will be eligible for compensation and rehabilitation assistance, irrespective of tenure status, social or economic standing. […] Lack of legal rights to the assets lost or adversely affected tenure status and social or economic status will not bar the AH from entitlements to such compensation and rehabilitation measures or resettlement objectives" (ADB, 2008). These policies state that regardless of legal land tenure, all AHs were entitled to relocation and/or compensation benefits. However, through my interviews and focus group discussions, I discovered that this policy is in violation in at least a portion of the AHs.

In January 2011, while travelling through the WTC rehabilitation area, I spoke with residents being displaced by the highly contested ADB resettlement plan. I had learned of the controversy in a televised program called "Indonesia's Water Woes," which was covered by Aljazeera's East 101. In the program, Diana Goeltom, founding member of Aliansi Rakyat Untuk Masyarakat (ARUM), an NGO watchdog coalition that monitors the ICWRMIP on behalf of residents living in project areas, spoke with WTC villagers whom the ADB reported were consulted about the project. As the camera panned back and forth, Goeltom pointed to an ADB document, which listed various villagers' names as having participated in consultation activities during an ADB-held public forum regarding the WTC resettlement. As Goeltom read the names of villagers who were allegedly in attendance at the forum, each resident denied being present at the forum (East 101, 2008).

Almost four years after watching the Aljazeera special, Diane Goeltom escorted me through the WTC resettlement area to a private meeting where villagers shared stories of their experiences with the WTC resettlement. At this time, I held a focus group discussion with

9 See Appendix A, Figure VI for a map of WTC project area.

10 The WTC is considered public land and any person residing or conducting business within 50 meters on either side, is considered a squatter by the project (ADB, 2008)

ARUM members, and several village elders to better understand the resettlement as a process of IWRM implementation. The participants claimed that many village level government officials were working with the ADB and the national government to carry out the resettlement but no bank or government officials had consulted them about relocation or compensation. According to villagers, they only heard about the project through ARUM members. Villagers claimed that when they confronted local government officials and police, they were told that they were not entitled to relocation or compensation because they did not hold legal title to the affected lands, as they were in fact public, government owned lands.

On a separate day, during a different interview, I spoke with a woman named Firda[11] living along the WTC. She shared with me that the local village government had demolished her home four times in the past forty-five days. Firda and her husband Fatoni would hide in the nearby field and wait for the workers to leave. When they thought it was safe they would return to collect the remains of their home. Having nowhere else to go, she and Fatoni would walk a few hundred feet along the WTC and rebuild their home. Fatoni and I walked along a path over several hundred feet that was marked by the foundational remnants of what used to be their home. While sharing coffee with Firda on a bench in front of her home, she cried as she explained that this was the fifth time she and her husband had rebuilt their home. When I asked her if she knew why the government wanted residents off the canal banks she replied, "The village head says it's illegal to live here now because this land is owned by the government". When asked if she had heard of a government project to clean the river, she claimed she'd never heard of any project and did not know if any other residents were aware of such a project. I further probed, asking if the government offered to help her family find a new place to build their home. She insisted the local government never offered to relocate them or remunerate them for building materials and personal property destroyed when their home was bulldozed[12] (Firda, 1/7/2011). Whether they occupied public or private land is irrelevant given the ADBRPD policies outlined above in both cases of the focus group and my interview with Firda and Fatoni. A quick review of Indonesian land tenure policy is referenced below, showing that ADB policies and Indonesian law are not in conflict with one another Thus, IWRM implementation in the WTC could have accounted for these local realities by ensuring relocation and/or compensation benefits to all those interviewed.

A series of Presidential decrees followed the 1960 Basic Agrarian law, which attempted to title all untitled land and resulted in 80 percent of all land becoming legally titled. Presidential Decree No. 55/1993 succeeded this law, providing "compensation for land, buildings, plants and other objects related to the land in any of these forms: (i) cash, (ii) land for land, (iii) land in relocation site, (iv) any combination of the above forms of compensation, and (v) any other mode of compensation agreed by the concerned parties" (ADB, 2008). In 2003, Presidential decree 34/2003 was issued, which "mandates that land acquisition, including determining levels of compensation, for public development projects would be carried out by the district and city governments (Kabupaten/Kota)" (ADB, 2008). Indonesian law states that the local government was responsible for carrying out IWRM implementation as a pubic development project. However, in order to conduct implementation in alignment with ADB policies, the local government would have had to properly consult with all stakeholders including the AHs, NGO members representing the affected persons, and the ADB.

11 Firda and Fatoni's legal names have been changed to protect their identity in accordance with OPHS policy.

12 See Appendix A, Figures VII-IX.

After reviewing the ADBRPD extensively and speaking with remaining residents, I determined that in addition to poor governance during IWRM implementation, the management project did not account for local realities in part because the AH was used as a unit of measure. In using the AH as a unit of measure, only the head of the household is consulted or compensated during the resettlement. It is widely documented and known that households in poor, peri-urban settlements such as the WTC can range from three to seven members. Contrary to claims made in the ADBRPD, in some cases, household members act independently as economic units and thus would not be properly compensated under ADB policies. Underestimation of the number of household members is yet another local reality that seemed to be unaccounted for or ignored during IWRM implementation.

In returning to Francois Molle, we see that IWRM as a nirvana concept "obscures the political nature of natural resources management" in that both the development agency and the government did not account for all people living along the canal that were displaced (Molle, 2008: 133). Furthermore, given that between three and seven people may occupy a household, the correct number of affected persons could then range from 3,000 to 6,000 people, not 872 as reported in the ADBPD. In "managing the natural resource," the socio-political act of displacing thousands of people from the canal was obscured by under-reporting the number of displaced people. If the GWP-ToolBox as a component of IWRM is meant to assist implementers in selecting tools that "adapt to these *known* local contexts", then failure to either provide or use tools that ensure all affected persons receive project benefits means failure in certain aspects of implementation. With so many ADB officials well trained in the tools of the GWP-ToolBox, and with government officials well informed about census data, why didn't the GWP-ToolBox reach its "aim to facilitate […] professionals and specialists [to] engage with a broader community for the solution of (water related) problems" (GWP, 2008)? Rather, what happened is any affected persons not considered the head of a household were not consulted, and in some instances were left homeless and without compensation as in the case of Firda, Fatoni, and the focus group participants.

In summary, my findings as discussed above show two significant results: (1) That policies and goals outlined in the ADBPD were not transferred to government implementation during the WTC resettlement; and (2) That not all affected persons were accounted for because the AH unit of measure used in the ADBPD did not account for local ground realities, the true population of an Indonesian household in a peri-urban setting such as the WTC. Borrowing from Molle's nirvana concept that "the concept of good governance emerged as a model in which inefficient, corrupt, biased and discriminatory governments would – as a result of or through growing transparency and power-sharing – become accountable to their populations and act for the common good" (Molle, 2008: 132), my findings show this concept failed to materialize into ground reality in the WTC. Thus, I hypothesized that based on the WTC case, IWRM implementation in Sukamaju village would have "a consequent high likelihood of reproducing paternalistic, technocratic and bureaucratic top-down conventional approaches, modified only by whatever degree of participation is allowed" (Molle, 2008: 134).

IV. Prospective IWRM Implementation: The Case of Sukamaju Village

One day in 1995, all waters moving throughout the peri-urban village of Sukamaju turned dark red as the scent of toxic waste saturated the air. Village leaders and residents were terrified as

they covered their mouths and noses while they scrambled in search of surface water that was uncontaminated. It was useless. Every canal, drainage ditch, and holding tank was tainted with toxic red water. In response, the Head of Neighborhood 10 gathered dozens to hundreds of villagers to determine what collective action they would take. On foot, they followed the red water to its origin – the PT Nasatex factory (Author's interview, Sukamaju, 7/23/2011)[13].

PT Nasatex is situated within the southwestern region of Sukamaju village, along an irrigation canal that diverts water from the nearby Citarum River. For about two kilometers, the irrigation canal frames the western edge of Sukamaju, flowing through the village until it remerges with the Citarum downstream[14]. The village irrigation canal is the primary water source for 20,000 people, all packed into three square kilometers of land, 0.7 of which is used for development of housing and at least two industrial factories that are situated within the village. The remaining 2.3 square kilometers is used for paddy rice farming, partially owned by villagers, and partially owned by the factories that employ villagers to work the fields. The irrigation canal is also the site where Nasatex allegedly dumped a toxic effluent of dyes, heavy metals, detergents, and chemicals the day the water turned red, creating a heavily concentrated soup of poisonous water so hazardous that it was unsafe for use of any kind. Approximately forty-eight other factories regularly dump similarly poisonous wastewater into various parts of Sukamaju's water supply (Author's interview, Sukamaju, 7/25/2011).

Villagers say that the day the water turned red, they walked to Nasatex, flung themselves on the gates, and tore down fences as they advanced past security guards to speak with factory officials. Some villagers claim there were negotiations between some of the demonstrators and the factory officials but do not know the outcome of such negotiations. The police broke up the escalating demonstration, but no arrests were reported and the media was not present. Some villagers claim that the water soon returned to its normal odor and hue while other villagers claim that the factory simply dumped their wastewater into the nearby paddy fields, also used by the villagers to grow rice. Additionally, (probably as part of the negotiations made earlier,) many villagers and village leaders reported that Nasatex gave "concessions" of $120,000 *rupiah* (approximately 12-15 USD) to various families living within The Black Zone[15]. In any case, the red water disappeared for a short while, but villagers report similar events have continued to occur frequently over the years, up to the present day. While conducting my fieldwork, I frequently observed hues of red, purple, blue, orange, and black in Sukamaju's surface water, and was exposed to noxious fumes so strong that I often became faint and had difficulty breathing.

Similar events, such as the changing color and odor of the water, live in the memory of most villagers, going as far back as the 1970s, and increase with each passing decade (Author's interviews, Neighborhood Heads 7/20/2011-8/20/2011). Currently, Sukamaju villagers live with these water conditions and complain of skin rashes and stomach problems so severe that visits to the public hospital are simply part of their weekly routine. During my time in Sukamaju, a daily walk through the village meant observing crowds of children playing in the water. The children's feet, legs, and hands were covered in open skin lesions that their mothers insisted were from the water. There are hundreds of villages like Sukamaju situated throughout the Citarum river basin with similar stories and struggles for clean, safe water.

13 Citation style used to protect interviewees identity as required by OPHS.

14 See Appendix A, Figure X, Location of PT Nasatex and Irrigation Canal on Map of Sukamaju

15 The Black Zone (see Appendix A, Figure X) is an area named by the villagers due to the color of the air and water frequently turning black from industrial contamination. It is considered the most heavily polluted area in the village.

This story of pollution is the central problem IWRM implementers will face when they reach Sukamaju Village. This is partially because the problem is so severe, but also because there are major contradictions in the villagers' livelihoods that allow the pollution to persist. The most glaring contradiction is that an estimated seventy-five percent of the villagers work or have worked in the factories that are polluting the village's domestic water supply (Author's interviews, 2011)[16]. This causes a complicated web of social, political, economic, and public health issues particular to this community. For example, the factories are the economic backbone of not just the village, but also Indonesia's national economy. However, residents and government do want industry to stop dumping their wastewater in common river water supplies[17]. This is a significant political-economic issue because local and national economies are dependent on the factories. Government officials do not enforce environmental laws because doing so would come at a high cost to the companies, with whom they often collude. This high degree of government and corporate corruption, as well as factory threats to relocate and end revenue and jobs altogether, mean the pollution problems go unsolved. Every villager and government official I interviewed regarding Sukamaju claimed to have been offered or to have received hush money for not reporting pollution incidents to the environmental enforcement agency, Badan Pengelola Lingkungan Hidup (BPLH)[18]. Additionally, some textile factories are located within Sukamaju itself and thus are a part of village life. The owners and managers of the factories often control and influence many aspects of the villagers' lives beyond employment, namely their behaviors related to protesting, demonstrations, and reporting violations. One villager claimed he anonymously reported a violation by the factory to the police and BPLH. His neighbor heard about it and days later the villager was fired (Author's interview, Sukamuju, 8/13/2011). Numerous interviews revealed that reporting factory pollution violations could result in villagers being alienated, fired, intimidated, and oftentimes, their complaint simply disappears.

If an IWRM model does not account for local realities such as the health issues, social relations, economic realities, and the power dynamics a Sukamaju villager experiences on a daily basis, there is a high likelihood of similar implementation problems in the WTC. IWRM in Sukamaju must be place-based, participatory, integrative, and GWP tools must be adapted to this highly complex, localized, and layered pollution problem. All stakeholders must be engaged, including the poorest villagers up to the highest government officials. Government and managers must find ways to encourage and force industries to comply with clean-up requirements, and there must be monitoring to enforce standards. If management is to account for local conditions in Sukamaju, IWRM as a "development project shrouded in watershed or river basin rhetoric" must deal with difficult ground realities, not concepts of nirvana (Molle, 2008).

V. Conclusion

I have argued that in the Citarum river basin, an IWRM approach follows Francois Molle's nirvana concept: an idealistic model toward which society is intended to strive. This nirvana concept

16 Data obtained from fifty-four interviews in Sukamaju village from 6/20/2011-8/23/2011. Estimation determined by scaling up data to village population numbers.

17 All factories have a wastewater treatment facility in their establishments, as required by law, but often do not use them because they are expensive to run and maintain (BPLH, 2011).

18 An Indonesian governmental agency whose function is similar to the EPA.

of good water governance has emerged as an IWRM model which attempts 'participation and empowerment' in order to triumph over 'exploitation and disenfranchisement' (Molle 2008). Unfortunately, participation and empowerment was not an IWRM reality as I discovered in the WTC. Furthermore, participation is not the only answer, as an even bigger problem lies in how to compensate people being displaced and how to enforce water quality standards and compliance in the upper basin.

I show that while IWRM is promoted as a localized and adaptable management approach, IWRM implementation is problematic when accounting for the complex and localized set of processes associated with managing such a politically and ecologically diverse river basin. Additionally, using data collected during months of fieldwork, I demonstrate that the GWP-ToolBox concepts did not transfer into ground realities for at least some residents in the WTC. Rather, my findings suggest that coordination between agencies was poor and residents were not consulted properly, leaving some landless and without compensation. Participation meant to occur at the "lowest level" often reflected or exacerbated power asymmetries that the IWRM model seeks to even out. This paper addresses challenges from the WTC implementation and posits what potential problems implementers might face in Sukamaju as IWRM makes its way up the basin.

As IWRM is expected to hit six more river basins in Indonesia over the next fifteen years, this is a critical moment during which the IWRM model must be reexamined and improved as to avoid dispossession, marginalization, and social upheaval associated with current implementation methods. IWRM consumes enormous amounts of capital investment and generates millions, even billions of dollars in third world debt. Given that nearly all IWRM projects are being implemented in the Global South, it is urgent that this model be held to the standards of Dublin Principle II, in that "decisions should be made at the lowest appropriate level" (GWP, 2008).

Bibliography

Acep, Elingan NGO member. Personal interview. 25 July 2011.

Agus, F., Oka M., Manikmas, A., Environmental Roles of Agriculture in Indonesia, Roles of Agriculture in Development Symposium, 25th Conference of the International Association of Agricultural Economists, Durban, South Africa, 17-22 August 2003.

Asian Development Bank, Citarum Integrated Water Resource Management Project, Indonesia, 2009, pp. 13-14, 22.

Asian Development Bank, Handbook on Resettlement: A Guide to Good Practice, p. 64, box 7.1, Original publication (1998), Amendment: OM Section C2/BP, Issued on September 25, 2006.

Asian Development Bank, Report and Recommendation of the President to the Board of Directors: Proposed Multitranche Financing Facility and Administration of Grant and Technical Assistance Grant. Republic of Indonesia: Integrated Citarum Water Resources Management Investment Program, Resettlement Plan Project Number: 37049. November 2008.

Asrianti, T., "Citarum River brings fresh water along with disease, poor harvests." The Jakarta Post, Sept. 6, 2011.

Bakker, K., Kooy, M., Endah, N., Shofiani, N.E., Martijn, E. "Disconnected: Poverty, Water Supply and Development in Jakarta, Indonesia", Human Development Report 2006.

BPLH (Badan Pengelola Lingkungan Hidup). Agency official. Personal interview. 7 Aug 2011.

Central Intelligence Agency, The World Factbook. Accessed on May 9, 2012. https://www.cia.gov/library/publications/the-world-factbook/geos/id.html

Cita-Citarum, (www.citarum.org), 22 Hotspots in the Citarum River Basin, May 2012, p. 12.

Deni. Sukamaju village member. Personal interview. 13 Aug 2011.

Deilla. ADB official. Personal interview. 11 Aug 2011.

Dove, M. R., Sajise, P. E., Conserving Nature In Culture: Case Studies from Southeast Asia.Yale University Southeast Asia Studies, New Haven, Connecticut, 2005, pp. 119-143.

Fenig, B., 9 Of The Most Polluted Places In The World, Huffington Post, September 2010.

Figueres, C., Rockstrom, J., Tortajada, C., Rethinking Water Management: Innovative Approaches to Contemporary Issues, London, Sterling VA: Earthscan Publications, 2003, pp. 52-54.

Global Water Partnership (GWP) ToolBox Integrated Water Resources Management, web. 2008. Retrieved from February 2012 – May 6, 2012: http://www.gwptoolbox.org/

Goldman, M., Imperial Nature: The World Bank and Struggles for Social Justice in the age of Globalization, Yale University Press, New Haven and London, 2005, pp. 4-5.

Goeltom, Diana. Debtwatch Indonesia coordinator. Personal interview. 12 July 2011.

Haddad, N., Goeltom, D., Heroepoetri, A., Santono, H., "Integrated Citarum Water ResourcesManagement Investment Program: Analytical Paper Focusing on the Resettlement Planning Document," Submitted by ARUM to Asian Development Bank. November 2008.

Hadipuro, W., "A Study of the Dynamics of Water Governance: Case Study of Indonesian Jatiluhur Dam Water Allocation", UC Berkeley: Berkeley Workshop on Environmental Politics: Luce Project on Green Governance, 2008.

Hadipuro, W., "Indonesia's Water Supply Regulatory Framework: Between Commercialisation & Public Service?", Water Alternatives 2010, Vol. 3, pp. 475-491.

Harsono, A., Water and Politics in the Fall of Suharto, International Consortium of Investigative Journalists, Feb 10, 2003.

Ibrahim, F., Indonesia's Water Woes, Al Jazeera: 101 East, August 10, 2010.

Iskandar. Head of Neighborhood 9. Personal interview. 23 July 2011.

Loebis, J. Reservoir Operation Conflict in Citarum River Basin Management, Yokohama Symposium, Yokohama, Japan, July 1993.

Molle, F. "Nirvana Concepts, Narratives, and Policy Models, Water Alternatives", 2008pp. 132-

150.

Neighborhood Heads of Black Zone. Personal Interviews. 20 July 2011 – 20 Aug 2011.

Ray, I. ERG 175 lecture, UC Berkeley, 7 Feb 2012, 9 Feb 2012, 21 Feb 2012, 23 Feb 2012.

Sagalyn, D., *Corruption Challenges Indonesia's Government*, PBS.org, May 26, 2011, Retrieved on April 22, 2012, <http://www.pbs.org/newshour/updates/world/jan-june11/indonesia_05-26.html>

Saravanan, V.S., McDonald, G.T., Mollinga, P., *Critical Review of Integrated Water Resources Management: Moving Beyond Polarised Discourse*, University of Bonn 2008, pp. 3-24.

Shears, R., "Is this the world's most polluted river?", June 2007, Daily Mail UK, retrieved on April 16, 2012, <http://www.dailymail.co.uk/news/article-460077/Is-worlds-polluted-river.html#ixzz1u0yQkzLK>

Stokke K., Mohan, G., "The Convergence around Local Civil Society and the Dangers of Localism", *Social Scientist*, Vol. 29, No. 11/12 (Nov. - Dec., 2001), pp. 3-24, Accessed: 21/05/2012.

Wade, R., *Globalization and its Limits: Reports of the Death of the National Economy are Greatly Exaggerated*, National Diversity and Global Capitalism, Cornell University Press, 2002.

Whitten, T., Soeriaatmadja, R. E., Afiff, S. A., *The Ecology of Java and Bali*, Singapore: Periplus Editions, 1996.

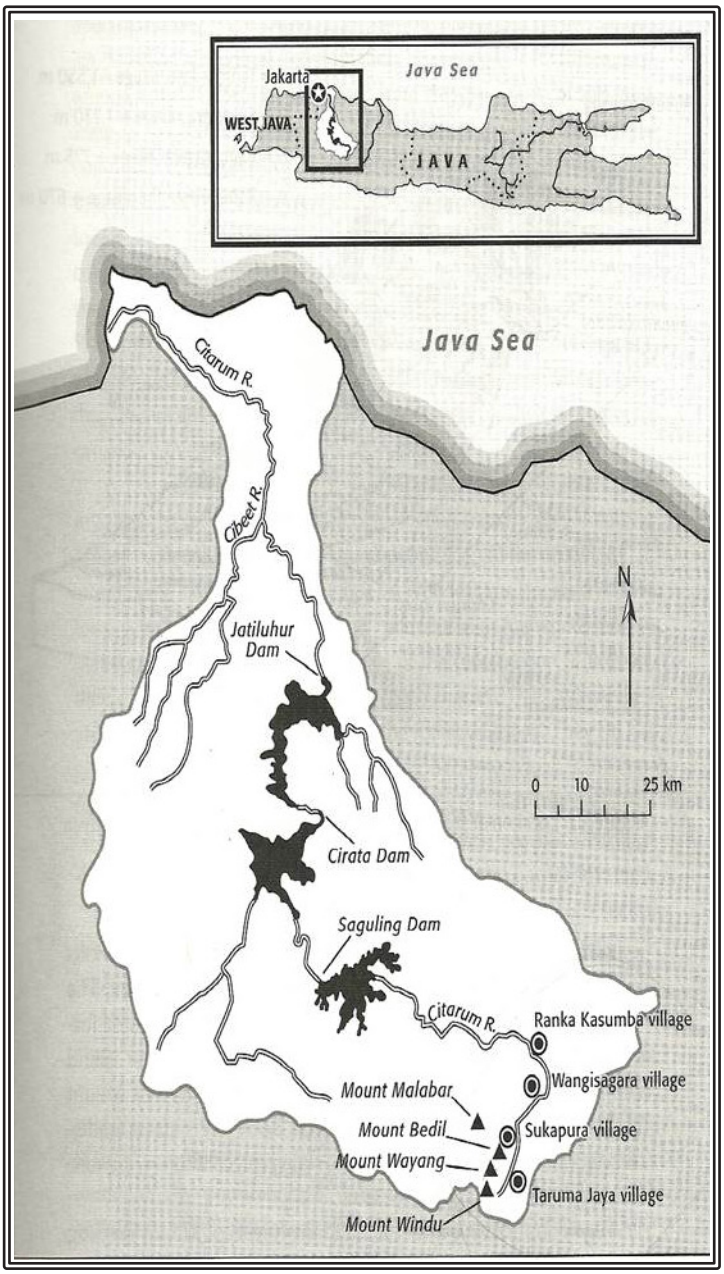
Appendices

Appendix A

FIGURE 1
Citarum River Today

Source: Photo retrieved March 13, 2012 from http://earthfirst.com/the-citarum-dirtiest-river-in-the-world/

FIGURE 2
Map of Citarum



Source: River Basin Dove et al, 2005: 121

FIGURE 3

Small child with open lesions on her feet

Source: Photo taken by Author, 1/7/ 2011

FIGURE 4

Woman with painful, raised rash on her chest and stomach

Source: Photo taken by Author, 1/2, 2011

FIGURE 5

Woman with painful, raised rash on her chest and stomach.

Source: Photo taken by Author, 1/7/ 2011

FIGURE 6
Map of WTC and complete ICWRMIP project area (ADB, 2008)

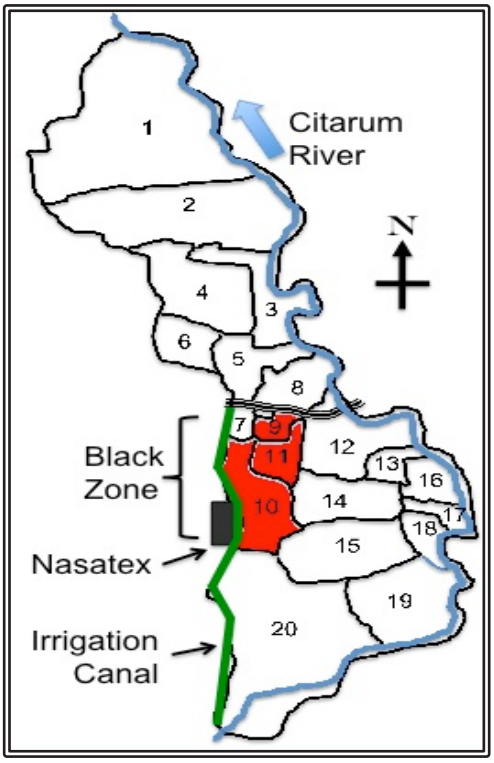
FIGURE 7
Firda being interviewed about the project bulldozing her home repeatedly.

FIGURE 8
Foundation of Firda and Fatoni's house after project officials bulldoze.

FIGURE 9
Foundational remnants of Firda and Fatoni's home they used to rebuild when possible.

Source: Photos taken on January 7, 2011 by Author.

FIGURE 10
Map of WTC and complete ICWRMIP project area (ADB, 2008)



Source: Location of PT Nasatex and Irrigation Canal on Map of Sukamaju Village