

Drowning in Fragmented Governance

The Potential of Integrated Water Resource Management and Regional Governance in the New York Tri-State area



Policy Strategy by Project Awesome Corp

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List of Abbreviations

BQX	Brooklyn Queens Connector
CUNY	City University of New York
DEC	Department of Environmental protection New York State
FCE	U.S. Army Federal Corps of Engineers
FEMA	Federal Emergency Management Agency
HUD	Department of Housing and Urban Development
IPCC	International Panel on Climate Change
IWRM	Integrated Water Resource Management
NFIP	National Flood Insurance Program
NGO	Non-governmental organization
NJ	New Jersey
NOAA	National Oceanic and Atmospheric Administration (U.S. U.S. Department of Commerce)
NY	New York State
NYC	New York City
NYPCC	New York Panel on Climate Change
RPA	Regional Plan Association
SWOT	Strengths, Weaknesses, Opportunities and Threats
TSWA	Tri State Water Authority

List of terminology

Integrated Water Resource Management (Schoeman, Allan, Finlayson 2014)

IWRM promotes sustainable social and economic development by providing a governance platform for actors to negotiate integrated land and water management at the basin scales (Grigg 2008; Saravanan, McDonald, and Mollinga 2009).

New York Tri-State area / Tri-State area

The New York Tri-State Area spans the States of New York, New Jersey and Connecticut.

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Executive Summary

The New York Tri-State area will be under increased risk of flooding due to climate change in the next years. To cope with this, the Tri-State Area of New Jersey, New York, and Connecticut need to start seeing the problem on a regional scale and also organize the flood protection policies on a regional level.

To effectively achieve this, there is a need for an organization that can work across different legislative and administrative boundaries in the region. Working together with local and state authorities as well as with NGOs and local businesses. Although this is not an easy task, we propose that this organization, the Tri-State Water Authority (TSWA), becomes this organization. With the power, knowledge and capacity to bring people and organization together and integrate multiple projects in the same space. Achieving a satisfactory outcome where all stakeholders can be happy with. Fusing well-being and safety together to create a better and more resilient New York Tri-State area for now and the future. We propose a four step approach that in the end will ensure that the TSWA can cope with the future water problems in the Tri-State area.



1. Introduction

1.1 Drowning in Fragmented Government

Hurricane Sandy devastated the Tri-State area of New York and inspired a new generation of water management programs. However, the institutional organization responsible for water management in New York is highly fragmented. The Tri-State area of New York extends well beyond the city of New York. More than half of the metropolitan population lives beyond the city limits in areas of New York, New Jersey, and Connecticut. The impacts of floods do not adhere to political boundaries and the economic vitality of New York is heavily dependent on the metropolitan region.

The federal government has failed to provide coordination for regional planning, or for this instance, integrated water resource management (IWRM), to tackle the contextual intricacies of a planning problem that spans borders (Schoeman et al., 2014). What is needed beyond sporadic flood protection installations is a regional authority to coordinate the flood protection and water management planning of the Tri-State area of New York. To achieve this, we propose a governance transition that capitalizes on the window of opportunity Hurricane Sandy provided and establishes a board of experts in varying fields responsible for the coordinated planning, network management, and the building of coalitions in pursuit of regional water security (Huitema et al., 2011). In line

with the growing transition towards regional or metropolitan governance in the United States, we propose a New York Tri-State integrated water resource management authority. There is a need for a governance transition towards coordinated regional planning and New York water management is the ideal pilot.

1.2 Problem definition

American counties on the oceanic shoreline comprise ten percent of the U.S. land area and house 39 percent of its population. Coastal counties are also six times more densely populated than their inland counterparts. These disproportional population concentrations along coastlines are projected to increase (NOAA, 2016). Climate change and the associated sea-level rise pose increased risks for densely populated coastal areas. An example of an estuary at risk is New York City and its Tri-State area at the mouth of the Hudson river. The metropolitan region of New York is home to 22.2 million people (Census reporter, 2017) of which a lot of people live in areas which can be affected by river or coastal flooding (NYPCC, 2013). The problem of flooding is two sided in the New York Tri-State area. The largest population centers are located where the Hudson river meets the Atlantic Ocean (New York City, Jersey City, Newark, Elizabeth, and Yonkers). However, areas around the Long Island sound and along the Atlantic coast have significant populations and are in danger from increasing sea-levels and storm surges.

In this policy document, we specifically focus on the flood-prone areas in the Tri-State area. These are also the areas where the policy approaches that will be proposed will mostly refer to. These flood prone areas are already identified by FEMA. Figure 2 and figure 4 demonstrate that most of the densely populated areas will also be the area's most affected by flood as well as the area's where the most important infrastructure is located. Examples shown on the map are power plants, transmission lines, and gas and oil pipelines and storage units. Flooding events would pressure not only densely populated areas but the vital infrastructure that occupies the same space.

1.4 Flood Risks in New York

Flooding can be caused by a wide variety of events in New York (DEC, 2017):

- Severe rain events;
- Rapid snow melt;
- Hurricanes;
- Debris and ice jams blocking or reducing channel flow;
- Over-development;
- Deforestation and loss of wetlands;
- Global climate change;
- Dam or levee failure.

This means that the organizations involved and the area's that can be affected by flooding differ per season and event. The scale of impact and the number of organizations involved with for example a hurricane will probably be much larger than when debris blocks channel flow. For this reason, most of the organizations only focus on or a few issues at hand. Looking at the interdependencies between issues requires a view that crosses institutional boundaries as well jurisdictional borders. Cross-boundary cooperation can lead to conflict (Aldrich, 1972). These conflicts can lead to inefficiencies in operations as well as compromises which are not needed. Water and flooding do not have borders so there is a need for a comprehensive integrated holistic organizational approach. However, before this can happen there needs to be changed on the macro level of society, so that flood risk management can be organized on a cross-boundary scale.

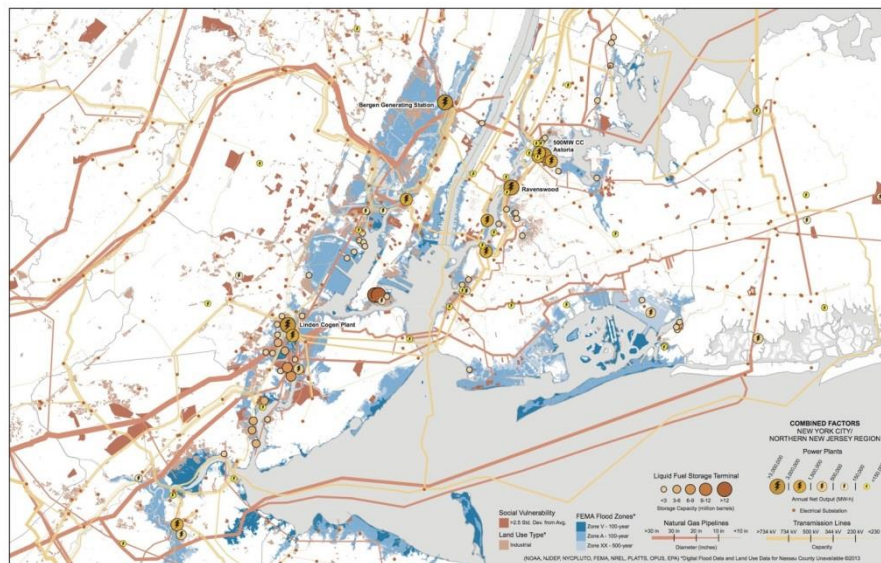


Figure 4 (Foster,2017) Flood areas and critical infrastructure map.

1.5 Flood risk and climate change

Between 1900 and 2011, the annual mean temperature around New York City increased by around 2,4° C and the mean annual precipitation increased with almost 20 centimeters. The variability of precipitation was higher between 1956 and 2011 than between 1900 and 1955. Since 1900 the sea level rise at the Battery in New York City was estimated at 33,5 centimeters. Extreme events like Hurricane Sandy in 2012 cannot be traced back to climate change, nonetheless, sea level rise increases the degree and the extent of flooding in such occasions.

Based on the developments of the mean annual temperatures between 1971 and 2000, high estimates predict a rise of 1,7 °C by the 2020s and a rise of around 3,6 °C by the 2050s.

High estimates for the mean annual precipitation expect an increase up to 10 percent until the 2020s and 15 percent by

the 2050s based on the data between 1971 and 2000. Based on the period 2000 to 2004, the sea level is assessed to rise to another 28-centimeter (high estimate) until the 2020s and up to around 79 centimeters by the 2050s. Flood maps which show possible future scenarios and extreme events illustrate how the sea level rise largely affects areas of New York City and its surrounding. On eighteen days per year between 1971 and 2000, temperatures above 32.2 °C were measured. This number is expected to increase up to thirty-one days per year by the 2050s. Heavy rainfalls are highly probable to increase in extent and intensity whereby coastal flooding is likely to occur at a higher frequency, increased extent because of sea level rise (NPCC, 2013).

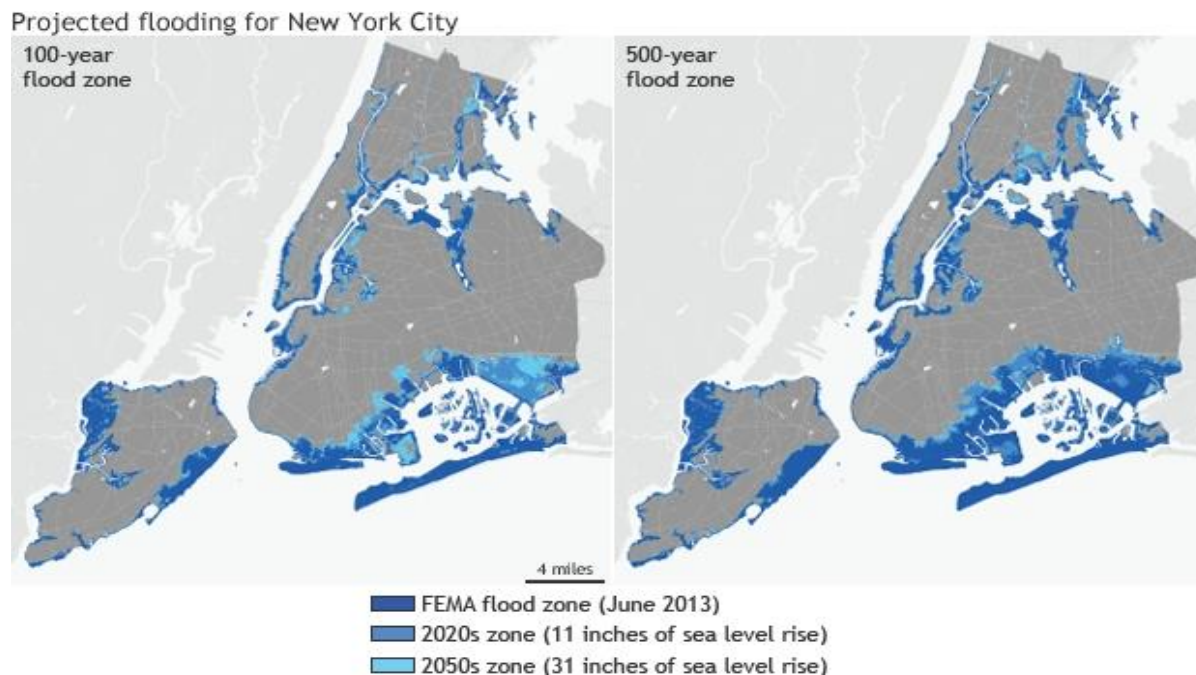


Figure 5: Change in Flood-Zones (source: Climate.gov)

2. Flood Protection in the New York Tri-State Area: A brief history

The Conventional United States water management was designed around a reactive approach. In 1968 the U.S. Congress initiated the NFIP (National Flood Insurance Program). Its aim was and is to protect homeowners and small businesses from the financial ruin flooding can cause. In New York, the program insured a value of about \$31.6 billion in the state of New York and \$8 billion in the city. The program is organized and funded at a federal scale. FEMA (Federal Emergency Management Agency) administers the program and can borrow money from the US Treasury for paying out damages caused by major storms. This allows premiums to be much lower than they would be if they were not subsidized. This leads to some significant features. The costs of being insured do not represent the real flood risk. That allows development, the housing being the most obvious example, to deliberately take place at locations close to the sea with high flooding vulnerability. Another difficulty is that hurricanes, and the increasing rate of larger storms, pressure the financial situation of the NFIP and FEMA. In fact, it is unlikely that the current debts will ever be paid back to the Treasury (Cleetus, 2013).

In order for (local) communities to participate in the insurance program, they need to meet the demands stated by FEMA or by the community's home state. The act forces participating communities to adopt and enforce a certain degree of floodplain management referred to by 'minimum regulatory requirements'. For a community, the participation in the program is voluntary. States, however, can require them to

participate in the NFIP as part of their own floodplain management program. States can demand that participating communities exceed the minimum requirements. Property owners in a community that does not meet the given conditions will not be provided with flood insurance. On the other hand, communities exceeding those demands will receive a discount on their premiums (FEMA, 2011).

Amendments made on the NFIP over time show a large number of incremental improvements (Aerts & Botzen, 2011, p.27). Most of these solve practical and bureaucratic problems. The improvements were usually a reaction to a natural disaster. Hurricane Sandy, for instance, caused the Housing and Urban Development (HUD) to allocate federal funds for mitigating flood damaged properties. The focus on prevention, robustness, adaptability and transformability lack in these statements.

The policy strategy that has been executed is to be seen as pre-development, as described by Loorbach (2010). The used strategy consists mainly of water protection projects, realized by the U.S. Army Corps of Engineers. Most of these projects have been constructed in the second part of the twentieth century. The approach used was technical. In Connecticut, lakes have been turned into a reservoir for storing water. Furthermore, there are three Hurricane Protection Barriers. Two of them are in the eastern part of the state, outside the area covered by this research. The third one is in Stamford, Connecticut located 40 kilometers northeast of New York City.

2.1 Hurricane Sandy

In October 2012 the Tri-State area of New York was startled by Hurricane Sandy. Presumably, both the number of hurricanes and their intensity are likely to increase due to

global warming. That is why there need to be a resilient water defense system which is applicable to the entire urban area (Murphy, 2015). The damage caused by the hurricane led to the emergence of a new perspective on water management programs. Some of them show elements indicative of a transition arena. Those are, for example, an integrated approach, innovation for sustainable developments, and experimenting (van der Brugge et al., 2005: p. 168). One of them is the earlier mentioned competition called Rebuild by Design.

The increasing threat of flooding has become more publicly recognized (Hu, 2016). In 2008 Mayor Michael Bloomberg convened the NPCC (New York City Panel on Climate Change). Plans and reports have been developed by this NPCC and Rebuild by Design stating the urgency. These reports show some of the characteristics of a more sustainable way of thinking about the climate hazards by acknowledging them as a (future) threat to the city area. The reports mention a long-term vision and multi-level governance approach (Metropolitan Waterfront Alliance, 2015). Some of the niches on the micro level of figure 2 can be filled in with the creators of the mentioned projects and plans, but the required interaction with the meso-level does not seem to be present. A similar observation can be made when it comes to integration. Flood risk management has to be integrated with other elements of coastal management. This has been done to a certain degree. The authors of Vision 2020 intended to do so, risk management being one of the seven subjects covered. The idea is that flood risk should have top priority like it is in the Netherlands (Metropolitan Waterfront Alliance, 2015, p. 5; van der Brugge et al., 2005).

From both the presentation and contents of Vision 2020 we can state that the current

focus of this policy is on reaching goals in a small timeframe. The goals and strategies are even split for each of the neighborhoods, which implies both a high degree of context-specific solutions and political fragmentation. The focus is on the neighborhoods of New York City only, neglecting the interdependency with the rest of the watershed of the Hudson River, the rest of the state, areas in New Jersey and Connecticut.

The main weakness is the localization and fragmentation of planning power. It makes it difficult for governmental bodies to pursue planning, more specifically flood risk management, in a sustainable way. Uncertainties lead to more complexity in policy making (Loorbach, 2010: p. 166). A policy transition is required because none of the contemporary governmental bodies seems to be capable of providing a basis for sustainable flood protection for the area. The administrative structure needs to be reformed (Jordan, 2008: p. 26).

3. Stakeholder framework

As stated above, the United States Government is strongly decentralized and most regional development is market driven. This can also be seen in the institutional landscape that influences and is influenced by flood risks posed by the Hudson River. There are a number of different levels that can be described (table 1) and every one of these institutions has its own agenda, which are described below.

3.1 The Federal level

The institutions operating on the federal level are mainly focused on reacting and negating

risks of flooding. Most notable is the Federal Corps of Engineers, which holds significant power in the construction of flood-defenses due to its main goal of safeguarding national security. Its main instrument of planning is the USACE Flood Risk Management Program which is aimed at partnering with other public and private parties in reducing flood risks (U.S. Army Corps of Engineers, 2017).

Another major institution on the federal level is the Federal Emergency Management Agency (FEMA). FEMA focuses on monitoring risks, partnering with and informing citizens and other parties of these risks, and reacting when a flood occurs (FEMA, 2017). Additionally, there is the United States Department of Housing and Urban Development (HUD) that is partly responsible for reacting and rebuilding in case of emergency (Patenaude, 2005). Both FEMA and the Department of Housing and Urban Development (HUD) use Flood Insurance to encourage flood-resistant building. This insurance is a fee that is charged to homeowners that build or rent in areas with high flood risks. The insurance fee can be lowered by taking precautionary actions (Floodsmart, 2016). In conclusion, on the federal level most organizations are focusing on partnering to reduce flood risks and reacting in cases of emergency.

3.2 The State Level

The New York Tri-State area spans the States of New York, New Jersey and Connecticut. All these States have their own policies towards flood risk and management. Firstly, the State of New York is mainly focussed on water quality, ecology services and has a soft engineering approach towards the Hudson through the cultivation of wetlands. In its funding for flood resilience projects, a special focus goes to green and natural stormwater

management services (New York State, 2017).

New Jersey's flood resilience program is based on a combination of "hard" and "soft" engineering solutions, focussing on resisting, delaying, storing and discharging flood water (State of New Jersey, 2017). The Rebuild by Design program, spearheaded by the United States Department of Housing and Urban Development, plays a key role in this institution's flood-resilience strategy which mainly focusses on safety and urban development for New Jersey.

The third stakeholder is the state of Connecticut. Connecticut's coasts along the Long Island Sound, the Hudson Bay and the East River are limited in exposure. Connecticut has policies focussing on safety and ecology in the Long Island Sound. Because the Long Island Sound is a saltwater body, Connecticut is focusses on coastal protection (State of Connecticut, 2009).

These state levels display big differences in stakeholder goals and ambitions. Connecticut demonstrates more dependence on cooperation with the other states and coastal projects. New York and New Jersey both focus on water safety using green infrastructure. However, New York focuses on the ecological and water quality services, whereas New Jersey adapts more "hard" engineering solutions in order to safeguard waterfront development.

3.3 The Local Level

The next level in the landscape of American planning is the local government. There is no overarching system of spatial planning in the US, the planning focus is on the local government. Land use planning is a local affair which is executed by means of 'zoning',

which represents a planning tool toward the implementation of a plan at the lowest levels of government. However, zoning carries the rule of the law, not the plan itself. These powers are granted by the state level. Even though the planning focus is on the local level, there are a lot of interventions from the state level which hinder appropriate and fluent planning approaches. The powers over planning and zoning issues vary. Local powers over comprehensive plans are conferred by the state; amendments and approval thus vary by state.

These conditions result in a lack of coordination in the integration of plans. Because of the planning focus on the local level, every local level can interpret planning in a different way. This results in non-overarching planning approaches and individual problem solutions without looking beyond local borders and fosters fragmentation.

On the other hand, due to the increasing interventions from the state level in many cases, the sensitivity for local issues can get lost. The local level can be a very important partner for the state and the federal level in the creation of plans as many issues are very situative. These interventions diminish the power for locals to solve local problems. Also these circumstances can lead to even more fragmentation between the governance levels. A better coordination between top-down and bottom-up planning with more comprehensive and horizontal planning approaches are needed.

3.4 Non-Governmental Organizations (NGO)

There are also numerous non-governmental organizations (NGOs) with a stake in water management in the Tri-State area. These organizations can be separated in the

following categories: safety, housing, economy, nature, water-quality, liveability.

Important group of stakeholders are the real-estate developers that would like to capitalize on the attractive living conditions the Hudson River offers. One important project in this field is the development of the Hudson Yards in New York, which is a real-estate project aiming at redeveloping an area near the Hudson by building offices and apartments for wealthy citizens willing to pay high prices for river front property (Hudson Yards, 2017).

There are numerous NGOs that are focussing on water quality, ecology and liveability. Many of their projects focus on making sure the water in the Hudson, East River or Long Island Sound is clear and the biological services improve. Many of these organizations are connected to each other through the Waterkeeper Alliance which seeks to connect and strengthen grassroots water protection programs (Waterkeeper, 2017). Improving water quality and biological services can also go hand in hand with increasing liveability. This is demonstrated by the Hudson River Park Project, a project that not only increases water quality through park development, but is also used to create community space and increase economic activity in the area around the Hudson (Hudson River Park, 2017). Another economic stake linked to improving water quality and biological services in the Hudson is a possible return of commercial fishing industries to the Hudson, which could create up to 300 direct jobs and nine million dollars in wages (KLIOS INC., 2001).

3.5 Hybrid level

Economic or hybrid stakeholders are the stakeholders that are not just governmental and not just privately owned entities, but combination between. in the Hudson include local industry, recreation, or transportation and shipping. A noteworthy hybrid that operate with safety in mind include the BQX, a city initiated, independently funded streetcar infrastructure/real-estate project that connects Brooklyn and Queens and is planned to run along the East River. This project is mostly focussed on economic development and liveability, but it will also be resilient against flood-related events (BQX, 2017).

The water in the East Channel which connects the Hudson to the Long Island Sound also has a high potential for tidal energy, this is currently being researched by a company called Verdant Power. Verdant Power has a stake in keeping this connection open in order

to produce and sell energy (Verdant Power, 2017). The Port Authority of New York and New Jersey would also be an important stakeholder. Mainly operating in the coastal zones of the New York Tri-State area. The Port Authority holds and controls vast amounts of real-estate and land in this area. The Port Authority is already an organisation that works at a regional scale and would be essential partner in a regionally integrated water approach for lesson drawing as well as a pathfinding source. Lastly, there is the Rebuild by Design Foundation. Initiated by a presidential task force and the HUD, Rebuild by Design is a foundation which focuses on flood resilience at the scale of the urban region (Rebuild by Design, 2016).

In conclusion, there are numerous hybrid stakeholders that have a stake in the Tri-State area for a number of reasons. The stakes for all these developments are strongly intertwined, as can be seen in the economic

Federal	State	City (>100,000)	(Non) governmental Organizations
<ul style="list-style-type: none"> - Federal corps of engineers - Federal Emergency Management Agency (FEMA) - U.S Department of Housing and Urban Development (HUD) 	<ul style="list-style-type: none"> - New York State department of Environmental Conservation - New Jersey State Department of Environmental Protection - Connecticut State Department of Energy and Environment - Port Authority of New York and New Jersey* <p>*The Port Authority is not exclusive to one state but contributed to by both states and exemplifies regional governance)</p>	<ul style="list-style-type: none"> - New York City (NY) - Jersey City (NJ) - Newark (NJ) - Yonkers (NY) - Paterson (NJ) - Elizabeth (NJ) 	<ul style="list-style-type: none"> Big number of NGOs - 7 watershed organizations in New York State. -13 watershed organizations New Jersey State - 3 watershed organizations in Connecticut -159 NGOs and business organizations in New Jersey State (New Jersey Water Works) - Rebuild by Design - Regional Plan Association -Friends of the BQX

effects of improving water quality and biological services. Table 1 gives a short overview of the bigger governmental organizations involved.

What is summarized above is just the tip of an incredibly complex and fragmented iceberg. There are an enormous number of NGOs involved in flood resilience, water safety, and emergency help for the Tri-State area of New York. One of the biggest foundations is 'Rebuild by Design' which was formed in response to hurricane Sandy and initiated by President Obama's Hurricane Sandy Rebuilding Task Force in partnership with the Department of Housing and Urban Development (HUD) and several nonprofit and philanthropic organizations like the Regional Plan Association and the Rockefeller Foundation. The goal was to make the New York Metro area more flood resilient (Rebuild by Design, 2016).

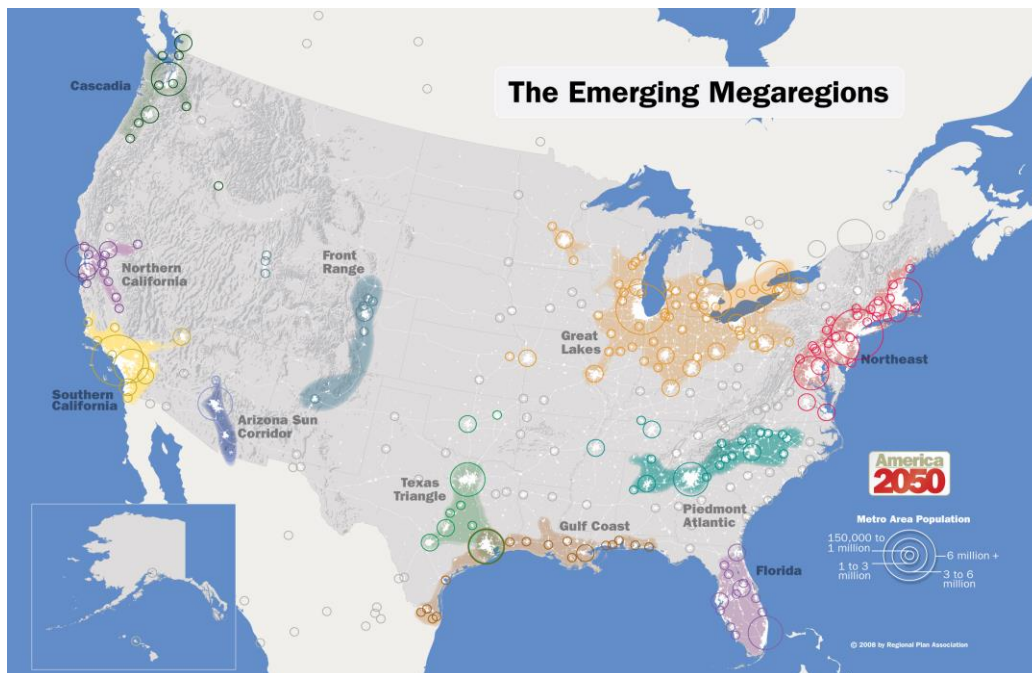


Figure 6: The Emerging Megaregions

4. The Regional Governance Transition

Proposals of regional governance in the United States are not a new phenomena and date back to the earlier decades of the 20th century. The Metropolitan Reform School vehemently described the ills of growing metropolitan regions and potential governance solutions in the form of normative theory (Norris, 2016). New Regionalism described the economic efficiency and potential of regional governance that was not obstructed by state governments (Norris, 2001). However, a common conclusion among those that debate regional or metropolitan governance in the United States is that voluntary governance without the power to impose decisions lacks the ability to produce desirable outcomes, meaning that regional governance must include a regional government. In addition, the current political landscape is entrenched and self-serving. Attempts to redistribute power would need to overcome the obstacles of existing political power structures (Norris, 2001).

Using transition management as a theoretical framework, key elements and their relations can be identified in the context of American regional governance. The trends of globalization, urbanization, and growing demand for the efficiencies of regional governance represent fundamental changes in the macro level landscape. Existing political institutions, in this case the traditional constitutional hierarchy of federal and state governments, represent the entrenched meso level more concerned with the preservation of the status quo than innovations or reorganizations of the systems of power. In order to facilitate and guide a transition towards regional governance, innovations and experiments at a smaller scale must be

pursued to demonstrate the advantages of regional governance and reinforce the shifting perceptions in the macro level (Van der Brugge et al., 2003).

Despite the obstacle of entrenched political institutions, the benefits of regional planning were understood in the past and are becoming increasingly apparent in the present (Khanna, 2016). Khanna also states that the potential advantages for collaboration within megaregions on issues of common interest are incalculable. Popular examples for this mega regional governance includes everything from economic and industrial development to transportation and connectivity. The political structure outlined by the U.S. constitution is proving increasingly outdated and ill adept at coordinating and funding regional developments (Khanna, 2016). The issue presented here is water management and the political boundaries obstructing integrated water resource management in the New York Tri-State area. Water management in the New York Tri-State area is fundamentally interrelated making it an ideal pilot program for regional governance while keeping the purview and scope of the program relatively small and focused when compared to complementary proposals for regional or metropolitan governance elsewhere in the United States. A successful transition in New York water management could serve as a catalyst for a regional governance transition throughout the country but first the New York water management transition must be properly managed.

5. Fragmented Status

Quo

The problem is that the federal government treats states as individuals and does not support coordinated regional action. The political polarization of the United States government, state but particularly federal, and the traditional constitutional hierarchy makes regional collaboration difficult. Flood risks are not partitioned by state boundaries but the solutions are.

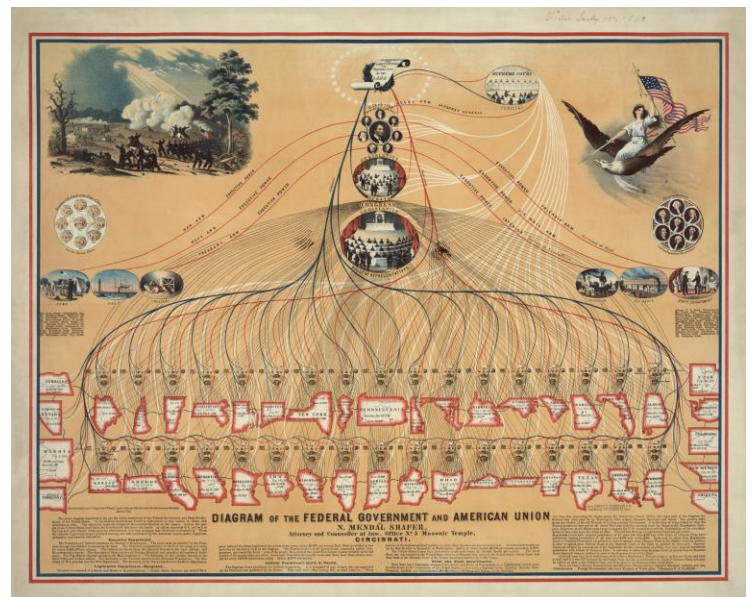
5.1 Problems with Traditional Hierarchy

A transition from traditional hierarchical governance towards a regional governance structure demands a certain level of power redistribution. The current entrenched bureaucracy that stands to lose power in such a transition is the major obstacle to acceptance despite the potential advantages of regional governance (Huitema et al., 2014; Schoeman et al., 2014). Incorporating both decentralization and interorganizational cooperation, regional governance intends to combat classic problems with the constitutional distribution of power in the United States.

Due to the size of the United States and the importance of contextual intricacies in spatial land use planning and water management, American planning is highly localized. However, there are advantages to upscaling certain processes such as economies of scale and the potential of unified resources when tackling common problems. Urban regions in the United States have grown to such a degree that serious arguments have been made in favor of regional governance. Regional governance would ease cross border cooperation between states when dealing with

common interests and eliminate the inefficiencies of the traditional constitutional hierarchy that sees funding flow from the federal to state level while ignoring the intricacies of emerging megaregions (Khanna 2016). Water Management in the New York Tri-State area is a perfect example of an interrelated problem shared by all parties that is fragmented in governance structure.

The need for multi-level coordinated policy and both horizontal and vertical organization integration is profound. A multi-level perspective and organizational integration would maximize the efficiency of New York flood resilience development. An important part of this transition will be legality of new organizations. Institutional inertia will slow down the organizational output of a new regional government in the beginning. To overcome this an organisation on regional scale needs a clear mandate as well as clear and transparent boundaries of power. This will help to decrease confusion as well as stubbornness of organizations that will receive less funding.



5.2 Regional centralization and Interorganizational Cooperation

The fragmented distribution of power and funding in the Tri-State area is a major contributing factor in the lack of coordinated water management. The Tri-State area extends well beyond the powerful and autonomous city of New York. The discussed area is spread across three states with different legislations, priorities, and access to resources. Each state and the city have their own agencies and actions towards reducing flood risk. However, spatial planning in the United States is a highly localized enterprise (Bishwapriya Sanyal, 2005). The state is restricted in its capacity to dictate planning terms to counties or cities and the federal government is restricted from interfering with the states. This decentralized planning system makes coordination of complementary action across political boundaries difficult. The federal government has the potential to do so but the scope of the U.S. federal government means it lacks certain local knowledge which limits the effectiveness. What is needed is a region-specific organization tasked with the proactive coordination of the local, state, and non-governmental actors that make up the governance network of the New York Tri-State area.

Organizations that help orchestrate the coordinated action of multiple vested actors exist but very rarely span across state lines. When they do, these organizations lack the power pursue action and act in an advisory capacity. The best example of an organization that comprehensively tackles water management throughout the Tri-State area is the Rebuild by Design competition which awarded funding to seven projects, with four in New York, two in New Jersey and one in Connecticut (Rebuild by Design, 2016).

However, this was a reactive action in response to the Sandy hurricane. In addition, it is not a permanent institution that will coordinate complimentary water management planning across the Tri-State area for the long term.

The need for a water management and planning agency unique to the New York Tri-State area that specialises in coordinated and complementary action across the political boundaries that divide the Tri-State area is clear to a planner, but not to everyone. Institutions are conservative and are resistant to change (Gupta et al., 2010). In order to upset the status quo and develop a new organisation there needs to be external pressure through popular support to facilitate the transition towards a new governance model in NYC water management. The popular support would have to create enough pressure to change the institutional landscape from the outside. This can be through showing the inefficiencies of the current institutional water structure or through learning from organizations in the Tri-State area that already have a regional approach, for example, Rebuild by Design or the Port Authority.

At the moment, the devastation left behind by Hurricane Sandy is being rebuilt. The aftermath of the crisis means that there is a window of opportunity. If this window is properly framed the urgency could translate into the re-evaluation of institutions and their ability to cope with flooding at a regional scale.

The opportunity that is created is one of reflection, evaluation, and learning. When one considers the theories and transitions of American regional governance introduced in the previous chapters it is clear what needs to happen. There is a need for an water authority that spans the Tri-State area which can gather and synthesise knowledge, set limitations on building developments, plan and pursue water

management installations, and establish short and long term partnerships to facilitate its goals.

As stated above, the United States Government is strongly decentralized and most regional development is market driven. This can also be seen in the institutional landscape that is under influence and influences the flood-risks posed by the Hudson River. There are several different levels that can be described (table 1) and every one of these institutions has its own agenda, which are described below.

5.3 SWOT-analysis of current situation

In order to construct a policy framework that helps to keep New York dry, it is important to evaluate the current approach. This can be done using the SWOT method. The SWOT method is useful to recognize strengths as well as factors that can be improved in the future. This SWOT method aims to find the internal strengths and weaknesses and the external opportunities and threats of the current situation (Hummel, 2004). In the case of New York, the internal elements evaluated will be inter-governmental and the external elements will be extra-governmental.

The internal factors that are in place in the current approach give local governments the possibility to making their own policies aimed at keeping their state/county dry. Furthermore, the regions are strongly interconnected due to the economic and social bonds between the different boroughs in the New York metropole. The biggest weakness of the current approach is the fragmented power division between the different governments and the lack of cooperation between these governments,

resulting in different approaches towards flood resilience.

On the external side, the interconnectedness that was mentioned before is the biggest opportunity for new policies. The interconnectedness between the people and companies in the New York Tri-State area offers a great opportunity for public-private partnerships and public backing of a new policy framework. The biggest external threat is natural risks like susceptibility to fluvial and tidal flooding in combination with a higher chance of flooding due to climate change. The current federal policy of flood-insurance has resulted in a situation where there are large portions of the build-area which do not have proper flood-defenses and high risk of flooding, resulting in a situation where a new approach will go hand in hand with high investment costs in these areas.

	Helpful	Harmful
I n t e r n a l	Strengths: <ul style="list-style-type: none"> - Localized nature of American Planning - Strong bonds between the different governments in the NY metro area due to interdependencies 	Weaknesses: <ul style="list-style-type: none"> - Defragmented distribution of power among all different governments and actors. - Limited to no cooperation between governmental structures
E x t e r n a l	Opportunities: <ul style="list-style-type: none"> - Financial, Intellectual and Administrative status of the NY Metro Area - NGO's and other public organizations invested in NY watershed 	Threats: <ul style="list-style-type: none"> - Higher chance of flooding - Susceptibility to fluvial and tidal flooding - Present structures like flood insurance program

Figure 8: SWOT for the current situation

6. The TSWA Strategy

6.1 Introduction

Khanna (2016) criticizes the United States government of being outdated and ignorant to the importance and potential of regional projects. We propose pilot projects for regional governance structures to experiment and learn from. Integrated water resource management in the New York Tri-State area is an ideal pilot for the potential of regional governance due to the shared interest of water management, heavily fragmented governance landscape, and significant available resources. The success of integrated water resource management in New York would greatly benefit the region and serve as an important learning tool for the larger regional governance transition.

To pursue integrated water resource management we propose the foundation of an overarching regional authority to be called the Tri-State Water Authority (TSWA). Water issues throughout this urban region are unstructured, complex, and founded across different complex levels, occurring in different societal domains. The TSWA will be responsible for the collection and dissemination of information and research concerning these persistent water problems (Loorbach, 2010; Jänicke & Jörgens, 2006). These problems call for an explorative, experimental, and reflexive strategy on the part of the TSWA. The TSWA will be responsible for orchestrating multi-scale and multi-sectoral water resource management in an adaptable and sustainable manner.

6.1.1 An Overarching Organization

The TSWA will be a regional government responsible for organizing and managing

regional governance. To do so, the TSWA will supersede local and state planning bodies in authority on matters of water resource management. This authority will only be used in instances where the TSWA deems their actions imperative to regional safety. Most actions and plans orchestrated by the TSWA will be pursued through partnerships with local, state, and nongovernmental bodies. The TSWA board will be comprised of leaders in various fields relating to water resource management and they will use their varying expertise establish a long-term regional water management vision and identify short-term projects that would build towards that vision. These short-term projects will then be pursued through partnerships with state, local, and nongovernmental organizations (NGOs) depending on the parameters of each of the project.

The TSWA will be an independent non-partisan organization whose board members are appointed. In this way, the TSWA can stay above partisan conflicts that might obstruct cooperation among states. Despite being non-elected, the TSWA is still democratically legitimate and publicly accountable. Three TSWA board members are nominated each state governor and the mayor of New York. These nominations are approved by a coalition of local and state representatives to establish a collection of twelve board members. These twelve board members can then nominate another three members to be approved by the aforementioned coalition. Special care must be paid to the selection and approval of these board members to choose supremely qualified leaders and eliminate conflicts interest.

The fifteen TSWA board members should be experts and leaders in varying water, spatial, and organizational management fields (Loorbach, 2010; p. 174). Relevant fields are

water management, disaster management, policy sciences and urban and spatial planning, etc.. These experts will be appointed on the basis of their expertise and experience and should use their respective expertise and networks to establish a long-term vision of water management and identify potential short-term projects that build towards the long-term vision.

Once the TSWA is established and operating it will seek to increase Tri-State water resilience. The TSWA will have particular authority over FEMA designated flood zones, including building regulation, zoning codes, and eminent domain. Additionally, the TSWA will lead the pursuit of flood resilience throughout the Tri-State area through softer approaches including the gathering and dissemination of information, planning and co-funding potential projects, the establishment of partnerships, and the monitoring of experiments to learn from them and adapt accordingly.

Federal funding for New York City water management will not be divided among the states but instead go to the TSWA who will coordinate short-term actions in line with the long-term vision and the TSWA will partner with existing organizations depending on the project.

To be able to operate effectively, the organization would need to be able to use eminent domain in the flood prone areas decreasing flood risk by decreasing the population in the wetlands around the Manhattan bay. Eminent Domain is the right of the government to buy people out of their homes so that they can resettle somewhere else. Also it would need to be able to look into building plans and through ppp's also incorporate real-estate developers in the flood-protection of the buildings that they build. This will effectively mean that

developers will need a permit from TSWA to be able to develop on lands in flood prone areas. Stimulating developers to work together with the TSWA and with each other to develop areas which are protected against flooding. Developers after getting used to this way of doing business will before drawing up plans ask the TSWA for advice. Providing them with the opportunity to design and build their plans in the most cost-effective and at the same time low-flood risk way.

6.1.2 Role of Policy Entrepreneurs

Huitema et al. (2011) explores the roles of policy entrepreneurs in transitions. These are influential individuals who guide transitions through demonstrations of agency. Policy entrepreneurs is a broad category and in the case of the TSWA can include all individuals whose actions sculpt the TSWA. This includes the government representatives who nominate and approve TSWA board members. The TSWA board members themselves are significant political entrepreneurs in multiple dimensions. The TSWA board members reflect on their collective knowledge and nominate an additional three members themselves. The TSWA board also influences the shape and capacity of the TSWA through their actions. Initiatives taken will set precedents and influence the operations of future TSWA boards. Finally, the TSWA will manage the New York water transition which has the potential encourage and refine regional governance initiatives concerned with other interests or located in other regions. In this way, the TSWA board members are significant policy entrepreneurs for both the New York water governance transition and the wider regional governance transition going on across the United States.

6.1.3 Role of Government

Rotsman et al. (2001: p. 26) describe the role of governments in a transition as a coordinating and leading, but not commanding one. This can be seen in the selection of TSWA board members by state and local governments, but the TSWA will also operate as a government itself. The TSWA will coordinate, lead, and help finance water resilience initiatives in the Tri-State area with limited or unwelcome intervention. Such interventions should only occur in FEMA designated flood zones and only in the interest of the greater safety of the Tri-State area. These actions are quite similar to the actions by the federal government but the TSWA will have the added benefit of region specific knowledge. The TSWA will pursue integrated water resource management such as the encouragement of broad stakeholder participation in decision making and cross sectoral coordination of organizations and monitoring mechanisms throughout the Tri-State area (Schoeman et al., 2014: p. 380).

The initial task of the incumbent government is the legitimization of the TSWA. All incumbent governments will have to sacrifice a degree power and resources. This will be their investment in a more efficient and effective regional government. In this way, those involved will contribute power and money to the organization but will also help steer it through the selection of TSWA board members.

Local governments will be essential partners in the implementation of resilience projects as they possess significant planning power. This is particularly true of projects outside of FEMA designated flood zones where TSWA is limited.

6.1.4 Role of NGOs and Hybrid Organizations

Non-governmental organizations will, by definition, not be part of the authority itself. That does not rule them out of influence. The TSWA board will be made up of experts, some of whom will likely have had experience with or in NGOs. The TSWA will also make use of NGOs through partnerships depending on the parameters of an individual project. NGOs will be key collaborators in the planning process as they are adept at providing critical feedback and reflections on proposed interventions (Huitema et al., 2011: p. 724). The projects that NGOs carry out are often locally organized and will be an essential resource in community outreach and local knowledge when logistics are being planned. Hybrid organizations will also be key allies. Hybrids offer existing cross sectoral networks which can be used by the TSWA in planning initiatives. Additionally, hybrid organizations already have experience operating at regional levels, like the Port Authority, serve as a learning opportunity for the TSWA on effective regional governance.

6.2 Four steps to dry feet

What follows is a description of the TSWA's four essential steps in pursuit of integrated water resource management in the Tri-State area. These four steps together will make sure that the TSWA will exist and be able to cope with the problems described in the beginning.

6.2.1 Creating and Maintaining the TSWA

The first step is identifying experts that will be part the TSWA. As members retire or become obsolete, their replacements will need to be found. As new developments arise, new expertise will be needed. All three states can

pick up to three different experts in the fields of spatial planning, water management or organizational management. Next, to that, the mayor of NYC is authorized to pick up to three experts in these fields. Afterward, these appointed experts will reflect on their own shortcomings and will then appoint three additional experts. As the TSWA operates and new developments arise they may come to the conclusion their board should be larger or consist of different expertise. In this way, step one is an ongoing process demanding significant reflection.

6.2.2 Creating a long-term vision

The TSWA board will develop a long-term vision for integrated water resource management of the Tri-State area. This step is also an ongoing process as new developments and lessons learned through experimentation will force revisions of the TSWA long term vision.

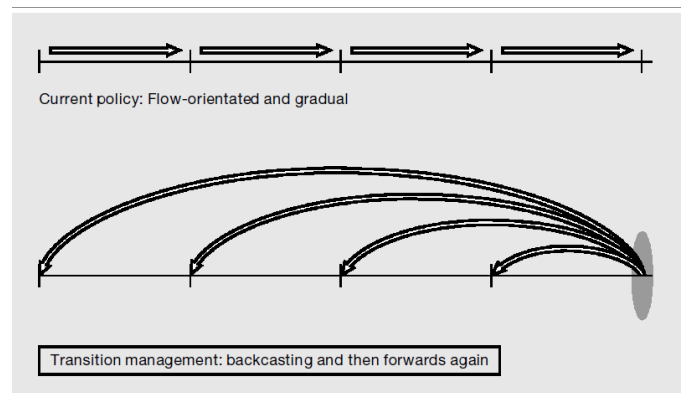
6.2.3 Identify short term projects

The third step identifies short term projects in the line of the long term vision. While identifying these projects, the board of TSWA should pay attention to establishing and maintaining (local) coalitions and partnerships to facilitate local support of potential projects. Certain projects will be of more importance for the long-term vision than others. This will come forward during the identification of the different projects. Creating a timeline will help to make clear what are the most important projects.

6.2.4 Implementation, monitoring & evaluation

The last step consists of project implementation, monitoring, and evaluation. The projects identified in the third step will be implemented and monitored. Afterward, every

project will be evaluated by TSWA and other involved organizations (NGOs, entrepreneurs and local coalitions/partnerships). Lessons learned in the monitoring and evaluation of short term projects may force the revision of the long term vision and even the TSWA board itself.



6.3 SWOT-analysis of the new approach

In order to effectively compare the approach to the current policy, the new approach also was analyzed using the SWOT method. In this SWOT analysis, the possible effects of the new methods were analyzed to determine to what extent the TSWA and the new approach could capitalize on the opportunities in the New-York area as well as determine possible risks that could impede the effectiveness of the organization. The biggest strengths of the TSWA lies in the possibility to have both public and private (NGOs, policy entrepreneurs) working together in one organization on solving the water related problems in the Tri-State area. However, in a vibrant city like New York, it could be stated that there will always be untapped potential. This untapped potential means there will always be the opportunity to make more (efficient) use of the human capital in the New York Tri-State area. The TSWA and its approach could also help in making planning more efficient through communicative processes. Although the biggest hindering factors for a successful TSWA also lie in this communicative nature, since the TSWA is only efficient when all parties are capable of working together and co-create flood-resilient programs for the New York Tri-State area. If this communicative progress is distorted by internal power struggles or bureaucratic processes this will negatively impact the organization as a whole and the outcome it produces. The biggest external threat outside the flood risks of the area is the possible impacts the central governments can have on the TSWA through power-relations or policies.

	Helpful	Harmful
I n t e r n a l	Strengths: <ul style="list-style-type: none"> - Ability to use full potential of public and private capital present in NY metropolitan area - More effective planning - Risk-assessment on a higher scale 	Weaknesses: <ul style="list-style-type: none"> - Unpredictability of public/private partnership - "Slowness" of decision making - Power struggles between partners
E x t e r n a l	Opportunities: <ul style="list-style-type: none"> - Financial, Intellectual and Administrative status of the NY Metro Area - NGO's and other public organizations invested in NY watershed 	Threats: <ul style="list-style-type: none"> - Higher chance of flooding - Susceptibility to fluvial and tidal flooding - Power and influence of the central government

Figure 10: SWOT for the TSWA project

7. Conclusion

The current approach towards flood resilience is fragmented. Every state and region has its own policies and plans towards making their regions more flood-resilient. This flood-resilience will become increasingly important in the future due to the effects of global climate change. This fragmentation could lead to less-efficient planning in an area with significant human and economic capital.

The inefficiencies of the current fragmented approach can be overcome by the installation of a new, overarching government body that focuses on regional flood-resilience. This body is called the Tri-State Water Authority. This authority would be able to make use more efficiently of the human capital present in the New York Tri-State area and, through communication and knowledge sharing, it could improve cooperation across political scales and boundaries.

The implementation of the Tri-State Water Authority will, like every change, take time. As a pilot project for American regional governance structures, it is imperative that flaws and inefficiencies discovered in the creation and operation of the TSWA will be observed and addressed by monitoring systems.

Further research into the wider regional governance transition in the United States and other potential pilot projects should be pursued. We found the combined highly fragmented political structure, the increasing and unifying risk of flooding, the opportunity of

urgency awarded by Hurricane Sandy, and the abundant human and financial capital of the New York Tri-State area to make it an ideal pilot for regional governance. However, there are ample regions and sectors in which regional governance has the potential to be hugely beneficial.

The SWOT analysis of the New York flood defense strategy shows that one of the biggest hurdles is the lack of inter-organizational collaboration, slow decision making, and power differences between organizations. New York can capitalize on the urgency introduced by the devastation of Hurricane Sandy. This tragedy can serve as an opportunity to push for a regional approach when it comes to defense and measures against pluvial, fluvial and coastal flooding.

The sense of urgency can work in the advantage of integrated water resource management in New York if it is framed properly. This could overcome the major hurdles being in the way of a successful TSWA. Mostly it needs time and active policy entrepreneurs, particularly the TSWA board members will be the deciding factor for the TSWAs success. The boards expertise and ability will demonstrate the TSWA as a success worthy of expansion. Using the four steps proposed in this article the TSWA could be a huge success in solving the water related problems in the Tri-State area as well as being an example for regional governance in the United States.

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