

## SPEECH

# Regional Sustainable Development: Lessons in integrated policies

Prepared for the Symposium on the Yangtze River Economic Zone and the Construction of Three Gorges Urban Cluster

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### Governance and Wider River Basins

The vision of the Yangtze River Economic Belt has gained momentum in recent years. Progress continues towards an ambitious integrated economic development and environmental protection plan that covers multiple cities and provincial jurisdictions to align with the greater Yangtze River Delta, one of the great river systems on the planet. Taking into account the wider delta region with the Chongqing-Chengdu (Chengyu) economic corridor, nearly 40 per cent of China's population and 41 per cent of its GDP are located in this vast and rich area.

There is a well-established tradition of rivers serving as the economic backbone of civilization and the anchor of economic development. This includes the roles of the Danube, Thames, Seine and Rhine rivers in Europe; the San Francisco river delta in Brazil—the largest river in that country; and the St. Lawrence River and the Great Lakes system in the United States and Canada as examples of the hundreds of cities and rivers that together have been a key driver of economic development. For example, the wider United States–Canada Great Lakes region is home to 60 per cent of Canada's population and 20 per cent of the U.S., and forms the industrial engine of

the U.S., with an estimated economy of more than \$2 trillion, making it one of the largest economic regions in the world.

The United States–Canada Great Lakes is useful in that it is one of the earliest examples of transboundary governance models that arose around a common basin, with legal agreements intending to coordinate multi-jurisdictional levels of government. The International Joint Commission (IJC), established more than a century ago, was created to address transboundary issues between the U.S. and Canada under the original 1909 treaty. Since then, the IJC has expanded its work to cover freshwater, air quality, biodiversity and other priorities,<sup>1</sup> including focusing on shared environmental monitoring efforts to establish comparable environmental data and baselines.<sup>2</sup>

<sup>1</sup> The original IJC was established in 1909 under the U.S.–Canada Boundary Waters Treaty.

<sup>2</sup> The Great Lakes region continues to face serious environmental problems. For example, after years of recovery, Lake Erie has water quality comparable to 1960s levels, due to high nitrogen and phosphorous loadings associated with U.S. ethanol production. Another example of how assumptions have changed is around agriculture. In most countries, the single biggest pollutant is from non-point source agricultural runoff with high levels of nitrogen and phosphates. Another major challenge is contaminated sediment, a legacy of decades of heavy metal and toxic material dumping. Today, one fifth of the Great Lakes shoreline—more than 3,000 kilometers—is considered impaired due to sediment contamination. See J. MacDonagh-Dumler, V. Pebbles, & J. Gannon (2006). *Great Lakes: Experience and lessons learned*. Retrieved from [http://www.worldlakes.org/uploads/12\\_Great\\_Lakes\\_of\\_North\\_America\\_27February2006.pdf](http://www.worldlakes.org/uploads/12_Great_Lakes_of_North_America_27February2006.pdf)



Similar governance models involving the coordination of multiple jurisdictions that reflect the delta or basin have been developed in Central and South America, in Europe and of course in China. These models have established different forms of water commissions to coordinate and integrate economic development and environmental protection around freshwater basins.

Regional clustering around rivers and watersheds provides an opportunity for sharing resources, infrastructure, information and capacity. There has also been well-established literature in which cities form different clusters. Three obvious examples of the types of clustering underway worldwide are: London, New York and Shanghai cluster around financial services; Copenhagen around design; and Montreal around performing arts such as the Cirque du Soleil and the Montreal Symphony Orchestra. Global hubs change over time, and IISD continues to help measure those changes in relation to an integrated sustainable development lens through a suite of city-based indicators that track progress against specific baseline parameters.<sup>3</sup>

A common regional vision and goals focusing on economies, environment and society integrate regional planning tools. Examples of coordinated actions underway under regional planning include land-use management, service sharing, regional stormwater management feeding into watershed management, and regional infrastructure investment planning.

The role of wider river deltas within the wider rubric of regional economic planning is especially interesting. As noted above, basin-wide governance models have been among the most innovative areas of integrated, coordinated multi-jurisdictional approaches towards development goals, and arguably provide a richer area of experience than free-trade industrial zones.

<sup>3</sup> The IISD PEG indicators project has won multiple awards for representing a new generation of urban sustainability indicators: <https://www.iisd.org/innovation/news5.aspx>

## The Tennessee Valley Authority

The Global Environment Facility (GEF) and its International Waters program have been instrumental in supporting new governance models designed around wider basins and large river deltas. GEF projects support the wider Amazon, San Francisco and other basins. They also establish a strong scientific diagnostic baseline assessment to track changes in water quality and hydrology and to align different governance models with various economic drivers and opportunities, including agricultural production and industrialization. A key centrepiece, of course, is the role of hydropower within a broader and integrated economic development scheme. Of course, one of the main economic drivers of the Yangtze River Economic Belt is the Three Gorges Dam, a source of renewable and low-carbon electricity for millions of people.

The Tennessee Valley Authority (TVA) is a historical parallel to the Yangtze River Economic Belt, in that it has a vision of wider regional economic development propelled by a common purpose involving multiple jurisdictions with hydropower as a main engine of growth. The vision of the TVA, as proposed by President Roosevelt to the U.S. Congress in 1933 under the New Deal, remains equally compelling today: Roosevelt envisioned “a corporation clothed with the power of government but possessed of the flexibility and initiative of a private enterprise.”<sup>4</sup>

The anchor of the original TVA vision was to provide affordable electricity as well as jobs to a region particularly hard-hit by the Great Depression. Thus hydropower was at the centre of the TVA from the very beginning, evolving into a series of approximately 50 reservoirs and dams that comprise one of the great engineering feats of the last century.

The TVA also extended a simple vision of regional economic development organized around hydroelectricity generation to involve a range of other sectors and policies. Its work included actions for flood control, navigation, public health

<sup>4</sup> TVA. (n.d.), From the New Deal to a new century. Retrieved from <http://www.tva.com/abouttva/history.htm>



related to malaria, agriculture and broader regional development.

## The Importance of Policy Integration

Of all the words used to describe the early years of the TVA, one of the most often used is integration: rather than having different jurisdictions pursue separate economic development tracks in isolation, from the outset, the TVA pursued an integrated approach. For example, the TVA archives notes:

*From this beginning, TVA has held fast to its strategy of integrated solutions, even as the issues changed over the years.<sup>5</sup>*

One example of the scale of ambition coupled with an integrated approach is the critical role the TVA played in the early 1940s as an engine to support the tremendous ramp-up in the demand for new aluminum supplies. At one point, 12 new hydroelectricity plants and a steam generation plant were all being constructed, employing over 28,000 workers in one integrated project.

More than 70 years after its creation, the TVA continues to operate today, providing a significant proportion of total U.S. electricity. During that period, the business model has changed, in that it is now fully self-financed. What has also changed is the importance of environmental protection within TVA operations. In 2010 the TVA committed to being among the largest producers of clean, low-carbon electricity in the United States by 2020, as well as having among the highest levels of clean air standards (measured by criteria air pollutants) in the nation. Translating this vision into reality will require basic and important changes in at least three ways.

## TVA as an Example of the Transition to a Green Economy

First, the recent U.S. Environmental Protection Agency regulations (under the Clean Air Act Section 111(d) of the Obama Administration) will require the

<sup>5</sup> Ibid.

permanent closure of at least 18 of the 59 coal-fired electricity power plants under the TVA authority.

Second, although the roughly 45 hydropower dams and facilities located in the TVA are a source of clean and renewable energy, they are also vulnerable to the impacts of climate change. Science has been very clear in showing that some of the biggest impacts of climate change are on hydrological cycles. The U.S. Army Corps of Engineers is assessing the effects and risks that climate change will have on hydrological characteristics and flow rates upon which dams have been built, in order to determine whether climate risks are changing earlier performance parameters of hydropower stations.

Across the U.S., as well as in many other countries that rely heavily on hydropower, notably Canada and Brazil, total hydropower generation is changing due to climate impacts on many rivers. In the U.S., drought linked to climate change has resulted in an estimated \$1.4 billion in additional energy costs, according to a recent report by the Pacific Institute.<sup>6</sup>

NASA recently said that the single worst evidence of climate change is affecting the Colorado River and the extreme drought conditions in California and Oregon, up to Washington State and into Canada. In British Colombia, for example, public authorities are facing twin crises of out-of-control wildfires and serious drought, leading to severe water-use restrictions in Vancouver and other cities. A recent Canadian crop insurance forecast estimates that one third of Canada's prairie crops will be lost this year to drought.

On the one hand, climate change is increasing the risk of hydroelectricity dams. Yet new technologies like more efficient turbines and new designs are giving new life to hydropower. There are more than 3,000 hydropower projects being planned or under construction worldwide.

<sup>6</sup> Pacific Institute. (2015). *Impacts of California's ongoing drought: Hydroelectricity generation*. Retrieved from <http://pacinst.org/publication/impacts-of-californias-ongoing-drought-hydroelectricity-generation/>





Third, the TVA has set a vision to become a clean power producer by 2020, and has thus set out policies to cluster different clean energy sources like solar and wind, adopt very high energy efficiency standards and put in place a range of public policies ranging from renewable energy purchasing contracts to incentives to consumers to switch to more efficient electrical appliances and ramping up off-grid, small-scale clean power generation.

These three examples of recent TVA priorities—reducing dirty, high-carbon energy systems, switching to clean energy sources and supporting policies, and addressing the immediate and long-term risk of climate impacts—provide a microcosm of the broader challenges in moving to green economic development.

## Sustainable Watershed Management

There is a new generation of efforts to integrate green economic development not only in energy systems, but in wider watershed management approaches. For example, in the Province of Manitoba, Canada, a cluster of municipalities has come together around Lake Winnipeg, the 10th largest lake in the world, to create the Lake Friendly Initiative.<sup>7</sup> In 2008, in response to deteriorating water quality in Lake Winnipeg, leaders from nine communities on the shores of the lake came together to form South Basin Mayors and Reeves Inc., which launched the Lake Friendly Initiative. The group has a community-to-community approach designed to create public awareness about the serious issues facing Lake Winnipeg and other freshwater lakes throughout the world. The purpose of this initiative is to engage all sectors of society in a solutions approach to preserve our freshwater resources.

The Lake Friendly Initiative emphasizes environmental management through municipal cooperation. Actions include developing sector-wise communications on specific and measurable actions for a positive impact on water quantity and quality. This campaign, known as “Do What Matters,” focuses on actions for municipalities,

<sup>7</sup> See <http://www.lakefriendly.ca/>

schools, businesses, farms, individuals and cottagers on the lake. The actions focus on key concepts such as the role of public procurement in ensuring that government plays a leadership role in creating markets for socially and environmentally appropriate goods and services. This communications campaign builds a collective regional understanding of the fact that all sectors need to work in a similar direction to make a change.

## Lakes as a Basis of Bio-Economic Solutions

Their environmental plan highlights solutions such as the watershed bio-economy, focusing on harvesting watershed-based plant materials (such as weeds from urban ditches) to remove excess nutrients and improve air quality. Once harvested, this kind of plant material can be used as raw material for local energy production, in turn offsetting carbon emissions from traditional, coal-based energy systems. Careful management helps improve water quality and watershed performance, protect habitats, create a renewable energy system and potentially recycle phosphorus for agricultural production. This solution is one of many highlighted as a way of improving both economic and environmental management in the region and is a concrete example of finding new, innovative solutions based on integrated approaches. The bio-economy project, which IISD has advanced, has attracted the interest of the international community, including Chao Lake in Anhui Province, China.

There are differences among major lakes and rivers that make replicating and scaling up local sustainability solutions challenging; for example, the hydrological conditions in Canada’s Lake Winnipeg differ from the Great Lakes to the southeast, and of course from the Yangtze River Delta.

## China’s Leadership in Policy Integration

Yet there are some common factors that determine success. The first is policy coherence and building integrated approaches. China is sending clear and



impressive higher-level policy direction about the critical importance of integrated approaches at the regional level. For example, the April 2015 *Opinions of the CPC Central Committee and the State Council on Further Promoting the Development of Ecological Civilization* underscores the importance of comprehensively implementing:

Main functional areas and improve supporting policies on finance, investment, industry, land, population and the environment and specific performance evaluation systems. We will require cities and counties to put in place the position of main functional areas and promote the *integration of the plans on economic and social development, urban and rural development, land use, protecting the ecological environment*, etc. to realize the target of one plan and one blueprint for one city/county. The formulation of regional plans and the layout of major projects must conform to the position of main functional areas. We will implement differentiated market access policies towards the industry projects of different main functional areas, determine access items of areas where development is forbidden or restricted, and determine industries whose development is forbidden or restricted in areas where development is optimized or given priority. (emphasis added)<sup>8</sup>

## 2015 Sustainable Development Agenda: Addis, Sustainable Development Goals and Green Industrial Policy

Importantly, the April 2015 *Opinions of the CPC Central Committee and the State Council on Further Promoting the Development of Ecological Civilization* also notes the importance of balancing GDP growth with environmental and other indicators as a measure of genuine development. This vision underscores the importance of integrating economic and environmental approaches together. An important aspect of recent emphasis on integration is the

broad prominence sustainable development has gained under the global agenda. Priorities of policy coherence and integration to advance sustainable development that emerged in the July 2015 Finance for Development Summit and Addis Ababa Action Agenda (AAAA), and the final working draft of the Sustainable Development Goals to be adopted in New York in September 2015.<sup>9</sup>

The challenges of integrated sustainable development is leading to renewed interest in many Western countries in public-private sector partnerships modelled closely on the Roosevelt's vision of the TVA bringing the best of government and the private sector together. For example, as many countries grasp with the limitation of private markets alone to deliver sustainable solutions—especially in light of the 2007–2008 global financial collapse—there is renewed interest in green industrial policy to help focus divergent views, to provide public sector finance at a scale venture capital cannot and to accelerate innovation.

Harvard Economics Professor Dani Rodrik, for example, argues that the single largest venture capital fund in the United States is the Department of Energy's funding to accelerate the clean, low-carbon energy in the transport sector.<sup>10</sup> Rodrik points to the iPhone as the best example of this blending, in which every major element of the iPhone—from the GPS to voice activation—came about through public support.

One of the key challenges that regional integration faces is related to infrastructure to support common development objectives. IISD continues to work with partners to identify the economic and financial case for green public procurement in China, whereby renewed or new infrastructure investments have a lower climate and environmental footprint. IISD uses quantitative modelling and illustration through case studies to show the environmental, social and economic gains to the Chinese economy if green

<sup>8</sup> Retrieved from [http://environmental-partnership.org/wp-content/uploads/download-folder/Eco-Guidelines\\_rev\\_Eng.pdf](http://environmental-partnership.org/wp-content/uploads/download-folder/Eco-Guidelines_rev_Eng.pdf)

<sup>9</sup> See a draft here: [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/CONF.227/L.1](http://www.un.org/ga/search/view_doc.asp?symbol=A/CONF.227/L.1)

<sup>10</sup> See for example Daniel Rodrik. (2014). Green industrial policy. *Oxford Review of Economic Policy*, 30(3), 469–491.



public procurement is systematically implemented across national governmental organizations.<sup>11</sup>

## Conclusion

There is now more than a century of experience in the design and implementation of integrated, multiple jurisdictional governance models, of which an especially rich tradition revolves around the role of basins and river deltas as the centrepiece of regional economic development. The Yangtze River Economic Belt is a critically important example within this long tradition, and provides a test case that other countries should closely follow given China's commitment to eco-civilization as a priority.

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<sup>11</sup> Please see <http://www.iisd.org/sites/default/files/publications/green-public-procurement-china-quantifying-benefits-ch.pdf>

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