Transportation and Access for Sub-National Island Jurisdictions

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Introduction

The capacity to physically reach and service any location on the planet has never been easier or faster than it is today using modern technology powered by fossil fuels. On a day-to-day basis, however, the geographic specificity of islands may place them “off the beaten track” where links to modern global transportation infrastructure may be unavailable, dysfunctional or in conflict with island environments and ways of living. The overall aim of this paper is to discern lessons from the category of sub-national island jurisdictions (SNIJs) which have in some way exploited and capitalized upon their airspace, territorial waters, seaports and harbours to solve their transportation problems as well as enhance their global economic competitiveness and development. The focus here is on sub-national island territories (larger than municipalities) which have and use, to varying degrees, their formal and informal jurisdictional authority to implement strategies for their own economic benefit. By examining how islanders on SNIJs around the world have secured transportation solutions on their own terms, along with the express or implied cooperation, benevolence and self-interest of their metropolitan patrons, we may construct a lens with which to critically view commonly-held perceptions and mythologies long-held due to geography, relative isolation, small size, adverse weather, or any combination of these. In the final section of the paper, transportation options for Prince Edward Island, Canada, are assessed, and conclusions are derived in the light of a perspective shaped by lessons from sub-national island jurisdictions around the world.

The paper sets out the context of transportation systems in general. Small islands continually seek to overcome problems of access and transportation because such infrastructure requires high capital investment over a long term that is often not affordable or sustainable. Peripheral islands with small populations and few resources must therefore resort to non-economic means to ensure their transportation needs are met. SNIJs, which are by definition linked to larger states, may be in a much...
better position than sovereign islands to obtain benefits of links to efficient, competitive transportation systems based on the mainland. Benign metropolitan states offer significant promise for SNIJJs that seek to use their powers of jurisdiction in shaping enabling legislation and aligning themselves within national transportation programs that provide mutual benefits. However, without a clear vision to drive the long-term interests of SNIJ populations, transportation and infrastructure in SNIJJs will be influenced and transformed by outside private, imperial, military or competing metropolitan interests beyond SNIJ control.

Examples are cited from SNIJJs in the Pacific and the mid-Atlantic which have used their geopolitical resource and strategic location as a source of rent from their metropolitan powers, thus gaining economic benefits in the process. Next, heritage and the conception of what constitutes tourism are identified in examples from SNIJ mega-cities and transportation nodes in Southeast Asia. While these places are still SNIJJs, they are not normally considered in the small island context. From such a vantage point, however, the regulatory and competitive environments that provide the context for global movements of passengers and cargo can be seen more clearly, which in turn changes the way we view geographic constraints in all SNIJJs. Finally, a SNIJ in the Baltic Sea demonstrates how a small island jurisdiction can control shipping and transportation in its region largely through the use of jurisdiction as a resource. With these new perspectives in the foreground, the paper then focuses on transportation and access in a case study of Prince Edward Island.

Transportation and the “Problem” of Islands

Transportation Systems

Transport infrastructure is designed to serve a social function but also to achieve economies of scale in moving people and freight via efficient, interlinked networks of roads, railways, waterways, canals and pipelines, as well as routes deemed safe for human-powered mobility (walking, skiing, bicycling). Besides tangible structures, networks also encompass invisible spatial and temporal concepts such as shipping “lanes” and flight “paths” across vast areas of the planet, through and around “airspaces” defined by political boundaries and geopolitics. Transportation networks interconnect at physical nodes or terminals (such as airports, ferry terminals, bus stations, seaports and parking lots) where passengers can typically choose from a range of public and private modes that include autos, buses, trains, cruise ships, freighters and airplanes. At the core of transportation infra-
structure, well-organized, capital-intensive operations and procedures deal efficiently with traffic control (airspace or harbour traffic), security, finance (tolls and taxes), construction and maintenance.

**Geography and Transportation Needs on Islands**

Many islands face challenges associated with insularity, being archipelagos and/or being mountainous, although none of these variables necessarily translates into weaker economic performance (Armstrong and Read, 2006: 89). In fact, World Bank data has shown that eight of the top 15 non-primary export performers for 1965-90 were sovereign islands. However, remoteness and poor transport infrastructure tend to isolate countries, inhibiting their participation in global production networks (Limão and Venables, 2001: 451).

The Islands Commission of the Conference of Peripheral and Maritime Regions in Europe (CPMR) surveyed “the problem of islands” in the European context, describing transportation as a multi-faceted problem of choice, regularity, time and price (Eurisles, 2002: 25). Although transport improvements alone cannot eliminate price differentials between islands and the mainland (Armstrong et al., 1993), access to transportation for the mobility of people and exchange of products is a most critical service required on islands, especially for places on the periphery. Despite the tendency in a metropolis to gaze upon islands as simply “paradise” set apart from continental reality, many islands, being of small scale in absolute terms, have significant inward and outward exchanges of people and goods. Such flows are of necessity due to narrow export bases and heavy reliance upon imports supported by self-sufficiency, subsistence and income in whatever ways possible from tourism, the provision of e-commerce and offshore services; rents from geopolitical, locational and natural resources; remittances from a large diaspora; and aid from outside governments, regional organizations and NGOs.

Transportation facilitates these exchanges, responding to the need for mobility of people and products, producing consequences and shaping built environments in the process. While some islands prosper from economic strategies geared towards exclusive niche markets and eco-tourism, many island economies often rely on strategies that bring in large numbers of visitors. This creates further need to transport large volumes of imported products at certain times along with additional capacity that frequently remains unused, especially in seasonal economies. While supplies need to be brought in, moving people and freight of all kinds consumes significant proportions of GDP and fossil fuels. Dealing
safely with large quantities of waste and by-products is problematic; toxic spills may occur that kill endemic species and ruin beaches. At the other end of the spectrum, without access to transportation, island communities dwindle, struggling without means to avoid complete abandonment (Baldacchino, 2007; Royle and Scott, 1996).

**Transportation Costs on Islands**

In small islands which are not physically linked to the mainland, access and transportation by air and sea assume greater importance, especially with the development of global trade, migration and tourism. Finding ways to be competitive in establishing or attracting commercial airlines, ships, and capital investment in airport and seaport infrastructure is a huge and ongoing preoccupation in many small islands with low or irregular traffic volume, especially for those in remote locations such as St. Helena, Pitcairn, Socotra or Niue, and in the outer islands of archipelagoes such as the Turks & Caicos, Indonesia or the Falklands. Indivisibilities in costs of airports and harbours make capital-intensive transportation infrastructure uneconomical, even though it is required for development of whole sectors of an island’s economy (Titchener, 1992: 181; Fischer and Encontre, 1998: 74). To construct an airport, an island has to make land available, often at great ecological and social cost, along with demonstrating that profitable development opportunities are present. Unable to achieve the economies of scale that the mainland does, small islands are likely to have a limited range of transport modes available, both externally and internally, apart from historic modes such as narrow gauge trains which may be kept active as living museums and tourist attractions.

Historic shipping maps illustrate how physical factors — such as shelter from adverse weather, water depth, tide magnitude and prevailing currents — affect where specific seaports and harbours are located. While some islands have safe anchorage or level space for a landing strip, many do not. Small, isolated, sub-national island jurisdictions (SNJJs) such as Anguilla, Saba and Sark rely on ferries from other islands over seas which are at times quite rough; islands like Saba, Gozo and St. Barths may also have landing areas for only the smallest light planes or helicopters.

In general, isolation and peripherality lead to considerable waiting time during travel; these factors, combined with small scale, discomfort, irregularity and the sheer physical risk of crossings via small boats or planes due to weather, seasonality and tides, lead to increased prices in the daily conduct of many forms of commerce on small islands (Royle,
Consumers remain price-takers rather than price-setters in small islands where air travel, shipping and port infrastructure are generally operated as private or state-owned monopolies, often heavily subsidized through taxes. Island residents compete with affluent tourists and other visitors from mainland areas when booking finite and costly space on ships and planes. Travel by air, although faster and more convenient, is simply not affordable for all. For example, in 1996, it was estimated that the cost for residents in the Scottish islands to fly to their national capital was up to a month’s salary, and much more for the inhabitants of overseas islands such as the Azores, Guadeloupe and Martinique (Eurisles, 2002: 26).

**Political Drivers and Competing Interests**

Conversely, having an excellent harbour or an ideal landing area has not guaranteed economic development. Long-haul shipping of cargo and passengers by air and sea is carried out by large scale, monopolistic or oligarchic, capital intensive industries fraught with security issues in a post 9-11 world. As ships and planes increase their capacity to go longer distances with more cargo, major airports and seaports are more likely to be situated where shippers can gain the most efficiency on high-volume global transportation routes. Drivers of port and airport development in the global economy have included access to urban heartlands, natural resources (timber, minerals, oil), or strategic geopolitical and military advantage. Without a clear strategy, an island’s need for marine or aviation development on its own sake, regardless of physical attributes, is not apt to take precedence over more powerful drivers and competitors for investment in mainland or metropolitan areas. Having viable small transportation systems remains a tremendous challenge.

More recently, international tourism has become a significant driver behind increased access to small islands as more and more travelers seek out experiences “off the beaten track”. However, in remote or low volume locations, significant incentives are still needed to attract commercial airlines which have extensive capital, technical and logistical demands on their bottom line. Yet the operation of ferries, cruise ships, tankers, freighters, super-yachts, ferry terminals and seaports, along with container handling, shipbuilding, and ship maintenance, berthing, refitting, provisioning and stevedoring can be major industries in island economies, and offer significant employment to their labour force. The next section therefore addresses the question, “How do small sub-national island jurisdictions compete in meeting their needs for transportation and access?”

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Sub-National Island Jurisdictions (SNIJs)

The category of islands called sub-national island jurisdictions (SNIJs) is subject to a range of formal, typically asymmetrical, usually benign, relationships with larger states (Baldacchino, 2006), often as the legacy of former colonization, federalist arrangements, or use by the patron for strategic military, economic or fiscal purposes. These modern-day SNIJs, or federacies, have varying levels of autonomy. They exist as a diverse range of territories found scattered throughout the world’s oceans that seek to benefit economically from the advantageous “arms-length” relationships with their large metropolitan partners. In these relationships, SNIJs are the beneficiaries of aid, support for infrastructure, protected trading opportunities and defence; metropolitan powers benefit from “offshoring” by taking advantage of the loopholes and exceptions from legislation and policies in SNIJs that are either unavailable or unacceptable on the mainland.

In a global study (J-Project), over 100 SNIJs were examined and 85 were selected for further study of transport infrastructure and operations to find patterns in the influence of geography, geopolitics, security, strategic location, population density, level of urbanization, presence of natural resources, relations with the metropole and proximity to international sea lanes and air routes. The research examined the extent of an island’s jurisdiction over transportation and whether links to the mainland or between islands in an archipelago were provided or controlled by outside interests through legislation and policy of metropolitan states. After a preliminary mapping of such geographic and political conditions, and observation of port development or conspicuous lack thereof, certain islands were examined for anecdotal evidence of how jurisdiction and relations with the metropole had affected their development and enhancement of marine and air transport capacity.

Geopolitics as a Resource

Some of the world’s largest and most advanced transportation nodes are situated in locations deemed to be strategic for defence, military firing ranges and space exploration, yet these may be in the remotest parts of the world. Large airports and seaports situated on islands by metropolitan powers driven by geopolitics can be out of all physical proportion to available space or the needs of the local population. Ports in Okinawa or Pearl Harbour in the Pacific and Ascension Island in the mid-Atlantic come to mind, as well as Thule in northernmost Greenland. Indeed, local populations have even been excluded or expelled from atolls such
as the British Indian Ocean Territory in the Indian Ocean, which has a port and an airfield over 3,000 m long which is being used as a staging area for the war in Iraq. Wake Island in the Pacific, an uninhabited atoll claimed by the Marshall Islands and administered by the United States Navy, has 3,000 m runways and two offshore anchorages for large ships (World Factbook, 2007).

There are better ways to make a military presence tolerable in a small island jurisdiction besides allowing a metropolitan power to bomb it into oblivion or banish all of its inhabitants. According to J-Project data, the tiny archipelago of Palau in the western Pacific is using geopolitics as a resource, not unlike the Federated States of Micronesia and the Marshall Islands which are subject to specific US requirements for military bases (Cameron, 1992: 154). Palau has signed a 15-year Compact of Free Association with the United States which allows it to use the US dollar as its currency, incorporating the jurisdiction into the US monetary system. Palau appears to conduct its own domestic affairs as it chooses but the US retains control of defence and security matters for which it has exclusive access to Palau’s waterways. In return for exclusivity, and to secure its hegemonic position in the western Pacific, the US pays Palau a mix of rent and aid in the first 15 years of the treaty to maintain a certain level of public service and to build basic infrastructure.

In the Aleutian Islands of the northern Pacific, which have been used for underground nuclear tests, Adak airport built by the US Navy is a world-class facility that not only accommodates military aircraft but also acts as a commercial airline hub for the region (J-Project). It is no accident that the Aleutians also contain the largest fishing port (by volume) in the United States at Unalaska-Dutch Harbour (NOAA, 2004). Even isolated Rapa Nui in the southeastern Pacific had an emergency landing strip built for the NASA space shuttle (Royle, 2001: 110-111). Pago Pago, in American Samoa, with one of the best natural harbours in the south Pacific, is easily accessible by cargo ships as well as the military. Lajes on Terceira in the Azores, due to its location in the middle of the Atlantic Ocean, functions as an important stepping stone for commercial as well as military aircraft from North America and Europe. Although all of these SNJJs have been able to piggyback on metropolitan military installations, the mutual advantages are evident.

While the spaces occupied by former military bases can become fenced-off wastelands of contamination and spent ordinance when they are decommissioned (such as Isla Vieques in Puerto Rico and some atolls in French Polynesia), the military legacy can also include build-
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ings, port infrastructure and airstrips on inhabited islands. A different vision of such assets can form a nucleus for civilian housing, colleges, aerospace industries, commercial ports, call centres and other economic initiatives in the eyes of resourceful community-based groups supported by government. Although small civilian communities typically suffer considerable disruption at the time military bases are shut down when their specialized populations move on, resourceful communities such as Slenor Park, Prince Edward Island, and Stephenville, Newfoundland, have successfully lobbied for financial assistance from Canadian federal and provincial governments to develop the empty barracks and runways for commercial and community use.

International Tourism

Tourism can be anything that is marketed to those who do not have the same thing in their own community (Tarlow, 2007), which, when combined with the metaphor of islands as “paradise”, makes the journey to islands in all their diversity so compelling. For example, the military imperative is gradually being replaced by international tourism in many formerly sensitive locations. The relics and military outposts dating from the 20th century back to the more distant past can be preserved as generic heritage sites by SNIJs with the aid of international agencies like UNESCO upon the initiative of local and metropolitan governments. Strategically situated between powers that have historically been at odds, small islands which have been caught up in conflicts, such as Kinmen (a part of Taiwan), Jeju (a semi-autonomous province off the coast of South Korea), and Martín García (an enclave of Argentina in Uruguayan waters), have attracted such attention and are being promoted as sites for peace tourism. Since air transport is a prerequisite for tourism (Titchener, 1992: 180), creating awareness of tourism and heritage opportunities, even in sites that were formerly negative, can ultimately attract investment in transportation facilities for visitors from nearby states as well as those from far away.

Even the smallest islands can turn what may seem insurmountable geographical obstacles into positive elements. Tiny St. Barths capitalizes on the mystique of its remoteness and inaccessibility, using the very low capacity of its air and ferry services to limit tourist access (Baldacchino, 2006: 191). Exclusivity helps to maintain the traditionally quiet lifestyle and high living standards, adding value to its high-end tourism product and world-wide reputation as a peaceful refuge for the well-to-do.

Moving in the opposite direction, over the past half-century, some
sub-national island jurisdictions have been transformed from romantic old-world capitals and sleepy backwaters into bustling mega-cities and strategic nodes on international transportation routes. From a low of 610,000 people at the end of World War II, the island territory of Hong Kong has grown phenomenally to a population of seven million today, welcoming 28 million visitors annually. There is a strong link between tourism and the airline industry (Bowen, 2000: 27). Hong Kong's international airport on a small island off the northern coast of Lantau Island was the world's largest civil engineering project when it opened in mid-1998. Situated on international shipping lanes or flight paths, other high density islands include Macao and Singapore in Southeast Asia, as well as the Canary Islands, Corsica and Madeira off Europe, to name a few (J-Project). Besides being significant tourism destinations, these islands also serve as significant international airports, container ports, cruise terminals, transshipment sites and offshore economic zones, becoming mega-ports due to national development and transnational corporation (TNC) strategies. Despite resistance from some long-term residents, the former Portuguese colony of Macao has become a major casino centre as well as an international port, tapping into the huge penchant for gambling that is developing in new entrepreneurial China. The ultra-modern mega-port and shopping mecca of Hong Kong takes pride in its environmentally advanced engineering and nature conservation policies despite the smog that often intrudes upon its residents due to industrialization in neighbouring mainland areas of China.

**Long-Haul Routes and Nodes: Air and Sea**

While many islands are passed by international long-haul supply routes, close proximity does not necessarily mean better access or security of supply for islands. Small-scale island destinations are also faced with a variety of barriers in the domain of economic geography and bilateral aviation agreements that are inherent in global transportation networks.

Long-haul air transport began in the early 20th century as a romantic and considerably faster means by which to connect colonial powers to their far-flung empires. Many of those links have receded and today, the modern airline industry is driven by a harder business/money-making rationale as technological development continues to improve the industry's economic viability (Weber and Williams, 2001: 243). Long-haul routes tend to operate between large urban areas. Burghardt (1971) has suggested that some minimum level of productivity is necessary for an area to be able to spawn large central places, and that there is a critical dimen-
sion below which a region is simply too small to allow for the growth of competing central places. These central places or “gateway” cities (hubs offering international services), are said to evolve in accordance with “the tyrannies of distance, land and proximity” which correspond to transport costs, land scarcity and value, and the need for direct personal interaction, respectively (Weber and Williams, 2001: 245). But does this imply a limit imposed by geography on the growth of competitive airline hubs in small places like islands? Evidence of the successful development in 2007 of a major international airport on the very small island of St. Maarten in the Caribbean in close proximity to another major hub at San Juan in Puerto Rico suggests not. In fact, other competing airline hubs in the region are also found in nearby islands such as Antigua and Barbados which are sovereign. While San Juan’s position as a hub demonstrates the tendency for a primary centre to retain its gateway status due to its inherent inertia as an established centre (ibid.), Bowen (2000) suggests that the degree to which a secondary centre (as exemplified by St. Maarten) will attain the status of gateway depends upon bilateral air services negotiations as well as national spatial development strategies and airlines’ strategies.

Even if geography is overcome through the development of air transportation links to islands, another major barrier is evident in the form of access agreements. International air law is based on the principle of “complete and exclusive” sovereignty by a state of the airspace above its territory. As a result, long-haul civil aviation routes are regulated through a complex web of bilateral agreements between countries (Weber and Williams, 2001: 247). While a common market initiative in aviation has succeeded in Europe, liberalization beyond bilateral agreements to open skies agreements has been controversial in America (ibid.) which is an aviation superpower. Part of the success of St. Maarten as a major aviation hub in the Caribbean is due to its SNIJ relationship with the Netherlands and the European open skies agreement (SEAM) which enables relationships with a multitude of air carriers from Europe. San Juan, meanwhile, services many American carriers and those which have agreements with the United States. While some SNIJs may enjoy preferential access to such agreements through or with the support of their respective metropolitan patrons, without being parties to open skies or bilateral and multilateral agreements, many other islands may be stymied in their negotiations with foreign carriers that allow them to establish service to the island.

On the sea, access to global transportation systems may be equally complicated. Modular container shipping, invented in the 1960s, has
been credited with contributing to accelerated globalization: containerization has facilitated “just in time” production which has allegedly led to improved schedule reliability, lower costs, high security and faster transport times (Notteboom, 2006: 19). The global container industry is an oligopoly with enormous market power, and by 2010, 89% of all cargo trade is forecast to be handled by containers (Crowley and Kymlicka, 2006: 5). Shipping lines strive for low operating costs, high frequencies, fast transit times, and both tight and reliable voyage schedules; as productivity improves with faster and larger ships, different shipping patterns throughout the system have become integrated (Notteboom, 2006: 21). The three major east- and westbound arterial routes are the trans-Pacific (world’s largest, from Asia to the west coast of North America); Asia to northern Europe (second largest); and the trans-Atlantic (northern Europe to the east coast of North America) (Wang, 2006: 24). A single event, such as the widening of the Panama Canal, could change these patterns considerably. Besides container ships, bulk carriers and tankers transport oil, liquefied natural gas (LNG) and other products by sea around the world from the Middle East, the North Sea, South America and elsewhere to refineries, storage facilities and consumers largely in industrialized countries.

Alternative marine transport provided by small feeder shipping lines has been an economic lifeline for islands, carrying a vast array of imported necessities as well as the low value, high weight agricultural exports often typical of small islands (Titchener, 1992: 180). Yet there may be infrequent shipping connections, relatively high freight rates and a lack of inducement to shipping operators as a result of low volumes. Many remote islands off international shipping lanes are even less well-served now as small feeder shipping lines become unable to compete in a concentrated industry that also faces offsetting growth in air travel and telecommunications. It is revealing that Dutch and American SNIJs on major shipping routes in the Caribbean such as Aruba, Curacao, St. Eustatius and the US Virgin Islands have been able to obtain rents from TNCs by hosting refineries, transshipment facilities and storage depots which are often claimed to be state-of-the-art in safety and security. With access to the resources within the metropolitan state, these host SNIJs may be less at risk of major economic disruption and loss of control if the capital investment moves in response to corporate concentration and the vagaries of the international market; however such risks may be exacerbated where small island governments are marginal actors and TNCs are allowed to operate without local input.
**Economic Zones and Creative Taxation**

In the Baltic Sea, the Åland archipelago between Finland and Sweden, a SNIJ with only 26,770 inhabitants, has turned island geography to advantage by specializing within maritime transport and related services. With shipping and ferry services accounting for 40% of its GDP (Jurisdiction Project, 2007), the Åland economy was ranked the 18th richest region out of 206 in the EU in 1998 (Lindström 2000: 114). Millions of passengers sail every year between Sweden, Åland and Finland, and as well, in the wake of disintegration of the former Soviet Union, the new Baltic states of Lithuania, Estonia and Latvia provide an additional market for Åland shipping interests (Buchhofer, 1995: 73). Between 2000 and 2005, ferry passenger statistics in Åland, while still rosy, had levelled off, with 20 ferries carrying over one million passengers annually; its merchant fleet had 61 vessels of which 44 were registered under Åland and Finland flags (Statistics Åland, 2006).

The Åland maritime success has been attributed to a longstanding tradition of entrepreneurship, economic networks, strategic business knowledge, and nearby markets (Lindström, 2000: 115). Shipping has been a career opportunity for centuries and is a curriculum choice for youth in Åland schools. As well, Åland has far-reaching constitutional autonomy that protects its Swedish cultural identity in its semi-autonomous relationship with Finland. It has been able to opt out of international agreements signed by Finland and obtain a special exemption from EU tax harmonization and VAT rules. While Åland operates under economic rules that are very much modeled by the Finnish State which collects taxes, duties and fees on goods destined for Åland, sales of goods on the ferries between Sweden and Finland are tax-free provided they stop at Mariehamn or Långnäs. In return for what it collects, the Finnish Government places a sum of money at the disposal of the Åland Parliament (http://en.wikipedia.org).

The downside of a loophole such as the Åland tax exemption is the risk of “Dutch disease” whereby a large inflow of foreign currency in one sector, in this case, shipping, tends to decrease the competitiveness of the rest of the economy over the long term. It is noteworthy that, although a few high-profile technology companies are contributing to a prosperous economy, most companies in Åland aside from shipping are small, with fewer than ten employees.

Other SNIJs with buoyant economies related to the transport sector, such as the Canary Islands, the Commonwealth of Northern Mariana Islands (CNMI) and Madeira, are also using tax and legislative loopholes...
in offshore economic zones where semi-processed goods in transit such as textiles or electronic components are assembled on the islands and shipped under the label of the originating country to a third country. Again, good governance is the key: abuses are more likely to be found where labour or immigration legislation in a local jurisdiction is weak, and unscrupulous offshore companies from the metropolitan state and elsewhere are allowed to set up sweatshops in zones to take advantage of cheap foreign labour or indentured workers (Smith, 2001: 382).

**Mindscapes: Changing the Reaction to Geography**

The foregoing examples illustrate how sub-national island jurisdictions have used geopolitics, strategic military resources, metropolitan bilateral agreements and taxation policies to leverage their economic development. We can see that geography has a major role to play in shaping the structure of transportation infrastructure and services, but that jurisdiction and creative vision are equally important resources to create opportunities and overcome obstacles in small islands. In this next case study, we engage a perspective informed by other SNJJs to examine a sub-national island jurisdiction in a cold-water northwest Atlantic region with a different set of geographic characteristics.

Prince Edward Island, at 46° N latitude, is a low-lying sandstone island province of 5,620 km² situated on the Atlantic coast of Canada. It is separated from sparsely settled neighboring Canadian provinces by the narrow Northumberland Strait on the south and by the broad Gulf of St. Lawrence on the north. Although these waterways become partially ice-covered from January to March-April each year, the Island has several ocean ports along its southeast coast. Its economy, with a relatively stable population of 138,000, has traditionally relied upon seasonal industries (agriculture/forestry, fisheries and tourism), supplemented by federal government transfers of over 35% of provincial government revenue (J-Project). Although the province had extensive internal rail and ferry systems to supplement horses and horse-drawn vehicles during the 19th century (MacDonald, 1998), these nostalgia-rich modes of transport no longer exist. As a result of the fossil fuel revolution of the 20th century, highway infrastructure and mechanized agriculture now dominate the built environment and the landscape, with personally-owned motorized vehicles numbering almost two per Island household by 2003. Like many islands, extensive use of imported fuels in the transport sector places a significant burden upon the Island economy, besides creating urban
sprawl, using significant amounts of arable land for pavement, and releasing carbon emissions that contribute to global warming.

For passenger and truck traffic, the two traditionally important ferry ports on the south coast were reduced to only one in 1997 when the Confederation Bridge link was established to the mainland. Kept alive by strong lobbying of the federal government and partial reliance upon a federal subsidy due to fluctuating traffic levels, the remaining Wood Islands ferry port sustains economic development in the region and provides a convenient three-season crossing to northern Nova Scotia (only two hours from Halifax) from southeastern PEI. As well, a federal crown corporation provides a limited year-round icebreaker ferry service from Souris in northeastern PEI to supply the Magdalen Islands, a remote archipelago of Quebec 50 km to the north in the Gulf of St. Lawrence.

Access to Prince Edward Island by air has also steadily grown since flying was first introduced to the Island in 1912 and the Charlottetown civic airport became operational in 1932. The facility was loaned out to the British Royal Air Force for flight training of 1,200 pilots from the Commonwealth during WWII. In 1944, the Navigation School was transferred to the military airbase in Summerside which has since been converted to civic use as a multi-purpose aerospace industry facility. The civic airport in Charlottetown was operated by the federal Department of Transport from 1944 until it was divested to a new local Airport Authority in 1999 which was given the mandate of making the airport economically viable. In that year, the number of passengers was 179,000. Under local management, viability has been achieved and expectations surpassed, with the number of air passengers rising to 225,000 by 2006 (Charlottetown Airport Authority, 2007).

The makers of federal transportation policy in Canada’s distant capital, Ottawa, have historically held complete jurisdiction over external transportation and shipping in Prince Edward Island. With a wealth of natural harbours, Canada is one of the most island-rich countries in the world, having a long coastline at the edges of three oceans that present marine, environmental and national security issues. In 1995, the Government of Canada revised its transportation strategy towards major structural adjustment. As well as the airport transfers described above, by fiscal year-end 2001, it had implemented a Canada-wide strategy to transfer or remove from inventory 390 of 549 public seaports (71%) originally operated by Transport Canada, 262 of which were in Atlantic Canada (Transport Canada, 2006). The aim of the divestiture program was to focus support on the safe and efficient movement of vessels and cargo in
larger urban ports such as Vancouver, Montreal or Halifax designated for Canada Port Authority status. Responsibility for decision-making was divested to smaller communities and other regional/local groups under provincial or municipal authority, along with significant transition funding to encourage private commercial development and local development. Under the new plan, communities were allowed to own their local facilities, control their use, set their own tariff structures, and determine the levels of service and maintenance required. The federal government anticipated that the new owners of some small airports and harbours would be unable to achieve economies of scale or bear the municipal tax burden (Transport Canada, 2002), and such air and sea ports were not expected to survive this transition.

Prince Edward Island's four underutilized natural harbours offer physical and structural facilities for ocean cargo shipping (Transport Canada, 1980: 2), primarily used now for the export of seed and table potatoes. Only Charlottetown was forecast to operate at a surplus over a 20-year period (Geoplan Consultants Inc., 1996: 6). Souris, Georgetown, Charlottetown and Summerside still enable the traditional importation of aggregate and shale for road-building; liquid fuel for trucking and domestic heating; and a few shipments per year of heavy supplies and equipment. Charlottetown Harbour, open all year, was considered by the federal government as the only port with the depth and expanse for large icebreakers to maneuver in heavy ice conditions; as a base headquarters for a Coast Guard District, icebreakers move in and out of the harbour throughout the year (ibid.). The smaller ports occasionally handle dwindling exports of bulk pulpwood, seed potatoes and tinned milk to distant markets between mid-April and December, and some transit sheds have been renovated.

Back in 1980, Transport Canada had noted that,

History records great rivalry between the various ports even back to the mid 1800's when shipbuilding and timber exports were the mainstays of the Island economy... the same rivalry appears to be as prevalent today. Any mention of 'port development' or 'all weather port' activates the community leaders of the four harbours to begin an immediate campaign to attract whatever it is to their area... attracting an activity as labour-intensive as stevedoring has a marked effect on the economy of the whole community.

The opening of the Confederation Bridge to the mainland in 1997 reinforced the trend for PEI producers to move away from local marine shipping for heavy/bulky products. They became more reliant upon the
Pulling Strings

inter-provincial trucking industry to haul their heavy potatoes longer distances to larger mainland ports and urban areas via all-weather paved highways. Consequently, the agricultural and fishing industries began to focus more heavily on value-added food processing. The government of the day pursued diversity in manufacturing with increased emphasis upon international competitiveness and the development of aerospace and knowledge industries to augment the traditional industry base.

Discussion

Unlike the other examples of sub-national island jurisdictions noted above, Prince Edward Island no longer has significant geopolitical, military or natural resources; it is not a low tax economic zone nor does it enjoy a strategic location as a global shipping node. With only 0.004% of the national population, PEI has been overlooked as a provider of transportation services in Canada, partly due to winter ice, but primarily due to federal policy. It is this policy that recognizes and supports urban ports such as Halifax, NS; Sydney, NS; Saint John, NB; and St. John’s, NL, in areas of national and military interest to Canada as a whole. These urban ports attract the majority of shipping activity and vie for international container and cruise traffic along the Eastern Seaboard. Situated in Canadian waters inside the Gulf of St. Lawrence, PEI ports are among the forgotten, but they are only marginally out of range as nodes on container or tanker traffic lanes destined for northern Europe and the Mediterranean from the Port of Montreal and the Great Lakes. With modern ice-breakers and accelerating climate change, the presence of ice in the Gulf around eastern PEI during the winter months is no longer an insurmountable barrier or even a given, especially if the late autumn potato crop is no longer considered a primary cargo that demands shipment during the off-season.

In fact, Prince Edward Island’s significant prosperity in the 19th century was created by transatlantic trade in timber, agricultural products and settlers flowing between PEI and Newfoundland, New England, the Caribbean and Great Britain. When this waned as wooden sailing vessels were eclipsed by steamships, Prince Edward Island then became known for its pastoral landscape of agriculture and inshore fisheries, but with little control over markets for these commodities. Yet by 2000, the Province’s international exports had reached almost $700 million, primarily in agriculture and fishery products (PEI Provincial Treasury, 2005). As well, PEI has created an international market for its tourism, niche
products and education programs with its limited jurisdictional powers. Mega-ships carrying people have moved onto the radar of Prince Edward Islanders, leading to a renewed interest in the sea. Mass cruise lines from the urban centres of Boston, New York and Montreal are being courted in the PEI capital as a panacea for a lagging tourism industry that is reaching maturity. Despite opposition from environmentalists, the municipal port authority is busily dredging and enlarging a berthing facility in the scenic harbour, aided by transition funding from the federal government.

The environmental drawbacks of the mass cruise ship industry have not gone unnoticed, and as well, questions have been raised about the actual economic impacts accruing locally from irregular bursts of commercial activity downtown as each of these large cruise ships disgorges its human cargo for just a few hours. Certain large cruise lines have been accused of exhibiting poor corporate citizenship, being deceptively attractive to the local tourism industry while they simultaneously exploit labour, burn fossil fuels and flush wastes in vulnerable waters (Klein, 2006). Due to scale, it is plausible that such mega-ships inflict significant damage on the environment, all the while operating within a regulatory vacuum.

Yet, despite the bad reputation of the largest cruise ships, local and regional incentives may reinvigorate a more appropriate vision for this industry based on smaller ships. Today, with renewed environmental awareness, PEI’s location in a large body of constantly flushing cold water, bordered by areas of sparse population, pristine wilderness and peaceful, small-scale communities along the coast is not necessarily a drawback. For example, helicopter and fixed-wing flights to witness seal-hunting practices in the Gulf of St. Lawrence already attract celebrities and tourists against the hunt each spring. At PEI ports in the warmer seasons, in conjunction with regional initiatives, ecotourism could be supported and extended with high-tech small to medium-scaled ocean-going floating hotels and sailing ships for passengers mindful of the marine environment, exploring the Gulf of St. Lawrence. In addition to summer touring, cruises to cold, remote places in Alaska, Greenland and even the Northwest Passage are already proving popular. Winter ice conditions are far less rigorous in the Northumberland Strait than in the Arctic for appropriately powered and ice-strengthened ships. Less harm could be done in PEI over the long term by establishing exemplary environmental regulations and attracting vessels of the appropriate size that are owned by responsible corporate citizens with more than just an
exploitative interest in the region. From Asian SNIJs on global transportation nodes, we learn that the key is to provide what is not available in the tourist’s familiar surroundings back home, which is typically an urban metropolitan area.

PEI fishing ports have declined along with the presence of fish in the Gulf, and the task of obtaining prosperity from the sea and maintaining good stewardship of the inshore fishery is difficult at best in Prince Edward Island. Although PEI has disproportionately large representation in the national Parliament and the Senate, as well as a representative in the federal Cabinet by tradition, implementing appropriate regulations and enforcing control over the types of vessels and technologies permitted in its waters puts the Island’s interests against those of competing metropolitan areas. On the other hand, inshore areas fall under existing island jurisdiction, and if the political will can be found, rehabilitation of inshore waterways based on better environmental management and improved sewage treatment by communities has potential to reinvigorate local harbours and a small scale or recreational fishery over the long term. From the management of geopolitics as a resource by SNIJs in the Pacific, we learn that we can apply even the most tenuous forms of jurisdiction as a resource to achieve objectives through astute observation and negotiation with metropolitan powers. Prince Edward Island is already in a good position to employ significant jurisdictional power to accomplish goals in many areas.

In view of the tiny Åland Islands’ extensive control over shipping in the Baltic region, and as compelling as the need is to diversify from agriculture and heavy industries which are harmful to the environment, turning away from PEI ports flies in the face of history. Prince Edward Island could be considered strategically situated downstream from the inland port of Montreal on the St. Lawrence River. One could speculate that within the Canadian context, PEI has potential to be an efficient supply centre and offshore economic zone for the trade of goods and services by sea for nine to ten months of the year. In a time when global energy supplies from fossil fuels should be conserved, efficiency is to be gained by using the sea at the doorstep to ship modular containers as well as heavy or bulky products. For example, PEI has become a North American leader in wind power generation, producing abundant green electricity and beginning to free itself from the tyranny of imported fossil fuels which influences where infrastructure can be located. It has potential to become a world class manufacturer or assembler of very large turbine equipment for regional and overseas markets provided suitable

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infrastructure were in place, including competitive port services. Turbine blades are currently manufactured in Europe where there is a significant backlog for delivery across the Atlantic Ocean. As well as having space for facilities, PEI has already demonstrated the international competitiveness and skill of its workers during the assembly of the Confederation Bridge, whereby modular concrete components for the Bridge were placed on the floor of the sea by the largest lift crane in the world at the time, the Svanen. In this era of global warming and the need to control fossil fuel emissions produced by land vehicles, shipping by sea is still considered the most efficient as well as economical mode for transporting heavy or bulky cargoes. At sea as well is a new generation of sailing vessels employing state-of-the-art wind and solar technologies. With sufficient R&D at a national scale, Prince Edward Island could stand to gain from its long-standing experience and knowledge in wind energy applied to transportation. Without recovering our clear vision of the sea, and maintaining and upgrading the local port infrastructure already in place, such opportunities could be lost.

An immediate challenge for Prince Edward Island is ensuring a viable future for its aviation and aerospace industries. Competing international airline hubs in Halifax and Moncton offer long runways and modernized infrastructure. These airports lie in somewhat close proximity to Prince Edward Island and have positioned themselves as hubs to service local feeder airlines in the region. Despite the comfort and attractiveness of these airports for travelers, there are still financial, temporal and cultural barriers for visitors and inhabitants alike to cross the Confederation Bridge for access to air services in the neighbouring provinces. With increasing liberalization of airspace, new airline technology and the resulting development of non-stop long-haul flights to Charlottetown on carriers from Canada’s largest metropolitan centres in Toronto and Montreal as well as Detroit in central United States, Prince Edward Island is proving that it too can compete in serving long-haul routes on its own terms. The lessons from St. Maarten and the other regional hubs in the Caribbean indicate that geography need not be seen as a limit on available options. Further development of airport infrastructure and successful negotiations with federal authorities to access more customs and excise services are presently on the agenda of the provincial government and the local airport authority. A small amount of federal support can go a long way in a small jurisdiction. Prince Edward Island has the capacity to embrace a diversity of international tourism markets and attract more settlers from further afield. The ability to access carriers from Europe and
other continents beyond North America for more choice and competitive rates is a worthy goal to pursue that augments the alternatives being offered by neighbouring regional airports.

Conclusion
This paper seeks to discern lessons from sub-national island jurisdictions (SNIJs) that are not normally considered when discussing transportation. The SNIJs referred to in this paper have in some way exploited and capitalized on their airspace, territorial waters, seaports and harbours to solve their transportation problems as well as enhance their global economic competitiveness and development. The arguments presented in the context of transportation and access result in the following conclusions:

(a) **Perceptions about geography matter.** An island can be seen as an ice-bound, powerless place surrounded by more powerful metropolitan neighbours who have complete control over transportation and access, or it can position itself as a dynamic node in any number of alternative systems linking long-haul routes to more distant destinations.

(b) **Environment matters.** Taking a long view of global conditions from the perspectives of other SNIJs allows us to see the big picture quickly and concisely. Issues such as global warming and sea level rise due to the impacts of dysfunctional large-scale transportation systems are eventualities that need long-term planning and avoidance today. The experiences of SNIJs in dealing with such impacts, both positive and negative, and with alternative systems, can be especially instructive for islands which bear the brunt of environmental catastrophes.

(c) **Alternatives matter.** SNIJs around the world in all their diversity show us that there are small-scale alternatives to many of the practices and processes we take for granted (such as mass tourism) that are less harmful and growing in demand in certain markets that are willing to seek out and pay for other options.

(d) **Taking charge matters.** SNIJs such as the Åland Islands demonstrate that taking charge of capital-intensive transportation modes and nodes by SNIJs is quite possible, and furthermore, it can prove to be very profitable.
(e) Imagination and creativity matter. Examining SNIJs can help us rethink geography and dream of new possibilities grounded in the realities of places we don’t normally consider.

Sub-national island jurisdictions can employ flexibility and the benefits of their small scale social milieu to embrace a dynamic view of their geography that is more liberating than limiting. Just as Asian economies have created dynamic global nodes on international transportation routes over a short time, we have seen that Prince Edward Island has taken steps to quickly adapt its industrial base to using land transportation as a result of changed federal policies and major structural adjustment. By taking account of trends and initiatives in other SNIJs around the world, PEI can also make the case for expanding its air and seaport facilities for future advantage within changing global conditions, particularly in tourism and energy research and development. Perception matters — encouraging a mindset that addresses islands as strong players in both local and global contexts is a formula for success. With the aid of their metropolitan partners, adaptable, resourceful SNIJs are in a good position to absorb inevitable changes due to globalization while at the same time selectively building upon important legacies from the past.
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