

HEALTH, HUMAN SECURITY AND THE PERI-URBAN TRANSITION IN THE MEKONG DELTA: MARKET REFORM, GOVERNANCE AND NEW ANALYTIC FRAMEWORKS FOR RESEARCH IN SOUTHEAST ASIA

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ABSTRACT

This paper identifies links between (i) the emergence of a global niche in food processing export industries such as those in Vietnam and similar regions of Southeast Asia, (ii) new forms of governance associated with these dispersed but densely settled industrial regions that result in a highly decentralized model for water service provision institutions, and (iii) some of the potentially emerging health challenges associated with such rapid peri-urbanization, changing consumption patterns, and decentralized provision of basic infrastructure. Such settlement and institutional transitions have made the job of the urban planner more complicated even as it may increase the level of threat to human and environmental security through the emergence of previously unknown diseases like avian influenza or the re-emergence of formerly controlled ones such as dengue fever.

INTRODUCTION

The pairing of two amorphous terms like "globalization" and "cities" that form the background frame for this special issue can be illuminating for theory and practice simultaneously. The two terms originate within a Western tradition of scholarship and have usefully explored the development of human society as being fixed in particular locations known as cities, but with extensive network relationships across space that has most recently become known as globalization. Thus, the coupling proposed here apparently juxtaposes one construct of stasis with one of movement and transition.

The language of cities – neighborhoods, plazas, central business districts, infrastructure – has quite a different feel than that of globalization – transnational capital, migration, outsourcing. Combining the two, however, may lead to useful insights when the one term is substituted for the other to interpret empirical evidence. As importantly, such a theoretical

re-orientations may lead to improved policy debates that result in better governance in a similar way to the coupling of mobile "people" and static "places" in the study of North American cities and public policy (e.g., Gyourko 1998; Gramlich & Heflin 1998; Spencer 2004). The case of Southeast Asian cities is an apt one for better recognizing how global urban agglomerations develop in poor countries, and how these new urban forms challenge assumptions of a well-defined city with clear institutions, residents, and even boundaries. It also clarifies why attention to better understanding these new forms is so important for policy makers and those in wealthier countries.

A reading of the popular press globally and regionally in politically and economically transitioning Southeast Asia suggests some of the background of why localized urbanization processes have global ramifications. The Mekong Delta region, for example, has historically been the site of economic globalization and transition since before the colonial period (Brocheux 1995; Cooke & Li 2004; Taylor 2007). More recently, the region's current engagement with globalizing forces has been at the center of several worldwide debates on integration and human security. In particular, the region has had to deal with economic, governance and health crises that have global implications. For example, from 2000 to 2004, the Mekong Delta was at the center of a free-trade debate about basa catfish that some popular critics believe may be a threat to Vietnam's economic integration. Since 2003, it has simultaneously been at the center of a global wave of concern with a potential avian influenza pandemic that has sparked a mobilization of several billions of dollars invested in global public health. Finally, the potential loss of Vietnam's fertile Mekong Delta agricultural lands to the development of upstream mega-dams (e.g., Guo 2007) and to growing patterns of market integration and urbanization (e.g., Spencer 2007c) has led to greater efforts at regional cooperation such as the Mekong River Commission, the Greater Mekong Subregion of the Asian Development Bank, and even a subcommittee within ASEAN. These simultaneous developments have been widely debated, each within the confines of their own institutional and political parameters. In the first two cases, this has happened because they are local problems that potentially affect residents of wealthier nations, and in the last case because it points out some of the physical and environmental impacts of market reforms in Vietnam and elsewhere on local resources. An examination of how they may be related and cumulatively causative, however, can lead towards the development of new institutions, policies, and plans that help overcome new global policy dilemmas. Examining the relationships among disparate development dilemmas in the Mekong Delta can open a new window onto

the relationship between the local and the global in the context of rapid urban development and economic reform.

In this paper, I describe recent processes of urbanization in the Mekong Delta that are characteristic of lowland Southeast Asia's recent history. In doing so, I make the case that there are underexplored links between globalization and urbanization due to a focus on highly urbanized areas rather than newly developing peri-urban areas that may be more accurately described as agricultural city-regions. Through the lens of "transitions" – economic, governance and health transition – this paper explores a rapidly developing settlement pattern that constitutes a new, peri-urban reality for residents of much of lowland Southeast Asia, and how policy makers might best understand its differences from more traditional city forms.

I choose the case of Vietnam and the Mekong Delta because the rate of change in socio-economic and environmental transition most related to urban form and society is one of the highest in the world. In particular, those countries such as Vietnam integrating into the market are particularly interesting points of research and inquiry because they challenge existing categories of urbanization and development currently cemented in both policy practice and in the policy imagination. More than critically complicate what are intentional policy simplifications of reality, however, this paper suggests that new policy simplifications and languages are warranted. Ignorance of, and inattention to the need for developing a new language to describe cities can place public policy and the public good at the mercy of the gap between the theoretical tidiness required for policy development and implementation, and new empirical complexities.

GLOBAL URBANIZATION: THE FACTS

Over the past several decades, the globe has become increasingly urbanized both physically and socially. According to United Nations (2005) statistics, between 2005 and 2010 over half of the world's population will be living in urban areas. In particular, Africa, Asia, and to a lesser extent Latin America have experienced significant urban growth in the 20th century that has increased rapidly since the 1970s, and is expected to keep pace through the mid-21st century.

The UN estimates that between 1990 and 2005, the share of the world's population living in urban areas grew by 13.2%. This proportion for the developing regions of the world grew at a much higher rate of 21.9%. Asia's urban share grew at a slightly higher 24.8% rate, while Southeast

Asia outpaced all other regions with a urban share growth rate of 38.6%. The other major agrarian region, sub-Saharan Africa, urbanized at 25.3% (United Nations 2005). It should be no surprise that these two regions are positioned to make jumps in global integration over the coming decades – Africa for the major gains to be made against its currently weak institutional environment, and Asia for the growing ability to overcome its language diversity. Overall, though, the data clearly show that the world is becoming more urban, and that Southeast Asia is at the leading edge of this global phenomenon.

Urbanization is a construct, on the surface no more compelling than "economic development" or "modernization". Moreover, because it generally happens in concert with these other two constructs, it is never clear which drives the others (if any), and why the analyst should prioritize the one over the other. As I will review in the context of economic transition, a focus on urbanization is unique in that prioritizes the spatial characteristics of development. Like some other useful constructs, this lens links institutions, populations, and the built environment, such as roads, shelter, other infrastructure, and – in the case of lowland Southeast Asia – waterways, in specific locations. The explicit spatial frame, however, uniquely integrates the socio-environmental transitions associated with development, and in particular, those relationships between human settlement and the ecosystem as societies transition from undeveloped agricultural societies to more developed, urban ones. This also allows for an understanding of macro, landscape-level environmental transformations that are increasingly important as an independent driver of emergent global health problems. Thus, unlike other frames for defining the major globalizing transformations underway, such as "economic integration" or "modernization", the physicality of the "urbanization" frame at the landscape-level directly connects human behavior to both the human and the non-human infrastructure and environment in which it is embedded.

To date, the current period of urbanization in developing countries has been referred to as a transformation, or an "urban transition" from a wide range of planners, sociologists and development practitioners (Friedmann 2005; Waibel 2006; Kessides 2006) rather than as a simple increase and concentration of populations. This distinction points towards a definition of urbanization that includes two parallel processes – population concentration and the development of socio-physical infrastructure to manage the inevitable conflicts and problems associated with higher density living. This urban transition in developing countries describes societies that have rapidly changed from primarily rural to primarily urban forms of social and physical organization in relatively short time periods (Montgomery

et al. 2004). Vietnam, for example, has gone up from 20.3% urban in 1990 to 26.4% urban in 2005, a 29.6% increase. Thailand's urban share increased at a lower rate of 9.9% from 29.4% to 32.3%. Indonesia and Cambodia, however, showed remarkable increases. In 1990, Indonesia's urban share was 30.6%, but by 2005 it increased by 57% to 48.1%. Even though a much smaller population base, Cambodia showed similar growth, going from 12.6% urban in 1990 to 19.7% urban in 2005, a 56.3% increase over 15 years (United Nations 2005).

Attention to this urban transition in Southeast Asia points out a generational gap in society and the need to generally develop new social, economic and political institutions able to manage new settlement patterns and lifestyles. Some of the broader implications of this transition, however, remain unexplored. The rest of this paper follows the relationship between simultaneously and mutually dependent transitions in the economy, governance, and the nature of health challenges in the Mekong Delta that increasingly demand attention from a global audience. Its assumption is that urbanization is primarily driven by economic and industrial changes in the physical environments within which people live that includes denser housing, increased demand for public services, and more direct forms of government and governance. Thus, economic change has driven changes in the built environment that creates new urban ecological environments that go well beyond physical differences from rural environments to include major new social environments as well. These new urban socio-physical ecologies present new challenges that in turn require new forms of social organization to provide basic services such as water and sanitation, housing, and public health.

Where these services are not provided, the challenge of new health risks has emerged (Oliveira et al. 2004). Thus, the urban health challenge is not simply that urban ecologies exist so much as the mismatch between the rate of industrial change and the new socio-physical changes that it generates, and the forms of new institutions necessary to govern them.

ECONOMIC TRANSITION IN VIETNAM: INDIGENOUS ECONOMIC CLUSTERS, INDUSTRIAL POLICY AND THE POLITICS OF TRADE INTEGRATION

Although much has been written recently about Vietnam as a transitional economy (Fforde & De Vylder 1996; Arkadie & Mallon 2003), the framework has been that of development economics that deals with many of the institutional and political changes underlying rapid economic

development. While important for understanding the macro-scale changes driving Vietnam's development, absent from these perspectives is an extensive grounded analysis of the spatial characteristics of these new economic relationships, and the ways in which different regions of the country may evolve differently based on economic production.

Industrial Clustering, Southeast Asia and Indigenous Industries

In order to understand the relationship between globalization and urbanization in the developing world, and in particular Southeast Asia, some background on urban economic and regional development theory can be helpful. During the 1990s there was a resurgence of attention to the dormant field of urban economics (e.g., Storper 1997; Krugman 1995; Fujita, Krugman & Venables 1999) in recognition by some economists and geographers of the need to better understand the difference between the forces of national economic development and those forces creating and developing urban agglomerations in what falsely appeared to be a "globalizing" environment in which location and space was decreasingly important (Leamer & Storper 2001).

This resurgence is the most recent rebirth of a long lineage of urban economists. The first generation of such thinkers based their ideas, in large part, on the relationship between "economic spaces" and location. They defined economic spaces as "Marshallian" industrial districts, or industrial complexes of input-output relationships in the production of industrial products, whereby firms produce many intermediary products for multiple other firms that end up as final goods. Thus, every good or service is characterized by a set of upstream and downstream relationships that are either dependent on or independent of physical proximity. Where they depend on physical proximity, urban agglomerations develop. From this perspective, economic development is inherently spatial, and policies to promote economic development must necessarily include appropriate attention to space.

Linking multiple Marshallian industrial districts, a Ricardian approach to urban economics advanced the notion of global networks of such districts trading goods for mutual advantage (North 1955). Along with these analyses of cities' relations with one another came descriptions of how unequal relations across regions tend to become solidified. As rich regions begin to trade with poorer ones, their more complex division of labor structure and the technological advantage this confers on their region will cause minor "spread" effects and major "backwash" effects. These spread effects are the gradual dissemination of economic development outward

from the core of the wealthier region, but a concurrent wave of migration of capital from rural and poorer regions trading with the rich region to take advantage of the higher productivity of the richer region. This migration of labor and capital out of the poorer region, they predict, will trap the poorer region into a cycle of poverty with no market mechanism available to bail it out.

This differentiation can lead to technological innovation in the major industrial districts that creates new sources of wealth. Some go so far as to call these "technology districts" (e.g., Storper 1992). The post-Cold War period, however, has created a new context for the study of urbanization – in particular the urban agglomerations of relatively poor agro-industrial regions – and it is not clear whether this analytic toolbox is adequate for describing the massive urban growth rates in Southeast Asia.

Economic explanations of strong urban agglomeration centers on the clustering of firms within an industry, technology spillovers from regional universities, and shared labor forces. These characteristics can create dense formal and informal relationships that are resilient and "sticky". Essential to them is the concept that *indigenous* small and medium-sized productive firms see advantages in co-location. Ironically, however, much of the literature on regional development and the urban policy it has generated in the developing world has focussed on creating *new* industries. For example, industrial tax incentives that have historically attempted to foster such clusters in industrial and rapidly industrializing societies has been one of the main foci of much scholarship. This is not surprising, given that much of the rigorous empirical research done in the developing world is connected to policy institutions that have developed over 850 place-based export processing zones, special economic zones, and industrial zones granting tax holidays, targeted infrastructure improvements, and reduced administrative procedures scattered across the world to attract mobile transnational manufacturing firms and sometimes domestic investment capital to poor and developing regions. Evaluations of these zones reflect mixed results at best (Madani 1999; Peters & Fisher 2002; Amirahmadi et al. 1995; Warr 1987, 1989; ILO 1998).

These results may be due, in large part, to the fact that while industrial tax incentives show the most promise for industrial districts and sectors that have evolved over generations through relational contracting (Williamson 1985; Fukuyama 1995), industrial policy makers for developing countries such as those comprising Southeast Asia rarely target these sectors. One such production process in rapidly industrializing poor countries such as those in Asia, and in particular Southeast Asia, is food. Some studies have examined the clustering of food industries in the

developed countries, finding persistent spatial clustering similar to manufacturing sectors (e.g., Brasili & Fanfani 2004; Munnich & Schrock 2003). Nevertheless, the urban economics and regional science field is largely silent on food production chains in rapidly industrializing countries. These industries, I argue, comprise a set of "indigenous" industries based on more than simply cheap labor. This gap in the literature is particularly notable because much of the rapidly industrializing world's comparative advantage lies in food products and processing, as has recently been forcefully pointed out by high profile economists and commentators (Sachs 2005; Legrain 2002).

This gap in the literature on food processing and co-location seems especially puzzling given emerging doubts about the long-term viability of manufacturing-led exports for industrializing countries in Southeast Asia such as Vietnam (Dapice 2002).

A Nascent Global Food Processing Agglomeration in the Mekong Delta: Growth of the Fisheries Export Industry

In 2000, the Vietnamese government passed the Law on Private Enterprise, thereby allowing private sector businesses of all sizes to operate free from state-mandated input and output regulations. In the same year, Vietnam negotiated a bilateral trade agreement with the United States (US) that provided most-favored nation status. The former created an environment in which large numbers of privately acting firms could locate, hire, purchase and supply goods and services independent of state quotas and subsidies; the latter opened up an enormous market for exported goods. Parallel to these two changes, provincial governments tried to strengthen regional development around industrial zones surrounding Vietnam's major cities.

Nowhere did this confluence of domestic policy, foreign trade agreements, and local urban planning have greater impact than in the Mekong Delta. The Mekong Delta has long been a productive region for inland fisheries, with local farmers along the Mekong River near Cambodia raising catfish in floating cages under river rafts for sale throughout Vietnam and Cambodia. The confluence of events in 2000, however, transformed this formerly artisanal economy into a major industry. Within two years of the Law on Enterprises and the bilateral trade agreement with the US, Vietnamese catfish exports from the Mekong Delta to the US had more than doubled to \$21.5 million, and the number of enterprises engaged in this production had grown to 200,000 farmers and 53 processors and exporters (Thanh 2003) served by a wide range of business associations, brokers, buyers and university extension programs (Long 2005; Dinh 2005).

Such rapid growth of this indigenous industry required significant domestic capital invested by farmers and the reforming state-owned enterprises, university-led technical expertise – such as research, development and outreach – and a strong pre-existing artisanal industry of catfish farmers. Many of these capital and intellectual resources were drawn to the zones developed in the region's largest city, Can Tho.

On June 28, 2002, the Catfish Farmers' Association of the US filed suit against the Vietnamese exporters and processors for "dumping" cheap catfish on the American market. On August 7, 2003, the US Department of Commerce announced anti-dumping duties on catfish filets exported from Vietnam to the US. Contrary to the economic disaster this protectionism might have suggested for the Vietnamese producers, basa catfish farmers found new markets in Japan, compensating somewhat for their losses in the US. This resilience is reflected in subsequent expansion of the Mekong Delta's presence in the global shrimp markets that built upon the region's major successes in a range of catfish-related products. Such expansion into new products and the growth of new regional input-output relations within the Mekong Delta suggest that domestic policy reform and globalization are indeed changing the industrial structure of the Mekong Delta, with the creation of industrial district-like economic relations in fisheries products.

This nascent urban agglomeration in the Mekong Delta suggests that the urbanization and industrialization process in areas of Southeast Asia similar to the Mekong Delta may have distinct regional characteristics.¹ These fast-developing agglomerations in Southeast Asia do not fall neatly into a city-scale industrial district model because much of their indigenous comparative advantage lies in food processing or other natural resource-based industries. However, they go beyond simple natural resource extraction. This new model of urbanization has led to more dispersed urban forms such as those found in the Mekong Delta as well as lowland agro-industrial regions of Indonesia and Thailand. The larger significance of such dispersed spatial forms of urbanization in Southeast Asia lies in the social and political structures that emerge to govern these new physical and economic environments. Thus, the economic transition in the Mekong Delta, when viewed through the "urbanization" frame and its emphasis on

¹ Subsequent "dumping" cases against Vietnam in shrimp production prompted Vietnamese policy makers to file a joint appeal with producers facing similar accusations in regional neighbors Thailand and Indonesia. The occurrence of such cooperation in dealing with such trade disputes is consistent with the hypothesis that the emerging economic structure of the Mekong Delta is mirrored in other lowland regions of Southeast Asia.

peri-urban spatial development, points towards associated transitions in governance at the local level.

GOVERNANCE TRANSITIONS: ECONOMIC DEVELOPMENT, SPACE, AND THE PROVISION OF URBAN INFRASTRUCTURE

Indigenous comparative advantage industries like food processing differ from manufacturing and textile investment not only because they are long-standing processes rooted in local traditions. As land- and resource-based economies, the urban forms and institutions they generate differ as well. In particular, the absence of a need to attain a critical mass of infrastructure requiring lumpy capital investments may lead to forms of urban governance centered on smaller, more localized forms of investment. In the Mekong Delta, water is simultaneously a household need and the basis for economic production. Therefore, an examination of particular governance transitions over the management of water infrastructure is likely to reflect more generally how cities in Vietnam, Southeast Asia, and more generally the natural-resource-based economic regions of the developing world will shape new institutions to provide for increasing basic human needs as populations become more dense in space and as they increase in their consumptive habits.

As indigenous food processing-based economic regions grow and change the spatial arrangement, global connectivity, and household economic resources in regions of comparative advantage such as the Mekong Delta, other development issues come to the forefront. For example, it is not at all clear that, for example, water, sanitation, and electricity provision for these higher numbers of urban residents using more resources for production and consumption has kept pace with the increased health threats that urban residents currently face. Considering that roughly two billion people lived in cities of low- and middle-income countries in the year 2000 (Montgomery et al. 2004: 83), these percentages represent high absolute population numbers. Moreover, these residents are not evenly dispersed across cities, but are spatially concentrated into neighborhoods of particularly high risk (Montgomery et al. 2004: 42), which suggests very different risk exposure levels. For example, in their global economic analysis, Montgomery et al. (2004) show that 41.5% of the urban poor households have piped water on the premises, while 61.5% of the urban non-poor do. The figures are 28.3% and 48.4%, and 41.8% and 70.6% for flush toilets and electricity, respectively. Most telling, though, is that 21.8% of the urban non-poor lack the "trifecta" required for proper health and

hygiene – water, sanitation and electricity services – while 46.1% of the urban poor do. More starkly, these figures are 0.6% and 17.5% for Southeast Asian cities, the most unequal case of any of the global regions.

The absolute growth of cities in developing countries as well as the increase in socio-spatial segregation of urban areas has led to the development of peri-urban neighborhoods and areas distinct from formal urban settlements. The global figures strongly suggest that the institutions in these neighborhoods find it particularly difficult to "catch up" with the increasing needs of their populations for urban services. In the water sector, this pattern of peri-urban governance is particularly acute as market reforms decentralize state authority and responsibilities.

Since 1986, Vietnam has followed a strategy of reducing state management of the economy while maintaining control over basic flows of information and politics. Termed *Doi Moi*, this strategy was developed with the intention of helping the country make a gradual transition to a market economy without the political turmoil and uncertainty associated with the free market. Land reform and the establishment of secure property rights were early steps in *Doi Moi* that have been associated with significant increases in agricultural and industrial production, as well as a boom in construction, services and other private-sector enterprises. A second shift enabled by *Doi Moi* was the opening up of State Owned Enterprises to competition and possible dissolution if they are not able to compete. This process has led to significant turmoil, corruption and management changes in much of Vietnam's industry (Gainsborough 1998). To date, water management has not been treated as a wholly private sector enterprise, and many Vietnamese water companies, while being opened up to market-based management regimes remain protected by the state in a way not done for industrial products and manufacturing (Fontenelle 2001). Evidence from Can Tho, however suggests that this protection may be weakening, creating new opportunities for an entrepreneurial, but public-minded state. In part, this protection is due to a vision of clean water as a right rather than a commodity, and in part due to the fact that in very rapidly urbanizing countries and in transition economies urban water provision cannot be assumed to be a natural monopoly.

The case of water infrastructure in Can Tho, the major urban center of the Mekong Delta, clearly shows that in a nominally socialist state, market principles of private sector participation have, paradoxically, taken a strong hold in the provision of public services. In 2000, Can Tho became an officially designated municipality, which required that it provide improved water services to its growing peri-urban population. In response to this administrative change, since at least 2000, the Can Tho City Water

Company, the primary provider of clean household water and sanitation, has developed a market-based, semi-privatized scheme to provide water to all the urban wards. Although somewhat successful in increasing coverage of the households within the urban wards, the changes have led to a three-tiered semi-privatized structure that uses local entrepreneurs to manage delivery, payment and repairs, and opens multiple possibilities to increase coverage. Spencer (2007a, 2007b) describes an ad hoc system of community-level water stations promoted by the municipal government, but managed by community-level entrepreneurs and entrepreneurial households that provide service to other households. The growth of this kind of local public-private and ad hoc system, as well as similar arrangements in Ha Noi, Phnom Penh, and Surabaya² suggest that cities in Southeast Asia – and in particular their peri-urban neighborhoods – have developed complex local systems of governance for the provision of basic services that blur the lines of responsibility for ensuring the public good.

In addition to this governmental ambiguity, peri-urban cities such as Can Tho and its surroundings exist in a complex environment in which deregulation of authority which has allowed new providers into a competitive market for public services. In these kinds of environments, residents have multiple options and have begun to see themselves as consumers of public services as well as recipients of them. Under some circumstances they may prefer traditional municipal systems, yet they must hedge their needs against the likelihood that these systems may break down, become subject to price gouging, or other unforeseen interruptions in quality service (Spencer 2006). When this happens, many will opt to use such transitional systems as in Can Tho and eastern Indonesia. Seen in this light, residents of the new urban agglomerations resulting from indigenous economic regions cannot be easily characterized in how they obtain their "public" services. As Crane (1994) has shown for Jakarta, the failures of a municipal system can sometimes be compensated for by the retailing of other sources. Similar retailing situations currently exist in Phnom Penh, Cambodia³ and likely elsewhere. These complications to the assumption that municipal water is a natural monopoly (Spencer 2006) extend recent findings regarding employment in poor urban regions (Owusu 2007). Just as planners focussed on employment in developing country cities need examine multiple and simultaneous employment among workers of slums,

² Based on preliminary field research findings from January 2007.

³ Based on the author's fieldwork during January 2006 with Bunnarith Meng at the University of Hawaii at Manoa Globalization Research Center.

they must also consider the multiple and simultaneous providers of clean water for a variety of household uses. These findings describe the inverse of what has long been recognized as the behavior of production firms that maintain large-scale production facilities for baseline, stable markets, but outsource risk to subcontractors for seasonal or market fluctuations (Piore & Sabel 1984). Urban residents of the developing world's peri-urban agglomerations are beginning to learn these techniques for managing household risk as they develop new consumer needs where one stable source of water – and possibly other public goods – is complemented by multiple alternatives to hedge risks of supply interruption and price fluctuations to that source. In doing so, peri-urban residents are forcing traditional state administrative units to become competitive sellers of services rather than simply civil servants providing for the public good.

The peri-urban areas of Can Tho in the Mekong Delta fall outside of the extensive literature on globalization and water privatization that focusses on corporate privatization with clear and identifiable natural monopolies (Budds & McGranahan 2003). While important for some cities, many urbanizing regions of Southeast Asia are too extensive and cannot guarantee a secure enough market to warrant corporate involvement. Such findings are consistent with reports that privatization of the water supply may not be as important as other socio-political developments (O'Riordan 2003).

Recent events suggest that this ad hoc system of public water supply is intended to be a transitional stage before larger systems can be implemented. In 2007, the national government of Vietnam secured \$3 million in financing for the development of a city-wide public water utility to provide piped household water to all residents. It is not clear what will happen to the community-level, quasi-private providers if this municipal system is implemented. Most likely, it will put the new form of localized governance out of operation, in which case events will have determined that this governance change was a transitional one. This development reflects the more general question of whether such new forms of governance remain or evolve into formal, unified municipal services. Laquian (2005) describes a growing trend for metropolitan consolidation in Asia, suggesting that even larger units of formal governance will take on responsibility for basic services. However, as land use is converted from intensive agriculture to urban socio-ecologies, these ad-hoc arrangements are likely to continue to exist in some form, perhaps emerging and retreating in an outwardly-expanding ring as peri-urban settlements develop and then become converted into more formal urban ones. The existence of a similar arrangement in eastern Indonesia, a region with a much longer history of integration into global economic markets and high demand for urban water,

that co-exists concurrently with a dysfunctional official system of municipal water provision⁴ suggests that such arrangements may not disappear altogether, even as more formal systems enter the local water markets.

As with employment and manufacturing, residents of Southeast Asia's peri-urban areas exist in a highly variable market with few believable guarantees. Most would like to have a single, consistent and affordable good quality water system to piped into their homes. However, given their skepticism of the ability of municipal and regional authorities to create new systems, they make choices about services that hedge their bets. While such strategic behavior of urban residents in their choices of public services has long been recognized in developed countries such as the US (e.g., Tiebout 1956), the literature from the urbanizing areas of the developing world has tended to view residents as project recipients rather than autonomous actors choosing amongst competing private, public and community service providers.

On one hand, the evolution of such competitive markets for the provision of public goods in peri-urban Southeast Asia can function adequately for the peri-urban resident. On the other, the absence of coordination of the provision and guarantee of basic public goods like water and sanitation can undermine human security at the society-wide level – most importantly human health.

IMPLICATIONS OF PERI-URBAN DEVELOPMENT IN SOUTHEAST ASIA: HEALTH TRANSITIONS, HUMAN AND ENVIRONMENTAL SECURITY

So far, the discussion has been on primarily local and regional issues of global interest, but of limited global concern. Americans, Japanese and Europeans, for example, may worry about the price of catfish filets, but few would advocate intervention to protect Vietnam's comparative advantage (or to rigorously evaluate it); more pointedly, although they might view the Mekong Delta's urban water supply as a humanitarian issue, almost none would understand the possible relevance of institutional changes in the provision of basic public infrastructure to the quality of life in developed countries.

The health transitions currently underway in rapidly evolving urban regions such as the Mekong Delta, however, have much greater impact on

⁴ Based on preliminary fieldwork conducted in January 2007 in Gresik, Indonesia, with Craig Guzinsky of the University of Hawaii at Manoa Globalization Research Center.

the awareness of developed country residents. Among public health scholars, one of the main concerns with rapid urban and economic development has been called a "health transition" (Smith 1997), during which societies undergoing a rapid urban transition face a dangerous period. As economic opportunity, land use, and household demands intensify, traditional illnesses remain present, even as new ones emerge. The importance of such rapid socio-economic, environmental, and biological change on the transformation of human health risk has, in part, led interdisciplinary teams of scholars to focus on urbanization and the social ecology of disease emergence (Montgomery et al. 2004: 270; Knudsen & Slooff 1992), with particular relevance to the rapidly industrializing areas of Southeast Asia as major challenges facing planners and policy makers. Despite such concerns, empirical evidence on urban health transitions and rapidly evolving health challenges in fast-developing cities is limited to a small number of empirical cases (Costa et al. 2005; Gubler 2002) and speculative frameworks (King et al. 2006; Kapan et al. 2006; Wilcox & Colwell 2005; Wilcox & Gubler 2005). This existing literature on the health transition regarding epidemic diseases such as the re-emergence of dengue fever and the evolution of new strains of avian influenza has begun to identify urbanization as one of several key factors in explaining public health outcomes, and in particular emerging and re-emerging infectious diseases. The case of Vietnam is an excellent one for assessing this health transition because of its rapid economic reforms, urbanization and shifts in governance.

The case of avian influenza demonstrates the global relevance of local health transitions in the context of rapidly changing economies and governance structures described above for the peri-urban areas of the Mekong Delta. The prospect of an infectious disease pandemic originating in the wild and domesticated bird populations of Southeast Asia and rapidly spreading to the rest of Asia within a couple of weeks, and to other continents within months (Aldhous & Tomlin 2005) has many officials, scholars, and activists scrambling to develop vaccines that will inoculate both birds and humans, saving the world's population from a disaster on a scale similar to that experienced during the flu pandemic of 1918 in which 20–50 million people died worldwide. Despite this alarming picture, the policy world appears unresponsive (Sandman & Lanard 2004; Specter 2005), much to the dismay of public health experts in international organizations and wealthy countries.

As of May 21, 2005, at least 52 people had died of H5N1: 36 in Vietnam, 12 in Thailand, and 4 in Cambodia. An examination of the origins of their points of infection can clarify our concern with H5N1 and help

policy makers develop responses that deal more directly with this upstream concern. Of those 52 fatalities, 50 seem to have been infected through direct contact with diseased chickens or ducks. Only 2 were infected through direct human-human contact, and in these few cases, the virus was transmitted by intimate, daily contact between family members (Ungchusak et al. 2005). Thus, there do not seem to have been any cases of human-human transmission of the disease through casual contact, and the threat of a global pandemic remains just that – a threat rather than an existing, clearly actionable, problem. This very real threat has generated extensive debate and concern amongst scholars, officials and the general public about how to deal with the H5N1 epidemic, should it come to pass, and research on vaccines for the possible human virus have commenced (Osterholm 2005). However, if a version of the bird flu capable of spreading through the human population through casual contact does develop, as seems eventually likely, estimates of the spread of this virus from populations as densely settled and with such poor rural health services as Vietnam, Thailand and Cambodia suggest that officials will have less than a few weeks to mount a medically-based response by developing, manufacturing, and distributing vaccines. It remains unrealistic that an effective vaccine can be developed in such a short timeframe (Check 2005), and administered in countries like Vietnam where, according to the World Bank, the level of development is consistent with a per capita Gross Domestic Product (GDP) of \$480. This is especially difficult, given the changing nature of the governance of public services and decreasing role of state institutions in the Mekong Delta – one of the main epicenters of recent H5N1 outbreaks.

The limitations in speed of response suggest that policy makers and planners need a better understanding of the causes of such a potentially deadly epidemic. In general, scientists worry that a resistant human flu will develop from H5N1 reassorting with a human influenza virus (Stöhr 2005) or possibly reassorting with a pig flu virus, and then with a human flu virus to create the resistant human strain (Osterholm 2005).⁵ A person infected with a human flu that is easily transmissible from human to human, if he becomes infected with an avian flu, provides the ideal biotic environment for a flu strain that is both resistant to human immune systems and easily spread among the human population. If this happens, a flu pandemic will be

⁵ There is recent microbiological evidence suggesting that a deadly H5N1 strain is more likely to result from evolutionary drift than from reassortment (cite study). This new evidence does not undermine the possibility of reassortment, since it only suggests that the most deadly of the flu pandemic of 1918 resulted from drift, while other deadly flu pandemics may have resulted from reassortment.

hard to stop. Virulogic surveillance statistically suggests that these situations have existed in Asia over the past several years (Stöhr 2005; Osterholm 2005) and some research has commenced on the conditions under which such reassortment might happen (Stöhr 2005).

Specifically, Kapan et al. (2006) have hypothesized that contact with formerly dispersed farm environments that include potentially infected poultry and swine populations come into close contact with ever-denser human populations living in peri-urban regions like the Mekong Delta. Such urban-rural interfaces have been hotspots of other infectious diseases such as leishmaniasis (Oliveira et al. 2004), and it is even believed that similar wild population/human interfaces are the origins of the HIV/AIDS epidemic. Expanding "fronts" of human settlement, intensified agriculture, conversion of land use from rural to urban/industrial, and societal/cultural changes from government stability to family structure (Lambin, Geist, & Lepers 2003) can increase the risk of such so-called emerging infectious diseases. Additionally, the increasing movement of humans and animals enabled by modernized transportation systems both locally from village to town and city, as well as internationally through cheap and easily accessible air travel has further increased the spatial and temporal scope of human exposure to people and livestock and wild animals infected with HPAI and other infectious diseases and could well increase subsequent spread of H5N1 to novel hosts as it did in the SARS epidemic (Kan et al. 2005).

These ecological and landscape changes associated with the conversion of rural environments into peri-urban regions is enabled by a governance structure in transition, as well as by the intensification of a regional food-processing industry. While individuals and households can be competent negotiators of these changes, in this new, peri-urbanized economic, governance and environmental context, they are understandably less attentive to take steps that preserve society-wide human security beyond the household. Studies from elsewhere in Southeast Asia suggest that rural residents of the city face a lag time during which they must adapt sociocultural practices to new physical and social environments (Bunnell 2002).

Doomsday predictions of global public health crises are rightly open to criticism as divorced from the more immediate concerns of poor countries, and the emergence of a global concern with H5N1 in poor countries threatens to be just that. Nevertheless, the scientific hypotheses about peri-urbanization and disease emergence remain intriguing and possibly compelling, especially where governments find it increasingly difficult to manage the provision of public goods. On the other hand, making sense of the competing hypotheses about urbanization, peri-

urbanization, health transition and globalization is impossible without empirical evidence. For this reason, scholars of urbanization – as opposed to those focused on development of modernization frameworks – are positioned well to shed light on one of the major globalization issues of the coming decades – human security and global health. In particular, those scholars of urban and peri-urban growth in Southeast Asia and other regions at risk of disease emergence may have important theoretical, empirical, and institutional contributions to the study of globalization and human security.

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