Presidential Address

I-Chun FAN

Since the Asian Network for GIS-based Historical Studies (ANGIS) was founded in December 2012, we have entered into the fourth year. We have successfully held annual international conference in the past three years. The publication of the E-Journal of the Asian Network for GIS-based Historical Studies, supported by an efficiently organized editorial committee, is also on the right track. All these have met our preliminary expectations. For a loose, personal based organization, it is a great achievement. But more challenges are ahead of us. In the latest annual conference, although we met many new colleagues, the scale and style of the conference remained as a workshop. We are trying to promote GIS on Asian historical studies, but still not many of the fellow colleagues in our own department or institute are empowered by the new ideas, techniques and sources. All these mean we have to work even harder to get our messages widely spread. To fulfill our goals, I want to work more closely with all our colleagues and get your valuable suggestions and help.

December, 2015
The Asian Network for GIS-based Historical Studies, Asia
or
ANGIS (Asia)

1. The Asian Network for GIS-based Historical Studies, Asia, (hereafter “ANGIS (Asia)”) is a network for all academics interested in GIS-based historical studies on Asia. It serves as an umbrella network composed of various research groups or institutions (hereafter “units”) in the same field.

2. ANGIS (Asia) was founded in December, 2012, to serve the needs of units or members wishing to promote GIS-based historical studies on Asia by exchanging ideas, techniques, or sources.

3. ANGIS (Asia) organizes an annual international conference.

4. ANGIS (Asia) organizes an editorial committee to publish E-Journal annually.

5. Other activities may be proposed by the units or members at the annual general meeting of ANGIS (Asia) to be held during the annual international conference.

ANGIS office is born by the office-bearers of ANGIS (JAPAN), the national unit of the ANGIS in Japan for two years till the end of November 2014. From that point onward, the national unit of the ANGIS is moved to Taiwan, and new office-bearers of ANGIS (Taiwan) continually run for three years till December 2017.
Spatial Patterns of Migration in 19th Century Manila: 
An Exploratory Characterization of Migrants 
in the Pueblos of Dilao, Malate, and Pandacan from 1881-1895 

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Abstract: To properly understand the characteristics of 19th century Manila, it is important to devote time to studying its population. One group that merits particular attention is Manila’s migrant population at that time, whose significant numbers can be considered an indicator of the said area’s urbanization. Drawing from the pioneering work of Doeppers (1998) and focusing on the districts of Dilao, Malate, and Pandacan for selected years within 1881-1895, this paper attempts to provide a more nuanced look at the characteristics of migration in 19th century Manila with the use of baptismal information included in vecindario (civil register) records as a proxy for place of origin. Key descriptors such as place of origin (movement and migration), as well as patterns with respect to migrant employment and migrant demographics (e.g. age, gender), are explored via the use of Geographic Information Systems. Such an approach is an attempt to provide a spatial and temporal perspective to the analysis of this population segment of 19th century Manila.

Key words: Manila, migration, vecindarios, Geographic Information Systems

1. Introduction

The middle to latter part of the nineteenth century has been described as a period of significant socioeconomic and demographic change in Philippine society (Doeppers and Xenos 1998). Widespread areas in the Philippine landscape and its inhabitants were significantly transformed by the increasing focus of its agriculture on the production of commodities for export to the world market (Corpuz 1997, Legarda Jr. 1998). The 1850s to 1890s was also a time of rapid population growth and migration into certain settlements in the country (Doeppers and Xenos 1998).

Perhaps in no other settlement or cluster of settlements were these changes was as evident as in Manila, which has been described as the only urban area (Le Roy 1968) and the center of commerce (March 1899) of the country. Urbanization has been defined as a process wherein an area’s inhabitants are involved in non-rural work and where significant populations migrate or move from rural to more urban places (Brunn et al. 2008), and there are studies about Manila that describes the said settlement's urbanization using archival demographic data. Doeppers (1998a, 1998b) and Gealogo (2010), in particular, have come up with pioneering work that have attempted to describe and understand the urbanization of Manila by studying civil register records such as the vecindario.

It has been pointed out that the Philippines, in Southeast Asia, has one of the richest sources of archival demographic data from its colonial past that has yet to be fully exploited (Doeppers and Xenos 1998; Xenos 2010). As such, this preliminary study, which uses vecindarios records of the Manila districts of Dilao, Pandacan and Malate from three different periods between 1881 to 1895, is an attempt to contribute to the literature on Manila’s urbanization process from the demographic perspective. Moreover, this paper also seeks to show a more geographic or spatial analysis of such records by employing Geographic Information Systems (GIS) approaches in analyzing and representing roughly 31,000 records that have so far been processed.
likely had a more rural environment compared to the other Manila districts.

3. Methods

This research, due to its reliance on archival data from the Spanish period, required the researchers to implement several labor-intensive steps in order to consolidate the needed data into a standardized database and to integrate these into Geographic Information Systems for mapping and analysis.

Copies of the vecindario of the districts of San Pedro de Dilao, Malate, and Pandacan were obtained from the National Archives by means of photocopying, photographing and scanning the sheets on site. These were then encoded on MS Excel per district and subsequently consolidated into a single spreadsheet file.

While vecindario records come as pro forma documents, thus making them relatively easy to process and encode, several problems were encountered during the encoding stage. These were mainly due to how the entries were written and the quality of the documents. Quite common were unintelligible script or handwriting, incomplete entries, varying and unusual abbreviations, erratic spelling, the inconsistent use of terms in denoting the same occupation, variable spelling and abbreviations for the same places, and damaged pages. Irregularities such as these needed to be addressed to facilitate the creation of statistical summaries per district which would then be integrated into GIS.

Differences in occupational entries were typically due to abbreviations, misspellings, and the fact that a good number of Spanish and Filipino/Tagalog occupations are typically gendered or have evolved in context. To resolve this, abbreviated entries were rewritten in full, gendered occupational titles were changed to their male form whenever available, misspellings corrected, and variants standardized. In addition, occupations were translated into English based on their current context usage in the local language as well as with the aid of online facilities such as Google Translate and Spanish-Tagalog-English dictionaries.

Inconsistencies in place names referring to the locality or parish where an individual baptism were resolved by standardizing spelling variations and abbreviations in reference to the official list of current-day local government units in the Philippines as indicated in the National Statistical Coordination Board’s Philippine Standard Geographic Codes (PSGC) (National Statistical Coordination Board, 2014). Places not found on the PSGC were traced using various references, primarily Lagman and Martinez 2014, and Lagman and Villasper 2015, as well as several old maps of Manila from the late 1800s (de Gamoneda 1898), and in the early 1900s (Bach 1920).

To map the compiled database onto GIS, points corresponding to each district and place of baptism were generated based on shape files of administrative boundaries downloaded from PhilGIS (www.philgis.org). Those that did not appear on the PhilGIS dataset were manually traced and added to the point dataset based on Lagman and Villasper 2015 as well as de Gamoneda, 1898 and Bach, 1920. From there, statistical summaries were generated from the database and connected.

4. Results

4.1. Share of Migrants to Total District Population

Comparing proxy migrant data for the middle 1880s and early 1890s, it seems, on the surface, that only Dilao had a significant migrant population whose share slightly increased over the years. In the late 1880s, nearly 24% of the said area's

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2. Objectives

The main objective of this research is to demonstrate the potential of using GIS as a tool in portraying and in gaining a more nuanced understanding of the characteristics of migration that was recorded in selected districts of Manila from the 1880s to the middle 1890s. While this research is still in its preliminary stages, this paper, nonetheless, intends to describe the similarities and differences in the migration patterns in the settlements of San Fernando de Dilao, Pandacan and Malate by: a) determining changes over time in the percentage share of migrants to these districts’ total populations, b) determining and differentiating the geographic origins of the study area’s migrants, c) presenting the vecindarios of the Dilao district.

In addition to the availability of baptismal information in the vecindario documents for the said communities, these aforementioned settlements were also selected due to certain attributes. For instance, Dilao has long been identified as one of the more economically active Manila districts south of the Pasig River (Lagman and Martinez 2014; Lagman and Villasper 2015), and, as such, migration data for the said settlement would likely to be both rich in terms of quantity and quality of information.

The Malate area, on the other hand, serves as the southernmost point of Manila City or Ciudad de Manila, and is traditionally known for its embroidery industry in the 1800s (Mallat 2012). Pandacan, based on historical accounts, was said to be the primary source of animal fodder for Manila (Mallat 2012), and

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Figure 2. Towns of Manila Province using the present-day boundaries of Metro Manila.
population were born outside of Dilao. This increased slightly to 26% by the early 1890s. On the other hand, the percentage of migrants in the populations of both Malate and Pandacan never breached 10% and even experienced a slight decrease in the early 1890s (See Figure 3).

4.2. Origins of Migrants by Category

For the purposes of this study the migrants of the districts of Dilao, Malate and Pandacan were categorized into local, short-range, medium-range and long-range. Individuals who were baptized in other Manila-based districts other than the specific district being studied were considered “local” migrants as they hail from nearby communities that formed the suburbs of the Manila City which has Intramuros as its capital (Foreman 1980). Those from the cities and communities of current-day Metropolitan Manila were considered as short-range migrants given their proximity to Manila’s districts. It has been argued that majority of individuals who moved to Manila in the nineteenth century actually hailed from the nearby Central Luzon and Southern Luzon provinces of Bulacan, Rizal, Laguna, Cavite, Batangas and Quezon (Doeppers 1998a). With the exception of Bulacan, these provinces comprise the present day Southern Tagalog Region called the CALABARZON. People who were baptized from the parishes of these provinces were considered as medium range migrants, while those who come from farther provinces in Luzon as well as those from the Visayas and Spanish-controlled Mindanao areas were classified as long-range migrants.

As can be observed in Figure 4, Dilao's recorded migrants during the 1890s originated from roughly 20 towns distributed all over the Philippines, majority of them came from Luzon island. A few were from the present-day Visayan provinces of Cebu, Panay, Leyte, Samar, and Negros Occidental in Central Philippines, while there were several individuals who hail from the Mindanao provinces of Davao, Cotabato, Zamboanga and Sulu. It should be noted that the Spanish colonial government never had complete control of the Mindanao area, and Sulu was long considered as a site of resistance up until the end of colonial Spanish rule (Majul 1973, Warren 1985).

4.3. Long-Range and Mid-Range Migrants

Majority of Dilao's long-range migrants were originally based in the Ilocos Region in Northern Luzon and the provinces in Southeastern Luzon known as the Bicol Region. One would assume that as part of their process of assimilating to life in Manila, these migrants would have been compelled to learn the Tagalog language. As can be seen in Figure 4, overall, there were Ilocanos from the provinces of Ilocos Sur (55), Ilocos Norte (26), Pangasinan (21) and La Union (13). On the other hand, majority of the Bicolano migrants in Dilao in the 1890s were from the provinces of Albay (18) and Camarines Sur (14). It should be noted that the Bicol Region at that time was one of the more prosperous areas in the Philippines since its uplands were one of the major sources of Manila hemp, one of the major exports of the country at that time (Owen 1984).

Unlike Dilao, which had over 170 long-range migrants in the 1890s, Malate and Pandacan had a fraction of these at 12 and 22, respectively (See Figures 5 and 6.). But similar to what can be observed in Dilao, Ilocanos were the dominant long-range migrant group in these districts. Malate and Pandacan also do not seem to be an attractive migrant destination for those who would have to travel far to leave their homes as these settlements’ long-range migrants came from not more than 7 provinces, with the few Visayans from Central Philippines coming from the island of Panay.
Regarding mid-range migrants, such individuals who belong to this category, primarily came from provinces such as Bulacan and the Southern Tagalog provinces of Cavite, Laguna, Morong (Rizal) and Batangas where the language, Tagalog, is the same as the one used in Manila. Seventy-seven percent of Dilao’s mid-range migrants were from these aforementioned provinces, but this pales in comparison to the dominance of these Tagalog speakers among the migrants of Malate and Pandacan where they account for 92% and 85% of the mid-range migrant population (See Figures 7, 8 and 9.).

In Dilao and Malate, while individuals from Bulacan made up the largest mid-range migrant group, they were not as dominant (See Figures 7 and 8.). Bulakenyos accounted for only around 3 of every 10 mid-range migrants, while a little less than half of the mid-range migrant population in Malate were baptized in Bulacan parishes. On the other hand, Pandacan’s mid-range migrants were mainly from Morong Province as they accounted for 63% of all individuals from the said category (See Figure 9.). It is also worth mentioning that migrants from Pampanga, whose residents are not native Tagalog speakers, only had a significant presence in Dilao with the said group making up 15% of all mid-range migrants.

Aside from the clear advantages of having the same language that is used in Manila and their provinces being connected to the latter via waterways, constant contact and familiarity of its inhabitants with Manila may have encouraged people from these aforesaid areas to make that big decision to move to a still relatively far-away place (Doeppers 1998a). Kapampangans, on the other hand, may have a spoken language that would have put them at a disadvantage once they move to Manila, but their province is very much accessible to the former via waterways as well.
4.4. Short-Range and Local Migrants

One advantage of studying the origins of migrants at the district level is that such scale of analysis makes it possible to compare and contrast the characteristics of migrants residing in different communities. At least with respect to short-range migrants, there are differences as to towns of origin of migrants in Dilao, Malate and Pandacan. As can be observed in Figure 10, in 1890s Dilao, 7 out of every 10 migrants were originally from the towns of Pasig (31%), Pineda (24%) and Tambobong (20%). The source of migrants for Malate is quite similar as three-fourths of its migrants were from either nearby Pineda (55%) or Tambobong (20%) (See Figure 10.). On the other hand, Pandacan, which had a significant number of migrants from Pineda (14%), also had migrants from nearby San Felipe Nery (27%) as well as from pueblos along the periphery of Manila Province such as Pasig (19%) and Marikina (16%) (See Figure 11.).
Majority of Dilao's local migrants, as shown in Figure 12, were from Binondo (17%), Pandacan (14%), Malate (12%), Sta. Cruz (11%) and the capital of Manila, Intramuros (11%). This demographic information clearly demonstrates that Pandacan and Malate, the two other districts that are the focus of this study and which are geographically close to Dilao, had relatively active relations with latter's communities. Moreover, the significant number of individuals from Binondo, Sta. Cruz, and Intramuros, places which had one of the more numerous and varied registered businesses in late nineteenth century Manila (Lagman and Martinez 2014), who migrated to Dilao demonstrate that the latter was quite connected with the more prosperous settlements of Manila which, incidentally, were all located north of the Pasig River.

Proximity also seemed to have played an important role in the distribution of local migrants who moved to Malate and Pandacan. More than half (55%) of all migrants of this type in Malate were from neighboring Ermita (45%) and Dilao (10%). In the case of Pandacan, almost half (47%) of all local migrants were transfers from Sta. Ana (27%) and Sampaloc (20%).
4.5. Migrants by Gender

Literature on migration in the nineteenth century Philippines indicates that, contrary to what has been previously been considered, a significant number of women were already migrating to Manila more than 50 years before such a pattern was said to have been observed (Doeppers 1998a). Results from the analysis of 1890s civil register data supports such a contention, particularly in the communities of Dilao and Malate. In these districts, around 54 to 55% of those baptized elsewhere were females. Pandacan proved to be an exception, however, as there were slightly more males among its migrant population (55%), than women (See Figure 16).

4.6. Occupations by Migrant Type, Dilao (1890s)

For purposes of brevity, this study will limit its analysis of occupations by migrant type to the district of Dilao, which also had the most number of migrants among the three settlements. Analysis of the occupational data collected for Dilao-based migrants (See Figure 16.) indicate that there were commonly held jobs across the different migrant classifications. For instance, seamstresses, a low-paying female-dominated occupation (Camagay 1995), were either the most or second most common occupation in all four migrant categories. As such female workers, who included cigarreras and laundry washers, made up a significant portion of the said district's migrant labor pool. In like manner, laborers, mostly held by males, was always within the top three occupations among local, short-range, mid-range and long-range migrant workers in Dilao. Those who migrated to Dilao to work in factories manufacturing cigars came from nearby local districts and even as far as Southern and Central Luzon, but rarely did migrants who came from farther places found it worth their while to work as a cigarrera.
While it is still too early to consider it as a fixed and clear pattern, the most common occupations of migrants in every category seemed to reflect certain tendencies. Among local migrants, all top five occupations, with the exception of the cigar-makers, can be considered as menial, low-paying forms of employment. The same tendency can be observed in the most common jobs among those who hailed from the localities of current-day Metro Manila, Central Luzon and Southern Luzon, except that two occupations, storekeeper (4th) and carpenter (6th), required a certain skill-level that had to be innate or learned through time and effort.

Higher level skills seem to become more prevalent with long-range migrants as compared to other categories. It is only in this type of migrant wherein two skilled occupations, carpenter and cook, became a top five occupation. In addition, while they are not forms of employment that a long-range migrant would engage in, work as a silversmith, blacksmith or coachman, there were proportionally more migrants from the Ilocos and Bicol Region who were classified as having such occupations in late 19th century Dilao.

4.7. Migrants by Age Bracket

A cursory review of the ages of the migrants who were identified by the research team’s database clearly indicates that majority of individuals who were not originally from Manila in the settlements that were studied were quite young and were of what is working age. As can be seen in Figure 17 below, migrants in all three districts were primarily between the ages 20 to 44 years of age. Dilao and Malate’s migrant age profile increase steadily beginning with the 20-24 age bracket, and this peaks at the 30 to 34 year old range for former and at the 35 to 39 age range for the latter. On the other hand, the age distribution of Pandacan’s migrants seem to flat, with individuals who are between the ages of 20 to 24 having a slightly higher number compared to other age brackets.

It should also be noted that Dilao, unlike the other districts, have a sizable number of migrants who are already of middle age. If one assumes that people usually move to another place of residence when they are quite young, then this lends the possibility that migration in the said settlement had already been going on for decades.

5. Observations

While the maps for this research focused mainly on answering questions on where from and how many, it is our belief that we have barely scratched the surface on the use of GIS in putting spatial and temporal perspectives on characterizing migration and migration statistics.

Our initial experiences from working with archival data on a large scale gave us interesting challenges in terms of collection and management especially when considering the intention of establishing a global spatial database under the ANGIS umbrella.

In terms of data coverage, this paper dealt with only two years in three selected districts of Manila. Expanding the datasets to include other years and other districts of Manila should give a better picture of migration into Manila in the late 19th century. With a more comprehensive dataset, distribution patterns over the whole of Manila may be discovered using flow mapping and heat mapping techniques (Rae 2009) and initial observations on topics such as occupational tendencies may further be corroborated.

6. References

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Mapping the Transition of the Land Revenue System in Western India from the Pre-Colonial to the Early Colonial India: Evidence from to Indapur Pargana (1761-1836)

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Abstract: This paper studies the historical transition of the land revenue system from the pre-colonial to the colonial period in order to clarify the introduction of a new land revenue system into Western India under British rule. This paper focuses on the county of Indapur Pargana, into which the new revenue system was first introduced during the Bombay Presidency in 1836. In Indapur Pargana the collapse of the pre-colonial land system, the so-called jagir system, in the last phase of the pre-colonial period made the introduction of the new settlement under British rule possible. Under the jagir system, the land revenue was assigned to commanders etc. to maintain their military equipment, mainly military horses. First, the paper shows how commanders managed their assignment to raise their military horses. Second, the GIS analysis shows geographically how the jagir system in Indapur Parana developed in the late eighteenth century and collapsed in the early nineteenth century in relation to raising military horses. This analysis clarifies how Indapur Pargana prepared for the introduction of the new land settlement at the commencement of British rule in Western India in 1818.

Keywords: Colonization, Land Revenue, India, Maratha, Bombay

1. Introduction
The land revenue system is one of the main topics in the economic history of Modern or Colonial India, as this tax represented significant share of British income in British India, at least by the late nineteenth century. In the late eighteenth and the early nineteenth centuries, two types of new land revenue settlements, viz., the Zamindari Settlement and the Ryotwari Settlement, were introduced into British India. The Bengal Presidency in Eastern India adopted the former settlement and settled with the Zamindars, who were landlords and gentry in Eastern India, without investigating each village under Zamindar administration. The Bombay Presidency in Western India and The Madras Presidency in Southern India adopted the latter settlement and thus settled with every Ryot, or farmer, investigating every village at thirty-year intervals. Many scholars, including the contemporary British officers-cum-scholars such as Baden Powell (Baden-Powell 1892), have studied the introduction and the development of these types of the settlements under British rule using the colonial documents in English. However, few scholars have considered the backgrounds of the introduction of the new settlements or the historical transition of the land system using pre-colonial documents. This paper focuses on this point. In order to do that, the Bombay Presidency in Western India was selected for this study because of the availability of rich pre-colonial document troves under the Marathas, defeated by the East India Company in 1818. The county of Indapur Paragana (1), which this paper focuses on, is the first area into which the Ryotwari Settlement was introduced, in 1836.

1.1 India in the Eighteenth Century
After the death of the Mughal Emperor Aurangzeb (1658-1707) in 1707, the Mughal Empire, which had ruled the majority of the Indian subcontinent, began to decline, and some viceroyes of the Mughal Empire, such as that of Bengal, seized independence. The successor states to the Mughal Empire, such as the Maratha kingdom in Western India, also rose to power. In the early eighteenth century, the Maratha polity enlarged its territory northward. In this process, the chief military commanders in this polity, such as the Shinde family, the Holkar family, the Gaikwad family, and the Bhonsle family, who conquered the northern territories, dominated the conquered territories and formed a confederacy under the prime minister, who was called peshwa of the Maratha kingdom, and who replaced the Maratha king and formed a government in the 1730s. This unity was called the Maratha Confederacy. Pune, wherein the Peshwa lived, was the capital city of this confederacy. The Maratha Confederacy or the Marathas had become the largest polity in the Indian subcontinent by the middle of the eighteenth century, ruling Western, Central, and Northern India (Gordon 1993/1998: 128-139).

The territory of the Marathas in the eighteenth century was divided into thirteen provinces, called suba (Kulkarni 1996: 181), which were in turn subdivided into several parganas. A pargana consisted of several contiguous villages. Among these three segmental units, a suba was administered by a Governor who was sent by the Central Government, while a village was administered by a hereditary village headman, who was called patil. Between subha and village, a pargana was managed by the officer sent from the government and by the hereditary local officer. The former was called the kamavisdar, who represented the Central Government, and the latter was the desai or deshmukh, who represented the local community. Under the Marathas, the pargana was the linchpin for government control over local areas. Even in the British period, parganas, which were renamed taluka under colonial rule, were still important administrative units. The Ryotwari settlement introduced pargana to pargana in the nineteenth century. The settlement reports of this land system under the British rule were produced pargana-wise only.
Among the parganas under the Marathas, Indapur Pargana, on which this paper focuses, was historically important. This pargana was included in the area that Nizam Shah or the sultan of Nizam Shah, who ruled the northwestern part of the Deccan plateau including the Pune subha, gave to Shahaji Bhonsle. This area was then inherited by his son viz., Shivaji Bhonsle, who founded the Maratha Kingdom in 1674. So this area, including Indapur Pargana, was the private territory of the Maratha King, at least in the seventeenth and the early part of the eighteenth centuries. Indapur Pargana was also located in the southeast extremity of the Pune District in the Bombay Presidency, which comprised Pune Subha under the Marathas (See Fig. 1.) and lay between the Bhima River and the Nira River. Two rivers formed the northern, eastern, and southern boundaries of Indapur Pargana and made the soil on the banks fertile. So Indapur Pargana was the nearest fertile area to Pune, the central city of the Maratha Confederacy.

Because of its historical importance, Indapur Pargana is one the counties about which the richest documents have been kept in Maharashtra State Archives, Pune (hereafter Pune Archives). The collection on Indapur Pargana covers the period between 1750 and 1850 almost continuously. The documents are also written in Modi, or the medieval scripts of Marathi, which is the local language of Western India. This paper is primarily based on these unpublished documents in the Pune Archives. Indapur Pargana consisted of eighty-six villages. At least between 1684, when the oldest records show the number of villages and their locations, and 1866, when the report of the revision settlement of Indapur Pargana was produced, the number of villages and probably their locations had not been changed (Kulkarni 1993: 188). This point constitutes a great advantage to the creation of the historical GIS map for this study.

1.2 The Land Revenue System in Indapur Pargana

Here I will briefly address how the land revenue system in Indapur Pargana changed from the pre-colonial period. According to the land revenue system, this county, which consisted of eighty-six villages, could be divided into three types of villages viz., Inam villages, jagir villages, and the Government villages. In a pre-colonial village, various kinds of social and administrative groups, such as local officers, artisans, religious persons, and even the Government, shared an amount of grain and crops which the peasants harvested. The village headman, called a patil, was responsible for collecting and arranging this quantity of grain and crops. The village accountant, called a kulkarni, kept records of the collection and the arrangement. In the Government villages, the Government had a share of the grain and crops. In these villages, the village headman brought this share to the Government local officer, called a kamavisdar, at the office at the level of the county, which was called a kacheri. This officer then remitted money to the government in Pune. In Inam villages, the share that the Government was to hold was brought to a person or a temple. Inam means the privilege of holding the Government share in a village. In these villages, the headman gave money, grain, or crops to the holder of Inam. To the Government, these villages appeared to be tax-free villages. In the colonial period, especially, these villages were regarded as tax-free villages. In jagir villages, the collection of the Government share was assigned to commanders or other military personnel for military purposes. Jagir denotes this assignment itself, and its holder was called a jagirdar.

The following figure shows the arrangement of the villages of Indapur Pargana, which consisted of 85 villages, in the period of 1761-1822 (Taleband, Prant Ajmas Nos. 56-63):
turned to internal reform. In this reform, the Government stationed many commanders in the Indapur Pargana to protect Pune, the central city. The number of jagir villages that were given to commanders thus greatly increased between the 1760s and 1780. Between 1781 and 1802, it continued to gradually increase, and reached 62 in 1802. This figure indicates that the importance of commanders in jagir villages increased in this period.

In 1802, the civil war occurred, and the army of the Holkar family, the chief commander under the Maratha Confederacy, attacked the central city of Pune and its surrounding areas including Indapur Pargana, and in 1803 drought hit the areas around Indapur Pargana. These two disasters devastated Indapur Pargana. The annual accounts on which the above chart is based covering the period of 1803-1806 still exist, but do not contain enough data to show the arrangement of villages in which land revenue could not be collected. Therefore, the data between 1803 and 1806 on the above chart is blank. After these two disasters, many commanders in jagir villages left Indapur Pargana. In 1807, the arrangement of villages and the settlement of the land revenue restarted. In this new settlement, their number was substantially reduced, to only 29. Accordingly, the number of villages in which the Government officer called a kamavisdar collected the government share and remitted it to the central government increased greatly. Importance of the official (kamavisdar) increased in the administration of Indapur Pargana in the last phase of the Maratha period, between 1807 and 1818. Under the guidance of the central government, this local officer attempted to restore the county by adopting a temporary reduction of the Government share.

After the battle between the Marathas and the English East India Company in 1817-18, which is called the third Anglo-Maratha War, the number of jagir villages was reduced to only seven. Most of these villages, thus, became Government villages under the British rule.

The Assistant Collector, who was in the lowest position for a British officer in India, was appointed to administer a county, which was first called a Government villages under the British rule. In the deed, in which the assignment of the right to collect the Government share in a village was ordered, the terms of an assignment was not mentioned. Judging from a list of their names in the accounts, the assignment of this right was basically inherited. The assignees seem to have been stationed in the village for which jagir was given to him for many years under the Marathas in the eighteenth century, whereas the term of an assignment was less than ten years under the Mughals in the seventeenth century. Further, jagir could not be inherited except in a few cases. Their assigned or jagir villages changed at regular intervals. The Marathas inherited the framework of the jagir system from the Mughal Empire. However, its conditions under the Marathas were different from those under the Mughals.

In many cases under the Marathas, jagir was given to paga (a regular cavalry soldier) and to silahdars, or the irregular soldiers who equipped themselves with arms and horses and then participated in military activities. Silahdars were often placed under the jurisdiction of paga (Sen 1928: 4-5 and 8). In a few cases, jagir was given to commanders under daulatdars. In the eighteenth century, the above-mentioned chief commanders, such as the Shinde, Holkar, Pawar and Bhonsle of Nagpur, and Gaikwad conquered Northern and Central India and held large territories as jagir, which were then inherited for generations. Their territories were called daulat and they were called daulatdars. In Indapur Pargana, jagir was given to two commanders under the Shinde family and one commander under the Holkar family. It can be said that jagir was indirectly given to daulatdars in these cases. As jagir, one village was assigned to the Patwardhan family, or the powerful commanders under the peshwa, who was in the southern part of Western India. Jagirdars, except a few holders, which included the Patwardhan family, were stationed in Indapur Pargana.

2.2 Management of Jagir villages
In order to consider how holders of jagirs managed their villages, this section tries to make their revenues and expenditures in jagir villages clear.

2.2.1 Revenue in Jagir Villages
After the Government decided to assign a village to a silahdar (the irregular soldier) or a saradar (the commander), the kamavisdar (the local Government officer) gave the deed, called ‘tainat jabta’, which originally meant a muster roll for pay, to him. The deed showed how the assignment was settled between revenue assignment under the Mughals by the end of the sixteenth century (Khan 1992: 66-67). The Marathas inherited this system from the Mughal Empire in the eighteenth century. This section considers the jagir system under the Marathas by studying who held jagir villages and how these holders managed their jagir villages.

2.1 Holders of Jagir
Under the Marathas, Indapur Pargana had a total of 138 assignees, or jagirdars. The names of these assignees are found in the annual accounts of Indapur Pargana in the Pune Archives. In the deed, in which the assignment of the right to collect the Government share in a village was ordered, the terms of an assignment was not mentioned. Judging from a list of their names in the accounts, the assignment of this right was basically inherited. The assignees seem to have been stationed in the village for which jagir was given to him for many years under the Marathas in the eighteenth century, whereas the term of an assignment was less than ten years under the Mughals in the seventeenth century. Further, jagir could not be inherited except in a few cases. Their assigned or jagir villages changed at regular intervals. The Marathas inherited the framework of the jagir system from the Mughal Empire. However, its conditions under the Marathas were different from those under the Mughals.

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a holder of jagir and the Central Government. In the deed, the revenue assessment, which was to be assigned, was mentioned. In the case of the village of Wadepuri, where the revenue was assigned to Jiwaji Raghunath in 1780 (26 Sawal Shuhur 1180, Prant Ajmas, Rumal no. 547), miscellaneous items were made up of the tax for alms, called dharmadav patti, at Rs. 5, the tax on a servant, called shargirthpesha, at Rs. 2, the tax on a rent, called bhade patti, at Rs. 2-12 (2), the tax on presents, called antastha, at Rs. 25, and the fees paid to a peon to collect the revenue, called masala, at Rs. 3, which amounted to Rs. 37-12 in total. In this case, ain jama (the main revenue) amounted to Rs. 4053-8 and antastha, which was the payment to the prime minister, amounted to Rs. 286. So the total settlement was fixed at Rs. 4380 with Rs. 2-12 added as an increase (the net total was Rs. 4377-4). On the other hand, in the account of Indapur Pargana (1780), the amount of Rs. 4380 was entered under the head of the assignment to Jiwaji Raghunath (Tale b and in shuhur 1181, Prant Ajmas, Pune, Rumal no. 61). The comparison of the amount of the settlement in the deed and that in the account makes it clear that the assignment of a village was to assign the revenue, consisting of ain jama (the main revenue), miscellaneous items, and the antastha (the payment to the prime minister). A heading of miscellaneous items in the deed indicates that the assignee paid for the local religious institutes from the assigned revenue and that he paid for the expenses to collect the share. He also had to pay an annual payment (antastha) to the prime minister in Pune. In this sense, not all the revenue of a jagir village was assigned to a commander. The number of the villages that were assigned varied from assignee to assignee. Some assignee held more than ten jagir villages in Indapur Pargana, while many assignees only held one or two villages.

2.2.2 Expenditure in Jagir Villages
Unfortunately, the expenditure list in assigned villages was not found in the Pune Archives. So it is difficult to precisely ascertain how an assignee, called a jagirdar, used his revenue from his assigned village in Indapur Pargana. But his main duty was the maintenance of his equipment and his military service to the Government. From this point of view, it is possible to partly comprehend his activity in his assigned village.

For silahdars (the irregular soldiers) and paga (a regular cavalryman), horses were their most important equipment. According to the list of feed and allowances, horses were fed with vetch, sorghum, and other cereal crops, as well as fodder. Rice, wheat flour, salt, butter, ghee, jaggery, pepper, and mixed spices were sometimes also given as nutritious foods. In the case of Sakhoji Kate to whom the village of Kalasi was assigned at Rs. 588-8, it was fortunately found that it cost Rs. 40 per year in 1787 to feed his horses with vetch, cereal crops, salt, and sugar (Prant Ajmas, Pune, Rumal no. 547). However, the information about the price of the crops that were given to horses was not available in the list of feed and allowances or other documents. It is inferred that these crops were not procured from the market but brought to a jagirdar directly from the fields in a village. However, he had to purchase at least rice and salt, which were produced mainly in the coastal area. Staff bought rice and salt, and brought them to Indapur Pargana.

It is clearer how fodder was supplied. The fodder given to the horses of a jagirdar was cut in the meadows of his assigned village. The forced labourers who were brought from the villages in Indapur Pargana, except from other assigned villages, worked there (3 Jilhej Shuhur 1175, Fadke Khanderao Jiwaji Siledar, Ghadni Rumal no. 404). In addition, they were forced to work to cut and pile fodder when an assignee was ordered to set out for military service. His military service was very important not only in the Pargana Administration but also in the Central Administration. So the Government helped him to get fodder or staple food for horses by use of the labourers in the Government villages. Bonded labourers were also used for the collection of fodder, the payment to whom was fixed at Rs. 1-8 per 1000 bundles (29 Moharam Shuhur 1186, Prant Ajmas, Pune, Rumal no. 547).

Besides horses, many assignees (jagirdars) kept camels, bullocks, and sometimes elephants. For example, Sakhoji Kate, or the above-mentioned Saranjamdar, raised 40 head of horses and 7 head of camels in 1778. Narshig Udav, whose assigned revenue from Shetphal in Indapur Pargana amounted to Rs. 2515 in 1778, kept 67 head of horses, 13 head of camels, 4 head of bullocks, and an elephant. Fragmentary information about the price of horses is available in the original Mod documents. It seems that a horse cost at least Rs. 80 (Prant Ajmas, Pune, Rumal nos. 503 and 547) in 1780s. The purchase of a horse could be the financial burden, especially on a jagirdar. The Government paid a subsidy for the purchase of animals (Prant Ajmas, Pune, Rumal no. 504).

According to the list of feed and allowances, mainly female domestic slaves called kumbin, mahars (untouchables), and boys worked for an assignee (jagirdar). Their allowance was paid in kind only. To manage the above-mentioned equipments smoothly, a jagirdar employed some staff. Although the members of the staff varied according to the village, they mainly consisted of one or two clerks (karkuns), a water-carrier (palkhi), a meadow guard (kurnya), and bodyguards who were made up of Marathas (farmers and soldiers), Mahars and Mangs (untouchables). Sometimes a goatherd (shelkya) and a cowherd (gaykya) were added to the list of allowances. The allowances for the staff members were paid in money. Carpenters, Mahars, and Mangs in a Jagir village were also obligated to work for a jagirdar as forced labour annually.

Carpenters (sutars) and potters (kumbhars) in jagir villages were often also the subject of demands to work for a jagirdar. Their work was often done at forced labour, which was called bigari. For example, for carpenters in the village of Daij in Indapur Pargana, where the cavalry of Khandoji Jagthap were stationed (at least in 1768), cut 50 acacias in the meadows of this village and then made a one-story house, or Khan, for him (7 Sawal Shuhu 1168, Prant Ajmas Pune, Rumal no. 547). These artisans basically worked according to the division of labour in the village community. The work jagirdars demanded was the extra labour that was not to be arranged in the village community. The jagir system thus affected the local labouring
system in the village community.

The following deed shows the significance of Jagir from another view:

“On the 19th of Rabilakhar (the fourth Muslim month), Kumbharganv in Indapur Pargana was under its jagir, Kanhoji Khalate. The Government settled the exchange of jagir between this village and Sirsodi in Indapur Pargana. The assignment of the revenue of Sirsodi was also settled by being given to him. The Government took the revenue of Kumbharganv which had been assigned and then wrote down the revenue of Sirsodi as an expenditure in the accounts of Indapur Pargana. Meadows lying in the boundary area between Village Takli and Village Padasthal in Indapur Pargana were also to be given for his military service.”

This is the deed issued under the name mentioned above [= Sawai Madhavrao Peshwa] (19 Ravilakhar 1174, Prant Ajmas, Pune, Rumal no. 503).

With the transfer of jagir, Kanhoji Khalate himself shifted to Sirsodi in order to deploy his horses and then be stationed there himself (3). The revenue of Kumbharganv was assigned to Manshing Khalate, and he was stationed there for his military service. This case tells us that the assignment of a village was meant not only to give him income for his military service but also to furnish jagirdars with the area in which to deploy his horses.

Many deeds in which jagir was given for a jagirdar to procure the field in which to raise horses are found in the Maharashtra State Archives in Pune. This indicates that the Peshwa Government arranged jagir villages in the territory under the Marathas. In many of these cases of transfer, some revenue items were assigned when the amount of the assigned revenue of a jagirdar was reduced by the exchange of jagir villages. In the above case, meadows in the boundary area were given for this supplement. This reinforces the importance of the area for raising his horses.

To maintain animals for the combat such as horses, jagirdars not only spent money but also used grain and fodder directly from the field and were paid in kind. While his formal rights were converted into money in the deed, called tainat jabta, his actual service in his village, such as keeping horses, was not completely monetized, at least in the late eighteenth century. So the assignment of a village by which not only money but also provisions for his duties were easily available was favourable to jagirdars as payment for military service. Moreover, the space for raising horses seemed to be the most important of the benefits they enjoyed under the jagir system. This indicates that a spatial analysis would be quite useful for investigating the jagir system. By the use of GIS, the arrangement of jagirs is studied in the next section. This approach makes it possible to show the transition from jagir to the Ryotwari settlement clearly.

3. Mapping the Transition of the Land Revenue System in Indapur Pargana

This section offers an overview of the transition from jagir to the Ryotwari Settlement in order to understand the historical background of the introduction of the Ryotwari Settlement spatially. Each polygon area of the GIS below maps stands for the administrative territory of villages in Indapur Pargana. This polygon data is based on the map in 1866, which was produced in the Ryotwari settlement in Indapur Pargana. As mentioned above, Indapur Pargana has a historical advantage in that the boundaries of its villages has not changed, at least between 1695 and 1866. So these polygons represent the territories of the villages from 1695 to 1866. This is how the data from Marathi documents in the pre-colonial period is visualized in this section. The following GIS maps are based on the map held in the British Library. This map was originally produced at the time of the revision settlement of Indapur Pargana in 1866 (Map of the Indapur Pargana, British Library).

3.1 The Development of Jagir Villages in the Late Eighteenth Century

Fig. 2 in the last section showed that the number of jagir villages in Indapur Pargana increased greatly in the late eighteenth century. This section visualizes the increase of jagir villages in this period by use of GIS mapping.

Fig. 3. The Locations of Jagir Villages in Indapur Pargana in 1768

This map shows the location of jagir villages in 1768. In this year, five different villages were assigned to five different assignees. On this map, different assignees or commanders are recognized according to a difference in colour. In 1768, jagir villages were assigned to two different persons.

Fig. 4. The Locations of Jagir Villages in Indapur Pargana in 1769

This section offers an overview of the transition from jagir to the Ryotwari Settlement in order to understand the historical
As mentioned above, the Government began to set up jagir villages in Indapur Pargana after the internal reform in 1761, in order to protect Pune, the central city. Figs. 4 and 5 show that the number of jagir villages greatly increased between 1769 and 1774. In this period, the villages on the banks of the Bhima river in the North and the Nira Rivers in the South were assigned as jagir because these villages were covered with fertile soil brought by the rivers. In short, most of the area with rich soil fertility was used to raise horses.

More and more villages were assigned as jagir between 1786 and 1874. In this phase, villages in the inland area began to be assigned. During 1785-1799, the number of jagir villages slightly increased. First, villages on the banks were assigned between 1766 and 1774. Second, inland villages were assigned between 1774 and 1786 while the number of jagir villages on the banks increased gradually. It seems probable that in the period between 1774 and 1786 fertile land to raise horses effectively began to run short. Less fertile lands in inland villages were thus also used in this phase. As the above case in 1774 in which jagir villages changed shows, villages in Indapur Pargana were re-arranged to use more villages for keeping horses. As a result, Fig. 6 shows that most of villages in Indapur Pargana were jagir villages in 1786.

3.2 Bapuji Sadashiv Naik and His Jagir Villages

This section presents a case study of some assignee of jagir to bring about the clarity to understand the extension and the management of jagir villages spatially. The green-coloured villages on the above GIS maps expanded between 1768 and 1786. The assignee of these villages was Bapuji Sadashiv Naik, who was one of the chief commanders under the Marathas. In 1768, he received the village of Padasthal in the northeast part of this county as his first jagir village in Indapur Pargana. Krishna Singh Bais had held this village as jagir before 1767, when Krishna Singh Bais was deprived of this jagir village because of the non-fulfilment of his service. This village was re-assigned to Bapuji Sadashiv Naik in 1768.

The revenue of six villages on the Bank of the Nira River was also assigned to him in 1769 (See Fig. 4.). Before this assignment, all these six villages had been Government villages. In other words, the Government set up new jagir villages for Bapurao Sadashiv Naik in 1769. This means that the Government regarded him as an important commander. In 1774, six more villages were assigned to Bapurao Sadashiv. Geographically the new assignment in 1774 extended his jagir villages on the bank of the Nira River. (See Fig. 5.) The villages on the northern boundary were also given to him in this year. All these villages had been Government villages before their assignment to Bapurao Sadashiv Naik. The development of his jagir villages contributed to the extension of the whole jagir area itself in Indapur Pargana in the late eighteenth century.
second son, Krishnaji Naik, was stationed in the town of Bawde in Indapur Pargana, with the responsibility of keeping military animals on the bank of the Nira River (See Fig. 7.).

As mentioned above, the villages on the banks had rich soil. For Bapuji Sadashiv Naik, the villages on the banks were important for him to raise his military animals. The Government recognized this importance and arranged jagir villages in his favour. Original documents testify that many other commanders used resources in jagir villages to raise their animals, especially horses. In order to keep their military animals, commanders needed villages or spaces on the banks. Therefore, villages on the banks were assigned first. This geographically indicates that raising horses had priority over collecting land taxes in Indapur Pargana according to the government’s new policy in the late eighteenth century. In the late eighteenth century, the area and the taxed amount for the irrigated land were separately written in the village accounts while dry land and pasture were not separated. The latter area was not surveyed in great detail. Except for irrigated land, the concept of real property was not important. This land-use successfully provided the area of pasture with grass at the village level in the late eighteenth century.

In 1778, Bapu Rao Sadashiv died, and his son, Pandurang Bapu Rao, inherited all his father’s jagir villages. He continued to keep horses with his brother Krishnaji Bapu Rao as before the death of their father (1 Safar Shuhur 1183, Prant Ajmas, Pune, Rumal no. 504). In 1786, two more villages were assigned to Pandurang Bapu Rao as jagir. These villages were located in the northwestern part of Indapur Pargana (See Fig. 6.). At the end of the eighteenth century, Pandurang Bapu Rao held sixteen jagir villages in Indapur Pargana.

3.3 The Collapse of the Jagir System after the Disasters of 1802-03

After the two disasters of 1802-1803, the number of Jagir villages greatly decreased. This change is understood more clearly when considering the military system. The civil war in 1802 caused a battle between the East India Company and the main Maratha chief-commanders, Holkar family and the Shinde family in 1803. The treaty after this battle made the Government of the prime minister (peshwa) in Pune a protected state, which was denoted as a princely state under British rule. According to this treaty, the artillery and the army under the English East India Company were stationed in Pune to protect the Maratha Government. In other words, horses and cavalry became less useful under the military system of the Marathas in this phase. In Indapur Pargana, most of villages, including jagir villages, were largely depopulated after the two disasters. It can be easily imagined that it gradually became impossible for jagirdars to maintain horses in jagir villages. It seemed many jagirdars had left this county between 1802 and 1807. So the number of jagir villages decreased enormously in this phase.

Fig. 8 shows that many of the jagir villages that survived the two disasters were still located on the banks. The number of the jagir villages marked in green, which were assigned to Bapuji Sadashiv Naik, were reduced to four from sixteen on this map. Some of his former jagir villages became government villages while others changed into the jagir villages marked in yellow, which were assigned to Manohar Gir. He was a great commander who served under the prime minister directly. His jagir villages were on the bank of the Nira River on the southern border. Manohar Gir performed his military service in the county called Phaltan Pargana, which was located south of Indapur Pargana. The location of his jagir villages occupied a strategic position for him. This rearrangement indicates that the Government still supported the military activities of commanders with cavalry under the Marathas, though this system itself was to be abandoned under the above treaty.

On the one hand, some jagirdars were still powerful at the county level. On the other hand, a drastic change occurred at the village level between 1807 and 1818. In the 1810s, the style of the village accounts changed. In the new accounts, dry land and pasture were separately entered. This meant that the Government local officer surveyed dry land, pasture, and fallow land in order to find as much cultivatable land as possible. More and more, the government share became necessary, as the Government had to pay money to the East India Company, which was stationed in Pune according to the above treaty. The Government, therefore, began to promote cultivation. It is found from the accounts that the area of dry land in government villages increased every year. In the 1810s, the concept of land use changed, and agriculture and horse-breeding was separated in Government villages. This was the very period of transition.

The Maratha Government under the prime minister in Pune directly fought against the East India Company in 1817 and was defeated in 1818, when British rule began in Western India. Many jagirdars, including Manohar Gir, joined this battle, which is now called the third Anglo-Maratha War. Under British rule, most of the jagir villages which remained in the last phase of the pre-colonial period were converted into Government villages. The number of jagir villages was reduced to seven by 1818.
Fig. 9. The Locations of Jagir villages in Indapur Pargana in 1818

Fig. 9 shows that the location of seven villages was not always suitable for raising horses. *Jagirdars* in these seven villages came from the Patwardhana family and commanders under the Holkar family. The two families ruled protected states, called princely states under the British, in 1818-1819. Some political matters made it possible for these *jagirdars* to survive. The *jagir* system itself had totally collapsed at this point. In this context, Indapur Pargana prepared for a new system in 1818. The arrangement of villages in 1836, when the Ryotwari settlement was introduced into Indapur Pargana, was exactly the same as the arrangement in Fig. 9 shows.

4. Concluding Remarks
This paper considered the transition of the land revenue system from the pre-colonial period to the early colonial period, focusing on Indapur Pargana, where the new settlement under colonial rule was first introduced in Western India. The collapse of the *jagir* system in the pre-colonial period made it possible for the British to introduce the Ryotwari system in 1836. By mapping out the arrangement of *jagir* villages, this paper shows that most of the fertile land in Indapur Pargana was assigned as *jagir* for raising horses rather than growing crops in the late eighteenth century. This arrangement corresponded to what was then the policy of the Government.

The two disasters of 1802-03 devastated Indapur Pargana. The consequent treaty between the Maratha Government and the East India Company changed the Maratha military system, which rendered maintenance of military horses largely useless. The concept of land use began to change accordingly in the 1810s. The number of *jagir* villages thus sharply decreased. However, GIS maps show that some villages on the banks of the rivers still belonged to *jagirdars*. The Maratha Government supported this arrangement. The inconsistency between these two policies indicates that the Maratha Government groped for various ways to survive. The period between 1807 and 1818 was the very period of the transition. It was not until the beginning of British rule in Western India in 1818 that Indapur Pargana prepared for the introduction of a new settlement. The GIS analysis made the transition of the land system substantially clearer.

Reference

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Secondary Sources

Note
(1) The word *Pargana*, which was a Persian word, means ‘a district, a province, a tract of country comprising many villages’. (Wilson 1855: 204) In the pre-colonial India *pargana* was a group of villages and administratively the upper unit of a village.
(2) A currency unit in India is Repee. Before 1957, Anna had been commonly used as a subunit of Rupee. It was equal to 1/16 Rupee. In this paper the abbreviation is used for the value in these units. For example, Rs.2-12 stands for 2 Rupees12 Anna.
(3) In 1771, the revenue of Kumbharganv in Indapur Pargana was assigned to Kanhoji Khalate, because he did not hold the village in which to position his horses. (21 Rajab Shuhur 1180, Prant Ajmas, Pune, Rumal no. 547)
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The Distribution of Tea Industry in Huizhou: 
Based on the Records of Investigations during the Republic of China

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Abstract: Huizhou, which locates in the southern part of current China’s Anhui Province, is an important tea producing area of China in modern history. Its natural environment provides suitable conditions for tea production. The spatial distribution of local tea industry also bears a close relation to the geographical base of the region. Separated by the watershed, Huizhou belongs both to the Xin’an River Basin and Poyang Lake Basin. Tea production in these two river basins utilized different transport routes. Under the influence of different river system structures, the tea industry formed different industrial patterns: the clustered river system in the Xin’an River Basin formed a sole pole pattern taking Tunxi as the center, and the scattered river system in the Poyang Lake Basin presented a multi-central pattern with tea factories in Qimen and Wuyuan scattered around.

Key words: Huizhou, tea industry, China, the Republic of China

1. Introduction
Huizhou, formerly consisting of six counties, specifically the She, Xiuning, Wuyuan, Qimen, Yi and Jixi, is generally equal of the current prefecture of Huangshan, a prefecture in the southern part of Anhui Province. From the third year during the reign of Xuanhe in the Northern Song dynasty (1121) to the first year of the Republic of China (1912), the six counties had belonged to Huizhou for a long time. In the Republican period, the six counties still maintained their cultural identity despite that “Huizhou” was no longer on the list of administrative regions, and formed a relatively independent geographical unit. Tea industry has been a significant industry of Huizhou. The famous Keemun tea (Qimen black tea) and Twankey/Tienkai tea (Tunxi green tea) since modern times are native to Huizhou.

This paper is mainly devoted to a study of the distribution of tea industry in Huizhou during the Republican period. Tea industry covers multiple links such as planting, processing, trading, etc. In this paper, the spatial distribution of each link of the tea industry in all the counties of Huizhou will be restored, and the relations between the spatial distributions of all links will be further explored.

Special investigations into the tea industry in Huizhou were once conducted by the national government during the Republican period. Some of those investigation reports were published separately as special issues, some were published in the then financial magazines as papers, and some others were saved in governmental archives. The research work of this paper is mainly carried out based on these findings in the Republican period.
2. Natural Environment of Huizhou

2-1. Landform

Huizhou is situated in the hilly region of Anhui’s southern part, and surrounded by mountains at watershed level, forming a relatively enclosed region. In its east are the Tianmu-Baiji Mountains, its north the Huangshan Mountains and its middle the Wulong Mountains. Low mountains and hills are distributed within the encirclement of watersheds.

Among them, the southwest ranges of the Huangshan Mountains and Wulong Mountains become a watershed within the Huizhou region, separating Huizhou into two parts: one in the Xin’an River Basin with She, Xiuning, Yi and Jixi in the east and the other in the Poyang Lake Basin with Qimen and Wuyuan in the west.

Xin’an River, namely the upstream of the Qiantang River, has two sources that are Jianjiang River and Lianjiang River. The Jianjiang River is divided into two tributaries with Shuaishui River in the south and Hengjiang River in the north. Tunxi (now downtown of Huangshan city) is located in the confluence of Shuaishui River and Hengjiang River. Four tributaries, which are the Fengle River, Yangzhishui River, Fuzi River and Busheshui River, form the upstream of Lianjiang River. Lianjiang River joins the Jianjiang River at Pukou near the county seat of She, forming the Xin’an River. The river system in the Xin’an River presents a clustered pattern.

2-2. Temperature

Tea bushes belong to the family of thermophilous plants, whose growth requires an annual ≥10℃ accumulated temperature of over 4000 degrees and minimum temperature of above -14℃. Annual ≥10℃ accumulated temperature in Huizhou is between 4800-5200 degrees, which is suitable for tea growth. And its average extremely lowest
temperature has been -8--10℃ for many years, under which tea bushes will pass the winter safely.

2-3. Precipitation

The optimal annual precipitation for tea bushes is 1000-1500mm. During their growing peak period from April to October each year, more water is required. Annual precipitation in Huizhou region is 1200-1600mm, and amount of precipitation in the spring and autumn accounts for 80% of the total annual precipitation. In terms of air humidity, the annual medial humidity in Huizhou region is above 80%. The high humidity will form smog, which is a great advantage for the growth of tea bushes.

2-4. Altitude

Appropriate altitude for tea bushes is 300-600m. The Baiji-Tianmu Mountains, Huangshan Mountains and Wulong Mountains in Huizhou region belong to middle mountains. Their elevation is between 800-1500m, and relative height difference is above 700m, therefore, foothill areas with altitude between 100-800m are universal. On the two sides of the middle mountains are low mountains with altitude between 400-800m and relative height difference between 300-600m. Similarly, foothill areas with altitude between 100-500m can also be found. Hills are the major geomorphic type in Huizhou region with altitude below 400m and relative height difference below 200m. As a result, hilly areas that are suitable for the growth of tea bushes are widely distributed in Huizhou.

2-5. Soil texture

Tea bushes thrive in red soil and yellow soil that are rich in humus. Red soil and yellow soil are most widely distributed in the hilly areas of Huizhou. Middle mountains with altitude above 1000m are most covered with yellow brown soil, low mountains below 1000m are yellow soil, while hills below 400m and foothill areas of mountains are red soil. The areas with appropriate altitude for tea bushes are most covered with red soil and yellow soil.

2-6. pH

Tea bushes require the soils to be slightly acidic, with a pH value of 4.0-6.5 being optimal. The pH value of red soil in Huizhou’s hilly areas is generally between 4.0-6.0.

2-7. Conclusion

It is thereby concluded that the natural conditions in Huizhou region are suitable for the production of high-quality tea.

In terms of waterway transportation in Huizhou, the Xin’an River Basin showed a clustered pattern, while the Poyang Lake Basin presented a scattered pattern, which both affected the distribution of tea industry.

Fig. 7. A small piece of tea plot on edge of farmland in Wuyuan County

As mentioned above, the relative height difference of middle mountains in Huizhou is above 700m, low mountains’ is between 300 and 600m, hills’ is below 200m. These values indicate the geomorphic fragmentation in Huizhou region. The appropriate altitude for tea bushes is between 300 and 600m, thus tea bushes can only fragmentally be distributed on foothills and slopes in broken hilly areas. The plots in valley terraces and basins are wilder, but local peasants preferred to plant food crops there because Huizhou always had not food output enough. The locals were only willing to plant a few tea bushes on edge of farmlands or beside their own houses. The tea plots managed by one farmer were mostly 1-2 mus. There was nearly no large-scale tea plantation in Huizhou region. In the meanwhile, social factors such as the proportion of owner-peasants in Huizhou, the decentralization of land ownership, the equal-sharing inheritance habit
adopted by the locals, as well as the habit of purchasing new lands by year based on financial resources, have all accelerated the fragmentation of tea plots.

3. Spatial Distribution of Tea Industry in Huizhou

Table 1. Fine tea output of each county in Huizhou in 1933

<table>
<thead>
<tr>
<th>county</th>
<th>area (mu)</th>
<th>fine tea output (picul)</th>
<th>picul /mu</th>
</tr>
</thead>
<tbody>
<tr>
<td>She</td>
<td>35,872</td>
<td>18,000</td>
<td>0.50</td>
</tr>
<tr>
<td>Xiuning</td>
<td>58,559</td>
<td>29,300</td>
<td>0.50</td>
</tr>
<tr>
<td>Qimen</td>
<td>40,000</td>
<td>22,205</td>
<td>0.56</td>
</tr>
<tr>
<td>Wuyuan</td>
<td>68,000</td>
<td>34,000</td>
<td>0.50</td>
</tr>
<tr>
<td>Yi</td>
<td>17,994</td>
<td>8,000</td>
<td>0.35</td>
</tr>
<tr>
<td>Jixi</td>
<td>15,174</td>
<td>5,500</td>
<td>0.36</td>
</tr>
<tr>
<td>Total</td>
<td>234,699</td>
<td>115,805</td>
<td>0.49</td>
</tr>
</tbody>
</table>


By river basins, the 4 counties in the Xin’an River Basin produced a total of 59600 piculs of fine tea, which didn’t appear to be much different from that in the Poyang Lake Basin where the output was 56205 piculs.

The grey scale in the figure indicates the difference in output of each county.

The scattered dots in the figure show that tea output of each county was basically in positive correlation with the area of the county.

4. Spatial Distribution of Tea Industry in Each County

4-1. She County

Fig. 9. Spatial distribution of tea industry in She County


Note: There is no tea output data of every tea producing village, but tea output data of every township (concluding some villages). So I supposed the tea output of every village is equal to the output of the township which is belonged to and made this map with Kriging interpolation. The tea output in this figure is not the real one of every village.

Tea industry chain in She County: chanong (tea grower) - chahang (crude tea dealer) -chahao (tea factory).

Tea growers planted tea bushes and conducted primary processing of tea leaves to make crude tea.

Chahang purchased crude tea from tea growers and resold to chahao. Chahang did not assume any processing of tea and they gained benefits by receiving commissions from the contracting parties.

Chahao were where the refining process of tea was conducted. Usually, chahao were categorized into two types: benzhuang (domestic-oriented tea factory) and yangzhuang (foreign-oriented tea factory). The domestic-oriented chahao were responsible for manufacturing tea for domestic consumption, while the foreign-oriented ones were in charge of manufacturing tea for exportation.
The distribution of tea growers can be generally figured out based on the distribution of tea output. It can be seen from Fig. 9 that tea output in the south of She County was larger than that in the north. The terrain of She County slopes downward from the north to the south. And shancha (mountain tea) was more often in the north, while yuancha (garden tea) was often in the south.

Chahang were mostly distributed in central towns and villages of the tea producing areas. Besides, they also preferred to locate themselves along waterway. These chahang purchased crude tea from tea growers in their nearby counties such as Taiping, Jixi, and even Chun’an and Suian in Zhejiang depending on water transport. However, chahang later began to experience recession with some tea growers starting to refine the tea by themselves, which allowed many chahao to purchase crude tea directly from tea growers instead of from chahang who played a role of tea agent.

Domestic-oriented chahao in She County were largely opened by northern tea merchants, commonly known as Shandongke (merchants from Shandong). The northerners were fond of scented tea, so domestic-oriented chahao were usually distributed in the Wenzhengshan Hill, Lincun, Choumulining Hill and Xiongcun where were abound in chloranthus flowers, a type of scent for scented tea manufacture. The scented tea was mostly sold to retail tea stores in north China by northern tea merchants who managing domestic-oriented chahao in She County.

Foreign-oriented chahao, usually opened by the locals, specialized in manufacturing refined tea in boxes. Tea manufactured by foreign-oriented chahao was finally transported to Shanghai for sale through the Xin’an River. Consequently, foreign-oriented chahao were concentrated in major cities and towns along the Xin’an River and its tributaries, and mostly near the river confluences such as Yuliang and Shendu. The refined tea manufactured by foreign-oriented chahao in She County was sold to chazhan. Chazhan were intermediate traders between chahao and foreign firms. Chazhan and foreign firms were set up at treaty ports, e.g. Shanghai. There were also some branches of chazhan opened in Tunxi City. They will be introduced in 4-2.

4-2. Xiuning County

The author failed to find tea production data in village or town level within Xiuning County, but a list of tea villages in this county was discovered, based on which a figure was made below.

Fig. 11. Spatial distribution of tea industry in Xiuning County

Generally, the distribution of tea growers can be learned from the tea producing villages. In Xiuning County, tea output in the south was more than that in the north. The leading tea producing
areas concentrated in the neighboring villages and towns along the Shuaishui River and its tributaries, where high-quality tea was produced.

Similarly, chahang in Xiuning were also in decline, which were expressed in two aspects. On the one hand, chahang in Xiuning were no longer scattered in central villages and towns of the tea producing areas, but concentrated in Tunxi, the center of foreign-oriented green tea industry in Huizhou. When local crude tea could no longer satisfy the production demand, chahao in Tunxi needed to import crude tea from nearby counties. Chahang in Tunxi then acted as a crude tea purchasing agent. However, on the other hand, quite a few chahao also began to purchase crude tea on their own, which resulted in a sharp decrease in the number of chahang in Xiuning. Till 1934, the number of chahang in Xiuning was decreased to only two.

Chahao in Xiuning were distributed in two places: Tunxi, the center of green tea industry both in Xiuning County and Huizhou, and Shangxikou, the shipping terminal of Shuaishui River. Almost all the chahao in Xiuning were foreign-oriented ones.

In addition, another type of tea organ-chazhan (tea loan firm) also existed in Xiuning. Chazhan were actually intermediate traders between chahao and foreign firms at treaty ports. They played the role of financial institutions. Chazhan concentrated in Tunxi and they were all branches of Shanghai chazhan in Huizhou.

4-3. Wuyuan County

Wuyuan was an important place of origin for green tea. In the Shanghai custom reports around 1880s, Wuyuan green tea (Moyunes) and Huizhou green tea (Fychows) were of equal significance because Wuyuan was located in the Poyang Lake Basin, therefore Wuyuan green tea was usually transited from Jiujiang to Shanghai; while Huizhou green tea mostly referred to the tea transported to Shanghai from Tunxi along the Xin’an River.

The author found a tea output record of each town and village in Wuyuan in the 1930s in the Wuyuan Archives, and made a map based on the record.

Fig. 12. Spatial distribution of tea industry in Wuyuan County
Data source: Xianzhengfu jiansheke (Department of Construction in Wuyuan County Government). 1939-1942. Gaijin cha jishu ji chanliang diaochabiao (Innovation of Tea Producing Technique and Statistical Table of Tea Production), Wuyuan Archives, No.5-4-55.
Note: Interpolated with Kriging

It can be seen from Fig. 12 that both shores of each tributary in the upstream of Le’anjiang River within Wuyuan County were the major tea producing areas, especially the upstream area of Duanxinshui River in the northeast. This tea producing area was joined with the aforesaid tea producing area in Xiuning County.

Meanwhile, the author found an address registration form of local chahao in Wuyuan Archives. From the form we could see the chahao in Wuyuan presented a scattered distribution pattern with most of them located in central villages and towns. Chahao in the following four places were relatively concentrated: Wangkou, Xucun, Qinghuajie and Taibai. After referring these four places on the map, it could be found that these places were situated exactly in the vital communications hub of the major tributaries of Le’anjiang River.

The scattered distribution pattern of chahao in Wuyuan was closely related to local landform. As is stated above, tributaries of Le’anjiang River are blocked by mountains, thus the water system shows a scattered pattern.

Chahang, as purchasing agents, were not so developed in Wuyuan either. Chahao locating in
central villages and towns of the tea producing areas generally sent people to purchase crude tea from tea growers on their own. Also, some private tea vendors purchased crude tea in remote mountain areas and then resold to chahao.

Belonging to the Poyang Lake Basin, Wuyuan’s green tea was mostly transported to Jiujiang along the Le’anjiang River and transited to Shanghai then. After Tunxi became the center of foreign-oriented green tea industry in Huizhou, part of the green tea was also transported to Tunxi by land over the Wulong Mountains.

4-4. Qimen County

Qimen was also located in the Poyang Lake Basin and the tea industry there was famous for its black tea. The author found a statistical table of chahao in each village of Qimen County in 1932 among the investigation reports during the Republican period, and made a figure below.

![Fig. 13. Spatial distribution of tea industry in Qimen County](image)


Note: Interpolated with Kriging

Fig. 13 indicates that tea output in the southwest of Qimen was far more than that in the northeast, which had something to do with the landform of Qimen. Ranges of Huangshan Mountain extend to Qimen County from northeastward, forming the watershed between Poyang Lake Basin and Xin’an River Basin. Therefore, the northeast part of Qimen is mostly middle mountains with altitude of above 800m. The middle mountains in the northeast extend further southwestward and gradually transit to low mountains and hilly lands, namely the middle, western and southern parts of Qimen. With altitude between 100-800m, these areas are covered with red soils that are suitable for the growth of tea bushes.

Chahao in Qimen formed four clusters that were Likou, Shanli, Gaotang and Tafang. These four clusters respectively belonged to four major rivers within Qimen County, with Likou belonging to Dabeihe River, Shanli to Wenshanhe River, Gaotang to Xin’an River and Tafang to Changjiang River. Such a scattered pattern was closely related to the scattered feature of the water system.

Qimen belonged to the Poyang Lake Basin, and tea in Qimen was mostly transported to Jiujiang by waterway and then transited to Wuhan or Shanghai. From the late Qing Dynasty to the beginning of the Republic of China, the most powerful foreign merchants in Wuhan were British and Russian businessmen. They purchased tea from Qimen and other tea districts in Hunan and Hubei. In 1870s, Qimen began to manufacture black tea. Nearly at the same time, Britain began to import black tea from Ceylon, which is colony of Britain, therefore, the Qimen black tea transported to Wuhan was largely sold to Russian merchants. After the Russian revolution in 1917, the Russian merchants in Wuhan returned home one after another. For this reason, Qimen black tea was transported to Shanghai via Jiujiang and sold to foreign merchants there since 1921.

![Fig. 14. Transit route of tea from Huizhou in the Poyang Lake Basin](image)

4-5. Yi County

Yi County covered the smallest area among the
six counties and its tea output was also very small.

The author marked the tea producing villages in Yi County onto the map according to data in the Republican period.

![Fig. 15. Spatial distribution of tea industry in Yi County](image)


It can be seen from Fig. 15 that a majority of tea producing villages concentrated in the south. Landform of Yi County is divided into the northwest and southeast parts. The northwest part belongs to Qingyijiang River Basin and chahao there were all domestic-oriented ones. Hongqing tea (a kind of baked green tea) produced by domestic-oriented chahao was transported to the Yangtze River along the Qingyijiang River. The southeast part belongs to Xin’an River Basin. Tea growers manufactured tea leaves into crude tea by primary processing and concentrated in Yuting, a waterway hub from Hengjiang River to Xin’an River. Crude tea produced in Yi County was transported to Tunxi from here for refining process by foreign-oriented chahao there. Yi County itself hardly had any foreign-oriented chahao.

**4-6. Jixi County**

The landform of Jixi is similar with that of Yi County. Middle mountains at watershed level lie across in the middle where Tianmu Mountains and Huangshan Mountains join each other. The northern side of the watershed belongs to Yangtze River Basin and the southern side belongs to Xin’an River Basin.

The author marked the tea producing villages in the Jixi onto the map according to data in the Republican period.

![Fig. 16. Spatial distribution of tea industry in Jixi County](image)


It can be seen from Fig. 16 that most tea producing areas were situated in Xin’an River Basin and few were located in the Yangtze River Basin.

Villages in the north mainly manufactured hongqing tea for domestic consumption to attract the northern people to purchase.

Crude tea manufactured by villages in Xin’an River Basin was gathered in Linxi and then transported to She County or Tunxi by sea. A majority of tea was delivered to foreign-oriented chahao for refined processing, while a small part of it was sent to Lincun in She County for scented tea manufacturing and later sold to northern China. Linxi is where Denglushui River, Yangzhishui River and Lushui River converge within Jixi territory. Therefore, Linxi Town became a transition hub for tea from the Xin’an River Basin. One third of the tea output in Jixi was transported from here down to the south.
5. Discussion and Conclusion

The natural environment in Huizhou provides suitable conditions for the growth of tea bushes. And the spatial distribution of tea industry also bears a close relation to the geographical base of the region.

In terms of landform, Huizhou belongs both to the Xin’an River Basin and Poyang Lake Basin. Tea produced in the Xin’an River Basin was mostly transported to Shanghai along the Xin’an River, while tea produced in the Poyang Lake Basin was transported to Jiujiang by waterway and then transited to Shanghai or Wuhan. River system in the Xin’an River Basin showed a clustered pattern, while that in the Poyang Lake Basin presented a scattered pattern. Similarly, distribution of tea industry in the Xin’an River Basin formed a sole pole pattern with Tunxi as the center, and that in the Poyang Lake Basin showed a multi-central pattern.

The basic industry chain for local tea industry was chanong (tea grower) - chahang (crude tea dealer) - chahao (tea factory). Chanong were tea growers and responsible for primary processing, chahang acted as purchasing agents and chahao were in charge of refined processing. With the enhance of strength of chahao in Tunxi, chahao started to purchase crude tea directly from tea growers, thus the number of chahang gradually began to shrink. Spatial distribution of the drop of the number of chahang presented a gradually reduced pattern taking Tunxi as the center. Chahang in Xiuning and Yi County had disappeared gradually. In the She County and Jixi County that were relatively far away from Tunxi, chahang could be still found, but they also showed a tendency of extinction.

In Wuyuan and Qimen in the Poyang Lake Basin, chahao showed a multi-central distribution pattern. Refined processing of tea was mostly completed locally; therefore, chahang were not so developed in the Poyang Lake Basin. Only some private tea vendors purchased crude tea in mountain areas.

Acknowledgements

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The “Personality” of Economic Development in the Delta Region of Egypt
in Modern Times: a Focus on Buheyra Governorate

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1Hitotsubashi University 2Sophia University

Abstract: The image of agrarian society in Egypt today is that of a typical hydrologic society characterized by a number of features such as the centralized management of water, large-scale land reclamation, labor-intensive agriculture, and systematic crop rotation. This image was created after World War II; however, it diverts our attention from the variety and the historical transformation of agrarian life in Egypt throughout its history. In fact, the “personality” of today’s rural Egypt began to be formed around the turn of the twentieth century through a process of modernization and colonization that has continued until modern times. Our paper follows the formation of this personality, based on historical statistics and geographical information. GIS is useful to link the two kinds of data and information, and Egypt is a suitable field for a historical and spatial analysis of this issue for two reasons. The first is the uniqueness of Egyptian geographical and ecological features as a hydrologic society to which many historical strata have been added. The second is the relative abundance of statistical data and geographical information. We present an analysis of when, how, and why the personality of the modern Delta region was formed, with a focus on Buheyra governorate in the outer Delta area.

Keywords: Egypt, GIS, Irrigation, Regional differences, Land reclamation

1. Introduction

The agrarian society of Egypt today is generally considered a hydrologic society characterized by a number of features such as centralized management of water, large-scale land reclamation, labor-intensive agriculture, and systematic crop rotation. This image was created after World War II, when the Egyptian population was rapidly increasing. However, this image applied to rural Egypt in the past diverts our attention from the variety and historical transformation of agrarian life in Egypt. In fact, the “personality” of Egypt today has been formed through a process of modernization and colonization starting from the beginning of the nineteenth century that has continued until modern times.

Conceptual Framework

The term “personality” is borrowed from Gamal Hamdan (1928–1993), a famous Egyptian geographer who throughout his life researched the characteristics of his home country, which were compiled into the monumental work Egyptian Personality (Nagasawa 2013). In his academic career, he contributed to the analysis of the characteristics that were specific to the land of Egypt, not the citizens or people of Egypt, and this distinction is important in his research. He writes:

(This is) a study of the personality of the country or region named Egypt, not that of Egyptians or the people called Egyptians, because geography is a “science of things,” not a “science of human beings” (Hamdan 1980: 32).

According to Hamdan, the personality of the land is formed by two aspects, namely the “site” (al-mawdi’) and the “situation” (al-mawqi’). He writes:

The “site” means the circumstances that have in themselves the characteristics, the scale and the sources peculiar to the land, such as the circumstances of river flood and the forms of a valley, while the “situation” is the relative characteristics that are regulated by the relationship between the region concerned and the distribution of land, population and product goods, and are conditioned by the inner and outer relations of the region concerned. … In other words, the “site” is the tangible, inner and native peculiarity to the land, while the “situation” is the invisible, directly and geometric thought (Hamdan 1980: 35).

Subject of This Study

This paper aims to explore the process of modernization in modern rural Egypt by addressing three questions concerning when, how, and why the personality of contemporary Egypt was formed. Particular attention is paid to the Delta region, especially Buheyra governorate as the study field and the demographic viewpoint as the subject. Based on the conceptual framework of Gamal Hamdan that intentionally combines historical and spatial analyses, GIS is a useful method to link statistical data and geographical information.

Data and Information

Egypt is a suitable field for historical and spatial analysis using GIS, because of the relative abundance of statistical data and geographical information in modern times (Kato et al. 2013). The main data and information for this study are from the following three source materials.

1) The 1882–2006 population census, especially those of 1897, 1907, and 1917.
2) Data and information collected through field surveys of Egyptian villages.
3) Digital maps that we have produced of the social and economic conditions of Egypt.

2. The Contemporary Personality of the Delta

The starting point of discussion is to confirm the most important personality of the Delta today. Map 1 shows the results of cluster analysis of current regional differences in terms of income, employment, and educational level (unit: town or village), based on the population census of 1996 and the
Household Income & Expenditure Survey in the period 1999–2000 (2). At a glance, it is apparent that from the social and economic point of view today’s Delta region is composed of the two regional categories, central and outer (or peripheral) areas. The outer Delta, including Buheyra and Kafr Sheykh governorates, is characterized by the “predominance of large-scale agricultural enterprises”, in contrast to the central Delta characterized by “markedly low-rank government employment”.

Map 1 Regional differences in the Delta region

3. When Was the Current Personality of the Delta Formed?

The current personality was formed around the turn of the twentieth century. Because many parts of the outer areas along the Mediterranean Sea and on the borders of deserts were marshy or arid, they were unsuitable for habitation until the nineteenth century. Nothing would have happened had these areas remained uninhabited. However, it is very complicated to examine population trends and distribution and people’s relations with agricultural lands in the outer areas through demographic and agricultural statistics, because the administrative borders have changed over time (3). GIS is expected to overcome this difficulty to some extent simply because the geographical locations of villages remain the same. For example, Maps 2 a)–c) indicate the distribution of settlements in modern Egypt (Kato et al. 2013) (4), and show the stages of increase in the number of settlements in modern times from the beginning of the nineteenth century. It can be seen that the number of villages increased sharply throughout the twentieth century.

Map 2 a) Distribution of villages in the 1800s
Map 2 b) Distribution of villages in the 1900s
Map 2 c) Distribution of villages in the 2000s
Note: The red circles show the Lake Idku region where the survey village discussed in Section 5.3 is located.

4. How Was the Current Personality of the Delta Formed?

A similar question, “How did people come to settle and live in the outer areas of the Delta?” provides the same answer, namely by migration. Where did people migrate from? This can be addressed by examining the birthplaces recorded in the 1907 population census (agglomerated at markaz (district) level), which allows us to examine the dynamics of rural Egypt.

Table 1 Birthplace by governorate in 1907 (%)

<table>
<thead>
<tr>
<th>Governorate of Residence</th>
<th>Cairo</th>
<th>Alexandria</th>
<th>Buheyra</th>
<th>Daqhaliya</th>
<th>Gharbiya</th>
<th>Qalyubiya</th>
<th>Sharqiya</th>
<th>Upper Egypt</th>
<th>Foreign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Egypt</td>
<td>4.0</td>
<td>2.3</td>
<td>0.4</td>
<td>6.7</td>
<td>8.4</td>
<td>13.2</td>
<td>8.9</td>
<td>3.9</td>
<td>7.6</td>
</tr>
<tr>
<td>Lower Damietta</td>
<td>0.2</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>97.3</td>
<td>1.3</td>
<td>0.1</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Upper Egypt</td>
<td>4.0</td>
<td>2.3</td>
<td>0.4</td>
<td>6.7</td>
<td>8.4</td>
<td>13.2</td>
<td>8.9</td>
<td>3.9</td>
<td>7.6</td>
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<tr>
<td>Oasis</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Egypt</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Notes: 1) The governorates of Upper Egypt and Oasis are not included in the table. 2) The classification of governorates of residence is based on that of 2006. 3) In 1907, Damietta belonged to Daqhaliya, and Kafr Sheykh to Gharbiya governorate.
Source: Population census of 1907.

From the population census of 1907 (part of which is shown in Table 1), four migration patterns (from where to where) can be identified in 1907: 1) migration from Gharbiya to the outer or peripheral areas of the Delta (Buheyra, Daqahliya); 2) migration of the foreign population into the two cities of Cairo and Alexandria; 3) migration within Middle Egypt, that is, Asyut to
Minya, Minya to Beni Suef; and 4) a small volume of migration to Cairo from suburb governorates, and Oasis.

The first pattern of migration from the central areas, especially Gharbiya governorate, to the outer areas of the Delta is shown in Map 3. Those born in Gharbiya (present Gharbiya and Kafr Sheykh governorates) at the time of the 1907 census resided in markaz such as Rashid, Shobura hit, Damanhur, Abu Hommus in Buheyra governorate, as well as in Qalyubiya and Sharqiya governorates.

Map 3 Markaz (districts) of residences of those born in Gharbiya governorate in 1907
Note: The red circles show the Lake Idku region where the survey village discussed in Section 5.3 is located.
Source: Population census of 1907.

The nature of this pattern of migration from central to peripheral Delta areas can be examined further by means of demographic trends, for which we rely on the two indicators of population growth and proportion of females. Map 4 shows the population growth (%) by village in 1897–1907. It is noticeable that the outer areas of the Delta, such as Buheyra and Sharqiya, saw much higher population growth than the inner areas such as Gharbiya, Menufiya, and Qalyubiya. The same trends are observed for the later period of 1907–1917.

Map 4 a) Population growth by village 1897–1907

Map 4 b) Population growth by village 1907–1917
Note: The red circles show the Lake Idku region where the survey village discussed in Section 5.3 is located.
Source: Population censuses of 1897, 1907, and 1917.

Map 5 shows the proportion of females in 1907. This proportion was lowest in the outer areas of Buheyra and Daqahliya governorates, and highest in Gharbiya, Daqahliya and Sharqiya governorates. The same trend was observed in 1897 and 1917, which suggests that outer areas had in-migration, in contrast to the old agricultural areas within the central areas of Lower Egypt with out-migration.

Map 5 Proportion of females in 1907
Note: The red circles show the Lake Idku region where the survey village discussed in Section 5.3 is located.
Source: Population census of 1907.

5. Why Was the Current Personality of the Delta Formed?

What were the reasons behind this migration? Why did the outer areas have high population growth while the central areas had low growth? Three factors led to the rapid expansion of the population in the outer areas (for discussion of these issues in a different context, see Kato et al. 2013), namely 1) Bedouin settlement, 2) an increase in the number of hamlets ('izba), and 3) land reclamation. We attempt to locate these three phenomena in the context of our paper by producing revised GIS maps.

Bedouin Settlement

Map 6 shows the proportion of Bedouins in 1907 at the village level. The Bedouins were concentrated in the outer areas of the Delta, including Buheyra governorate. In the nineteenth century, central governmental control had not yet been achieved in the desert; the settlement policy of the Bedouins was only
realized in the first half of the twentieth century. The process of expanding central governmental control entailed the centralization of administration (Kato 2001).

Map 6 Proportion of Bedouins in villages (%) 1907
Note: The red circles show the Lake Idku region where the survey village discussed in Section 5.3 is located.

Increase in the Number of Hamlets (‘izba)

Map 7 shows the number of hamlets (‘izba) in 1907, indicating that the newly built hamlets were located in the outer areas.

Map 7 Number of hamlets (‘izba) in 1907
Notes: The number of hamlets in Menufiya is zero in all villages. Because it is unreasonable to assume that no villages had any hamlets, this may be a result of missing data in the source material.
Note: The red circles show the Lake Idku region where the survey village discussed in Section 5.3 is located.

Following the transition of irrigation from natural (basin) systems to artificial systems in the nineteenth century (5), demographic changes resulted in significant alteration to the layout of the Egyptian countryside. The banks that had previously surrounded the cultivated lands (basins) to protect them from floodwater were demolished, and hamlets began to be constructed on the cultivated lands because these were no longer flooded by the Nile. Hamlets appeared especially on the lands that were reclaimed after the nineteenth century in the areas bordering the desert and the Mediterranean Sea. The old traditional villages and the new hamlets were called qarya and ‘izba, respectively. A hamlet (‘izba) tended to be constructed as an agglomeration attached to the old “mother village”. The rapid increase in the number of hamlets following demographic expansion drastically changed the landscape of the Egyptian countryside.

6. Land Reclamation: the Case of the Lake Idku Region around Sidi Oqba Village

As noted in (3), it is difficult to examine the relationship between land and population in peripheral regions such as Buheyra under conditions of exploitation because of the lack of statistics. For this purpose, a case study is useful. The region discussed here encompasses the outer areas of the Delta around Sidi Oqba village by Lake Idku. Sidi Oqba belongs to Buheyra governorate in the western Delta region, and is located between the Nile and Lake Idku (6).

Map 8 Buheyra governorate at the beginning of the nineteenth century in Description de l’Egypte

Map 9 Location of Sidi Oqba village in 1895
Note: The red circle show the location of Sidi Oqba village.
Source: Public Works Ministry, Inspection General of Irrigation, Beherah Province, Scale 1/100,000, 1895.

The history of Sidi Oqba can be reconstructed from population census data (see Table 2). In the 1882 and 1897 censuses, Sidi Oqba village seemed to be part of the village of Barriyat Masna, and was then part of the village of Izbat Khalid
Mari from 1917. Sidi Oqba became an independent village from 1947. The village may have been located on the shores of the lake, or most probably did not exist before the mid-nineteenth century. As shown in Map 9, the area where Sidi Oqba village is actually located (the circled area) was still marshland in 1895. It was not suitable for habitation in the first half of the nineteenth century because of salinity, although it now has a fertile rural landscape (7). Even in 1946, the area where Sidi Oqba village is located seems to have been an area under development. As shown in Map 10, the area (the black circle) was on the boundary between cultivated and uncultivated lands, and close to the boundary for irrigation.

Map 10 Irrigation map of Buheya governorate (1946)
Note: The red circle show the location of Sidi Oqba village.

In 1907, the village of Misana was composed of 30 settlements (‘izba). Thus, if Sidi Oqba village existed, it would have been a small agglomeration with an average population of 80 people. It seems that an important group who settled there were Bedouins. According to the 1907 census, Bedouins accounted for 1518 of 3762 people in Misana village. Before the nineteenth century, the land in this region was supposed to have been cultivated only by shallow canals. However, at the beginning of the nineteenth century, deep canals were dug, and in 1880, the Egyptian government decided to establish water elevating devices for irrigation on a large scale. This was not an isolated experiment, but a system planned to extend over a greater part of the Delta. The lands around Sidi Oqba village were developed by the Buheya Land Company from the end of the nineteenth century (8). Map 11 shows the location of developments planned by the company.

Map 11 Location of developments planned by the Buheya Land Company (1908)
Note: The red circle shows the location of land development plan in Lake Idku region

The most essential task of the Buheya Land Company was the development of a drainage system (9). The irrigation system adopted there was unique, in that it was a system combining the traditional basin system on the one hand, with the modern canal system and the introduction of water elevating devices for irrigation on a large scale on the other. Map 13 presents the irrigation system in the region around Sidi Oqba village; it shows that the foundations of the irrigation system are mounds, which are the archaeological hill sites of classical ages, from which the drainage canals run downward into Idku Lake (10).

Table 2 Population of Barriya Misana village
Note: Name of the village changed to Izbat Khalid Mari from the 1917 census.

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1897</td>
<td>2,000</td>
</tr>
<tr>
<td>1907</td>
<td>4,000</td>
</tr>
<tr>
<td>1917</td>
<td>6,000</td>
</tr>
<tr>
<td>1927</td>
<td>8,072</td>
</tr>
<tr>
<td>1937</td>
<td>12,455</td>
</tr>
<tr>
<td>1947</td>
<td>13,738</td>
</tr>
</tbody>
</table>

The information on birthplaces at the markaz (district) level tells us that one-fifth of the residents (around 20,000 of 101,678 residents) in markaz Abu Hommus in 1907 were born outside the markaz, mainly in nearby markaz such as Damanhur, Delingat, or Itay Barud.
mounds where the irrigation stations were established.

Map 12 The Buheya Land Company’s development plan for the region around Sidi Oqba village (1908)

Map 13 Irrigation system based on mounts, which are the archaeological hill sites (1946)

Note: See Map 11.

Source: See Map 10.

7. Conclusion

Our findings can be summarized as follows. First, today’s social and economic structure of the Delta region—referred to here as its “personality” after the terminology of Gamal Hamdan—began to be formed around the turn of the twentieth century. Second, the current social and economic structure of the Delta region was probably formed by migration within the Delta, from the central region to the outer region and within the neighboring villages and towns. Third, this migration was attributable to three factors, namely Bedouin settlement, an increase in the number of hamlets (‘izba), and land reclamation; these three causes are deeply interconnected under the recent modernization policy of the Egyptian government.

Some issues remain to be studied, the most important of which is to explain the difference between negative opinions of the socioeconomic situation at the beginning of the twentieth century and our tentative conclusions on it in this paper. As noted in (3), although some scholars consider the beginning of the twentieth century was a period of stagnation, we conclude that around the turn of the twentieth century was a period of transformation. This difference is caused because the scholars concerned discussed the socioeconomic situation at the level of the whole of Egypt or of governorate. However, the aggregated or averaged numbers by governorate may explain the general trends, but not necessarily the change of structure. In our opinion, the phenomena of structural changes appear frequently in the peripheral and micro spheres. Our concern is with the peripheral region around Sidi Oqba village as a case study of the process of transformation of rural Egypt (1). For this purpose, it appears that GIS is very useful to fill the lack of statistics and to guide the direction of the study.

Notes

(1) The authors have conducted field surveys, of which the main task has been a household survey of 19 villages since 2004 in the framework of the joint research project between Hitotsubashi University and CAPMAS (Central Agency for Public Mobilization and Statistics) in Egypt on the Egyptian socio-economy. During this research project, we have collected statistical data on households and produced GIS maps at the level of individual buildings.

(2) The cluster analysis was conducted on Egypt as a whole, not only on the Delta region. It reveals that rural areas vary widely and qualitatively across the commonly used division of Lower and Upper Egypt (Kato and Iwasaki 2008).

(3) Some scholars consider the beginning of the twentieth century (until the 1920s) to have been a period of stagnation. For example, Radwan noted the decrease of agricultural productivity during this period, because of war, animal plagues, and other causes (Radwan 1974: 148). Abbas and Dessouky also mention the relatively stable increase in the availability of arable land between 1914 and 1926 (Abbas and Dessouky 2011: 44, 50). Using information about the land reclaimed by various land reclamation companies, Abbas and Dessouky pointed out that although the increase in arable land area between 1914 and 1950 was small, there was a limited increase as a result of land reclamation and drainage projects in the north of the Delta (Abbas and Dessouky 2011: 50). In addition, it is well known that the drainage problem caused a decline in agricultural productivity in the 1920s (see note (9)). However, although these studies discuss the general trends in the whole of Egypt or in governorates, they fail to examine the regional differences in the relationship between land and population, especially in the peripheral regions such as Buheya that were exploited, because of the lack of relevant statistics.

(4) Map 2 a) shows the situation at the beginning of the nineteenth century, when the French army occupied Egypt; Map 2 b) shows the situation at the beginning of the twentieth century, when British colonial rule in Egypt was at its zenith; and Map 2 c) shows the situation at the beginning of the twenty-first century. The three maps illustrate that the number of settlements in outer areas increased after the 1900s.

(5) The environmental circumstances were drastically transformed in modern Egypt by the change in the exploitation of water resources as a result of the transition of irrigation from natural (basin) systems to artificial systems.

(6) Sidi Oqba is one of 19 villages in which we have conducted field surveys since 2005.

(7) However, interestingly, there are many archeological sites in this region. In other words, this region prospered in the classical age, declined in the middle ages, and was redeveloped in modern times (Hasegawa 2012).

(8) The period from the end of the nineteenth century to the beginning of the twentieth century was an age of booming land reclamation in Buheya governorate; the Buheya Land Company was established in 1894 (Abbas and Dessouky 2011: 44, 224 note).

(9) The drainage problem became obvious in the 1920s, when the productivity of Egyptian agriculture stagnated and decreased, which led the Egyptian government to undertake a major project to improve the drainage system in the 1930s. This project was considered highly successful at the time.

(10) The structure and landscape of Sidi Oqba village reflect this development history of the region. Sidi Oqba is a typical new village composed of many hamlets (‘izba), with a population of 20,429 in 2006. It is composed of 52 hamlets. The years of construction of houses in Ibat Sidi Oqba, the biggest hamlet in Sidi Oqba, show that the oldest house there was built in 1940; most of the houses are new. The cemetery and holy mausoleum are located far from the settlement. Old houses are located along the main canal, and new houses have been built on agricultural land far from the main canal (Kato et al. 2013).

(11) Richards (1982: 55) calls the period 1890–1914 the “green revolution,” when the production of agricultural goods increased because of the development of agriculture.

Reference


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Assessing the Demographic and Spatial Characteristics of Migrant Workers in Selected Districts of Nineteenth Century Manila Using Archival Records and Geographic Information Systems

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Abstract: Cities and urban areas throughout history have long attracted and benefitted from the arrival of migrants. Accounts of foreign visitors of Manila and its surrounding areas in the nineteenth until the early twentieth century have taken note of the said region’s status as an in-migration area. Historians who have done research on Philippine history have likewise noted the arrival of foreign and local migrants in Manila, particularly during the Spanish period.

While Manila’s status in the 1800s as a magnet for outsiders cannot be disputed, the nature of migration in nineteenth century Manila may be better appreciated if this is studied from the scale of the said areas’ different districts. Such district-level analysis of Manila’s migration history is made possible by the availability of village-based annual civil register records at the National Archives of the Philippines (NAP) called the padrónes de vecindario. Moreover, a greater level of understanding and representation of such data can be attained because of new research technologies such as Geographic Information Systems (GIS).

Using selected vecindario records from several Manila districts such as Sampaloc, San Fernando de Dilao, Tondo and Quiapo and combining these with GIS methods, this paper seeks to determine probable tendencies in the characteristics of Filipinos who migrated to these particular places as well as the potential differences in the number and type of migrants that they attracted. Particular focus would be given in determining differences or similarities among these migrants with respect to: a) the provinces where they came from, b) their ages, c) gender as well as their d) listed occupations. Through this research, it is hoped that more social scientists who are interested in Philippine history would be encouraged to not only capitalize on readily available demographic records at the NAP but to also employ technologies, such as GIS, in order to maximize the utilization and representation of these sources.

Keywords: Manila, migration, vecindario, Geographic Information Systems nineteenth century Philippines, urbanization, historical geography

1. Introduction

Historical geography is a discipline that deals with the geographies of past periods by creatively reconstructing observable facts and processes that have occurred in a particular place or society (Butlin 1993). One phenomena that historical geographers have shown interest in learning is the “variability of demographic phenomena” that could be observed in particular places, especially since it is very likely that there will be differences in the demographic characteristics of settlements that merits attention and analysis (Ogden 1987: 222).

In the case of the City of Manila and its nearby towns that made up the Province of Manila in the Philippines, the 1800s is considered a period wherein its settlements experienced significant economic and demographic change. This is particularly true for the districts that make up present-day Manila City (See Figure 1.). In the case of Manila Province (See Figure 2.), within roughly 75 years (1817-1895), its population is said to have increased more than three-fold from 83,000 to 275,000. This abrupt spike in the number of Manila residents becomes even more impressive since majority of this growth in population occurred after 1870 (Huetz de Lemps 1998), a contention that is supported by Bowring’s (1963) account that Manila in the 1850s only had a population of 150,000. Clearly, such a rate of growth could not be solely attributed to natural increase. As such, migrants within the Philippines (Doeppers 1998a and Doeppers 1998b) and abroad (Huetz de Lemps 1998) undoubtedly contributed to the demographic transformation of what has been described by a foreign visitor as the Philippines’ only human settlement that had some form of urban living (Le Roy 1968).
Figure 2. Towns of Manila Province using the present-day boundaries of Metro Manila.

Fortunately, the Spanish colonial authorities during the latter part of the 19th century were able to record information about Manila’s residents through its padrónes general de vecindario. These annual civil register lists found at the National Archives of the Philippines (NAP) contain the names of residents of particular settlements who are aged 18 years old and above, and such documents have proven to be quite useful in providing information about the characteristics of migrants in Manila’s different districts (Doeppers 1998a).

Among the Manila settlements that have recorded lists are the Quiapo, Sampaloc, Tondo, and San Fernando de Dilao. Tondo, Sampaloc and San Fernando de Dilao were known in-migration areas of locals who move to Manila (Dery 1991), while Quiapo, along with Sampaloc, were places where the Chinese moved into when the Parian, the only settlement where the Chinese in Manila were originally allowed to stay, was demolished (De Viana 2001). It is said that Tondo was primarily a working class district where fishermen, boatmen and laborers resided (Foreman 1980). In addition, the said settlement also specialized in the manufacture of milk-based commodities as well as cotton and silk products (Bowring 1963). On the other hand, Sampaloc and Quiapo was where the mestizo and the native elite, the principalia, resided (Reed 1967).

In order to maximize the usefulness of these sources, however, it would be necessary to use tools that would allow such data to be rendered in visual form which allows for more nuanced spatial analysis. Both of these conditions could be attained by using Geographic Information Systems (GIS), a now accepted research tool in historical GIS, whose adherents have focused on topics such as the historical development of urban areas (Gregory and Healey 2007).

2. Objectives

This paper builds on a previous study (Lagman, Villasper, Martinez not published) that sought to describe and compare the demographic and spatial characteristics of migrants who moved to the Manila districts of Pandacan, Malate and San Fernando de Dilao (Dilao), all of which are located along the right bank of the Walled City of Intramuros (Huetz de Lemps 2000). For this current study, one of the objectives is to review the civil register records from single year documents of selected districts on the left bank of Intramuros—Sampaloc, Quiapo, and Tondo. Such review would yield information on the migrants of these districts pertaining to their: a) province of origin (local, short-range, medium-range, long-range), b) gender, c) occupations and d) age range. These types of information would then be compared with the right bank settlement of Dilao which had the greatest presence of migrants among the communities that were previously studied.

3. Methods

Any research in historical GIS would require the collection of data and the development of a useable database. Similar to the previous paper, this study required the use and updating of an MS Excel record that was developed using information that was collected, translated from its original Spanish to English, tabulated and organized using vecindario documents from the NAP. The present database already has roughly 65,000 entries from single year civil register lists from the 1880s to 1890s taken from seven Manila districts. Each entry in the database contains the following information pertaining to a unique individual: a) district of residence, b) name (title, first name and surname), c) age, d) occupation, and e) place of baptism. The last type of information serves as a proxy indicator of migration (Doeppers 1998a), since if a person was baptized in a parish other than his place of current residence then he or she should be considered a migrant/non-local. It should be underscored that the extraordinary amount of effort required to develop, update and continuously edit this database is considered by historical GIS practitioners as, in itself, serious scholarship (Gregory and Healey 2007).

The completion of the databank for this current paper was soon followed by the generation and analysis of maps and graphs using ArcGIS 10.2 along with the shape files from PhilGIS.org that were utilized in a previous work by Lagman, Villasper and Martinez (not published). While the categorization of the age, gender and occupation of migrants within a district is quite straightforward, the grouping of migrants according to their place of origin needs some explaining. All identified migrants are categorized as local, short-range, medium-range or long-range migrants based on the relative distance of the place
where a person was baptized to where he or she resided as a resident of a specific Manila district. Those who were christened in one of Manila’s districts other than his or her current place of residence is considered a local migrant, while one who received baptism in a town that is part of present-day Metropolitan Manila is tagged as a short-range migrant. Those who are listed as being baptized in a parish located in the Southern Tagalog and Central Luzon provinces of Laguna, Morong (Rizal), Cavite, Batangas, Tayabas (Quezon), Bulacan, Pampanga, Zambales, and Bataan were considered as medium-range migrants, and anyone who was originally from provinces beyond the these two aforementioned regions were classified as long-range migrants.

4. Limitations

As has been emphasized by Gregory and Healey (2007), one of the main concerns in GIS-based historical studies is the completeness and accuracy of available data. In the case of this research, time and resource limitations as well as the quality of available vecindario data compelled the researcher to limit the analysis of migrant characteristics per district to a specific civil registry year in the middle 1880s to 1890s. In addition, while the lists available for the districts of San Fernando de Dilao, Quiapo and Sampaloc consistently provide baptismal data which serves as an indicator of migration, only a small percentage of the lists from Tondo provide such information. As such, the reader should be cautioned that the accuracy of the spatial and demographic data among Tondo migrants may not reflect the probable correctness or comprehensiveness of what has been observed in the other Manila suburbs.

5. Results

5.1 Share of Migrants to Total District Population

Among the three districts north of the Pasig that were studied, only Tondo yielded a relatively small number of migrants at 4.4% of its total civil register population. This, as has been explained above, is more a product of unreliable data and likely does not reflect the real share of migrants in the said district. On the other hand, Sampaloc (27%) and Quiapo (45%) had migrant populations that made up more than a fourth and a little less than half of its total populations (See Figure 3.). Such a significant share of migrants to the total number of working-age members of Sampaloc’s and Quiapo’s communities becomes even more impressive as these rates are higher than the 24% share that was observed in Dilao as well as in other Manila districts as can be seen in Figure 3 below.

5.2 Long-Range and Medium-Range Migrants

Individuals who hail from far away localities who settled in the communities of San Fernando de Dilao, Quiapo and Sampaloc in the 1890s were predominantly from the Ilocano-speaking provinces of Ilocos Sur and Ilocos Norte in Northern Mindanao. Quiapo likewise had migrants from the province of Albay (11 of 92), which is located in south eastern Luzon, while Pangasinan was another province that contributed a significant number of long-range migrants in San Fernando de Dilao (13 of 107) (See Figures 4, 5 and 6). It should be note that while the aforementioned Manila districts had long-range migrants from roughly 23 provinces, majority of this type of migrant were from only 3 provinces: Albay of the Bicol Region, which face the Pacific Ocean, and Ilocos Norte and Sur in Northern Luzon.

Incidentally, the pattern indicating that the Ilocos and Albay provinces were migrant-sending settlements in the late 1800s reflects observed contemporary migration trends in the Philippines noted by Hosada (2007). In the said study, it was stated that people from Ilocos and Bicol Regions, from the 1960s up to the present, along with those from the Visayan province of Eastern Samar, had the greatest inclination to move out of their place of origin. As such, with the exception of those migrants from Eastern Samar, the current day trend of Ilocanos and Bicolanos to move to Metro Manila, whose territory is practically the same as the Province of Manila during the Spanish period, had been going on since the late 1800s.
While the most common type of long-range migrants were Ilocanos of Northern Luzon, the mid-range migrant population in Dilao, Quiapo, and Sampaloc were dominated by persons from the nearby province of Bulacan who speak the same language, Tagalog, used by the natives of Manila (See Figures 7, 8 and 9.). Another consistent pattern that can be observed from the GIS-generated maps is that the second largest immigrant group in these three communities hail from Morong (present-day Rizal), another Tagalog-speaking province. All the top four sources of mid-range migrants for these three districts, in fact, speak the same mother language as that of the locals of Manila, with the exception of San Fernando de Dilao which had a significant native Kapampangan population.
While those who were born and baptized in Bulacan were the most frequently identified mid-range migrant in the districts being studied, their numbers are, in terms of ratio, much larger in Sampaloc and Quiapo than in San Fernando de Dilao. The 82 Bulakenyos in the latter was only 1.46 times larger than 56 natives of Morong who were recorded to have stayed in the said district in 1892. In contrast, there were nearly 6 individuals from Bulacan for every native of Morong in both Quiapo (5.76:1) and Sampaloc (5.64:1).

Aside from sharing the same language, geography could partially explain why mid-range migrants in the Manila districts being studied are from Tagalog-speaking provinces. In an era wherein road transportation was very limited and quite localized, travelling far beyond the borders of one’s town would likely be through water transport. Aside from absolute proximity, Bulacan and Morong are connected to Manila via major rivers and its tributaries. This, however, does not explain why there were fewer migrants from Cavite and Laguna, which are also connected to Manila via navigable in-land and sea-based waterways.

### 5.3 Short-Range and Local Migrants

One of the advantages GIS lends to historical research is that when data gathered from archival sources can be geographically located, the researcher is provided with the ability to easily describe at various the spatial patterns of what he or she intends to study. With respect to individuals who were based in Dilao, Quiapo and Sampaloc in the 1890s and who were born in towns and settlements that now make up present-day Metropolitan Manila, several spatial patterns with
respect to their place of origins can be observed. As illustrated in Figures 10, 11 and 12, there are distinct differences as to where majority of migrants in the aforementioned districts come from. Nearly 6 out of every 10 short-range migrants (SRMs) in Quiapo were from towns that line the eastern portions of Manila province; these include Pasig (34%), Marikina (13%), and Taguig (10%). Similar to that of Quiapo, a significant percentage of SRMs in Sampaloc were also from Marikina (32%) and Pasig (13%), but 3 out of 10 of its SRMs also hail from the northern towns of Caloocan (17%) and Valenzuela (13%). As opposed to its district counterparts along the north of the Pasig River, Dilao SRMs have towns of origins that are most proximate to Manila. While 33% of Dilao-based SRMs were from Pasig, 19% were from the nearby town of Pineda which is south of Dilao.

Figure 10. Distribution of Short-Range Migrants.

Figure 11. Distribution of Short-Range Migrants, Quiapo.

Figure 12. Distribution of Short-Range Migrants, Sampaloc.
Proximity to the district of destination likewise seems to have played a significant factor in the movement of people within Manila’s districts. Dilao, Quiapo and Sampaloc served as attractive destinations for individuals who come from nearby suburbs (See Figures 13, 14, and 15.). Majority of the Manila-based migrants in both Quiapo (53%) and Sampaloc (39%) were from neighboring Sta. Cruz and Binondo. And perhaps since they are geographically near each other, 10% of Quiapo’s local migrants were from Sampaloc while 23% of Sampaloc’s Manila-based migrants were from Quiapo. The same tendencies can also be observed with Dilao which had 28% of its migrants from the adjacent districts of Malate and Pandacan.

Figure 13. Distribution of Local Migrants, Dilao.

Figure 14. Distribution of Local Migrants, Quiapo.

Figure 15. Distribution of Local Migrants, Sampaloc.

5.4 Migrants by Gender

It was shown in a previous study that, consistent by what has been argued by Doeppers (1998), a majority of migrants in Dilao and Malate, with the exception of Pandacan, were female (Lagman, Villasper, Martinez not published). The data gathered for Quiapo and Sampaloc does not go against this pattern (See Figure 16.). Women make up almost 55% of a probable 1,088 migrants in Sampaloc in 1892. The share of females to the total number of migrants in Quiapo is even much larger at 63%.

Figure 16. Migrant Gender Ratio in Manila’s Districts, 1890s.

It should be noted that this pattern of female dominance among Manila migrants also reflects a worldwide trend in migration as far back as the 1960s wherein there were more
females than males who were moving out of their places of origin in search for better options (Caritas Internationalis, no date).

5.5 Top Migrant Occupations by District

An examination of the data gathered for all categories of migrants in Dilao, Quiapo and Sampaloc (See Figures 17, 18, and 19.) indicate that four most frequently stated livelihoods are those traditionally assigned to females. Nearly a quarter of all migrants in Dilao and 1 out of every 5 non-locals in Quiapo have found work in these districts as seamstresses, a common, low-paying occupation among women in nineteenth century Manila (Camagay 1995). Work as a seamstress was also the fourth most frequently indicated profession among migrants in Sampaloc in 1892.

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Those who made a living as clothes washers in the nineteenth century were usually women. Such an occupation yielded one of the lowest daily wages at one-fifth of a Peso or P 0.20 cents a day (Census of the Philippine Islands 1903). Fourteen percent of all migrants in Sampaloc and roughly 7 of every 100 non-locals in Dilao did laundry for other people.

Some female migrants, however, were fortunate to be employed in the various large and small establishments that produced cigars, cigarettes and other tobacco-based products scattered throughout Manila (Camagay 1995; Lagman and Villasper 2015). Such women were able to earn around seven-tenths of a Peso (P 0.70) a day, around 2.5 times what a clothes washer would make and which was an occupation that had one of the highest pay rates per day at that time (Philippine Census of 1903).

Outside of washing clothes, working in cigar factories or helping make clothes as a seamstress, storekeeping was another type of livelihood that appealed to migrant workers in Quiapo and Sampaloc, where it ranked as the fourth and fifth most frequently stated occupation among migrants, respectively. More than around 8% of all non-locals in both districts tended stores for a living, an occupation that was also associated with women (Camagay 1995).

The only male-dominated occupation among the four most common types of employment for migrants was making a living as a laborer. Listed in Spanish as jornalero or day wage laborer, such an occupation provided one of the lowest compensations at P 0.37 a day (1903 Philippine Census), a little over half of what a cigarrera or a woman rolling cigars at a factory commonly made for a day’s work. Work as a laborer was, in fact, the most frequently registered job in Sampaloc (16% of total) and was the second most recorded occupation in Quiapo (20%).

When the most frequent occupations of migrants in these settlements are compared with that of their local counterparts (See Figures 20, 21 and 22.), there seems to be very few variations with respect to the most commonly listed types of
work. In the case of Dilao, seamstresses, laborers and cigar makers are the most usual occupations for both locals and migrants. What is notable is that Dilao locals did not seem keen on doing paid laundry work. Moreover, carpentry may have been a trade commonly associated with males who were born in Dilao.

There seems to be no distinction between the kind jobs that locals and migrants in Quiapo were willing to take. In Sampaloc, on the other hand, work as a laborer, clothes washer and cigar factory worker were jobs that its inhabitants got into, whether local or migrant. The only difference is that migrants were more involved in storekeeping while farming was considered a more local occupation.

Comparing Quiapo and Sampaloc with respect to which range of migrants gravitated towards which occupations reflects the reality that the nature of migration changes from place to place. If there is any common characteristic in the emerging migration story of the two Manila districts, it is that the migrants who ended up working in the most common occupations in both settlements tended to come from either the Manila area (local) or the Southern Tagalog Region and Central Luzon (mid-range) (See Figures 23 and 24.). Storekeeping in Quiapo was attractive to mid-range migrants, while this type of non-local was also inclined towards clothes washing in Sampaloc. Migrant seamstresses also had a tendency to be of the local and mid-range type in both Quiapo and Sampaloc, with the share of local migrants slightly higher for the latter.

Some migrant occupations in Quiapo and Sampaloc, on the other hand, were associated with different ranges. While laborers in Quiapo were generally from local and mid-range areas, migrant jornaleros (day wage laborers) in Sampaloc were clearly individuals who hail from Central Luzon and the Southern Tagalog. Also, majority of the non-locals who helped manufacture tobacco-based commodities in Quiapo were usually local and mid-range types, while those into cigar-making in Sampaloc were primarily of the mid-range variety.

5.6 Migrants by Age and Gender

The retirement of age of working individuals in the Philippines is 65 years of age, while persons beginning at age 15
are considered as part of an area's working age population (PIDS 2011). As it would be difficult and cumbersome to study and represent the age distribution of the Manila migrants included in this study by five-year intervals, it was decided that such individuals be classified by age over ten-year groupings (e.g. 21-30, 31-40, 41-50). Based on these age categories, it can be observed in Dilao, Quiapo, Sampaloc and Tondo that majority of the listed migrants in these places in the early 1890s fell within the 21-30 and 31-40 age range after which the population of individuals belonging to the 41-50 category drops significantly (See Figures 25, 26, 27, and 28.).

6. Observations

This continuing study on the nature of migration to Manila in the late 1800s yields varied patterns in the characteristics of those locals who moved to the districts of Quiapo, Sampaloc and Dilao. While Dilao had a working population that had a significant share of migrants in districts south of the Pasig River, the percentage shares of non-locals in the civil register lists of Sampaloc and Quiapo were larger. Quiapo, in particular, could be considered a district peopled by outsiders as almost half of its workforce was non-native. Even Tondo, whose civil register lists yield little information on migrants still had a significant non-local population.

The places of origin of migrants in the aforementioned districts were quite similar, but the source of settlements that sent people into these districts has slight differences. The largest long-range migrant population in Dilao came from Northern Luzon, while the highest concentration of long-range migrants in Quiapo and Sampaloc were from Eastern Visayas. In the case of medium-range migrants, most individuals of this type who settled in these districts came from Bulacan. Yet it should be noted that Dilao had a significant Kapampangan population and a good number of migrants in Sampaloc were from Tagalog-speaking Morong Province.

Information gathered from shorter-range migration seems to indicate more distinct differences. Quiapo clearly received more people from the eastern towns of Manila Province, while nearby Sampaloc had a significant number of short-range migrants from the northern settlements of the Provincia de Manila as well as from the province’s eastern communities. Dilao, on the other hand, primarily had non-locals of this type from nearby towns such as Pasig and Pineda.

Local migrants tended to move to places that were proximate to their places of origin. In the case of Quiapo and Sampaloc, many of its local migrants were from nearby Binondo and Sta. Cruz, while Dilao had migrants from the adjacent districts of Pandacan and Malate. Moreover, given their proximity to each other, people actually moved from Sampaloc to Quiapo and vice versa.

This study also demonstrates that migration into Manila had a significant female presence. Majority of the top
occupations associated with migrants, save for work as a laborer, were usually associated with women. It should be underscored, however, that most of these migrant occupations were actually low-paying. In addition, except for a few differences, there was generally no difference between the kind of jobs that locals and migrants were involved in.

When migrant workers were categorized by where they came from, certain variations were observed in the districts that were studied. For instance, migrant cigar workers and laborers in Quiapo were generally local and mid-range migrants, while Sampaloc’s migrant labor was usually sourced from the provinces in Central Luzon and Southern Tagalog. Non-local storekeepers in both districts were mainly medium-range migrants, while seamstresses were typically from Manila City or from Central Luzon and Southern Tagalog.

Finally, most migrants were predominantly from the 21-30 and 31-40 age brackets. There was also a significant drop in non-locals who were in their 40s and 50s. This, however, may indicate that Manila in the 1800s had long been a destination of people from different parts of the Philippines who were seeking a better life.

7. References

Documents from the National Archives of the Philippines

*Vecindario de Dilao*, 1892.

*Vecindario de Quiapo*, 1890.

*Vecindario de Sampaloc*, 1892.

*Vecindario de Tondo*, 1889.

Printed Sources: Books and Articles


Map Sources

Lagman, Marco Stefan B., Jonathan M. Villasper and Ma. Simeona M. Martinez. “Spatial Patterns of Migration in 19th...
Century Manila: An Exploratory Characterization of Migrants in the Districts of Dilao, Malate and Pandacan from 1881-1895”, Paper presented at The Second Conference: GIS-based Global History from Asian Perspectives held at the University of Tokyo, 4-5 October 2014.


8. Acknowledgment

The author wishes to acknowledge Ms. Jahzeel Jett C. Hibionada for her invaluable assistance in the production of the maps used for this paper.
Activities of ANGIS

1. The 3rd Annual ANGIS Conference

The 3rd Annual ANGIS Conference took place in Bangkok, Thailand on 5th – 6th January 2015 in conjunction with CRMA Meeting. This conference was the first held outside Japan following the First Annual in Tokyo in December 2012 and the Second in Kyoto.

ANGIS aims, as General Secretary, Prof. Tsukasa Mizushima, delivered in his speech on introduction to ANGIS and ANGIS-CRMA 2015 Bangkok Meeting, “among others to hold annual conference, to publish E-Journal annually, to build-up GIS infrastructure across Asia, and to organize various joint research projects in collaboration with Asian scholars in the same field.” The 2-day program is as follows.

The 3rd Annual ANGIS and CRMA Bangkok meeting 2015

Date: Monday, 5th – Tuesday, 6th January 2015
Venue: The Princess Maha Chakri Sirindhorn Anthropology Centre (SAC), Bangkok, Thailand
Organizers: The Asian Network for GIS-based Historical Studies (ANGIS), Japan
The Cultural Relationship Study of Mainland Southeast Asia Project (CRMA)

Program

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<tr>
<td>2. Welcome Address By Lt. Gen. Chanchai Yossundara, Superintendent of Chulachomklao Royal Military Academy, Thailand</td>
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<td>3. Welcome Address By Mr. Bovornvet Rungrujee, Director General, Fine Arts Department, Thailand</td>
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<tr>
<td>4. Welcome Address By Prof. Chaicharn Thavaravej, President of Silpakorn University, Thailand</td>
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<tr>
<td>5. Welcome Address By Dr. Somsuda Leyavanija, Director of Princess Maha Chakri Sirindhorn Anthropology Center</td>
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<td>6. Welcome Address By ANGIS President, Prof. Mamoru Shibayama</td>
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<tr>
<td>7. Introduction to ANGIS and ANGIS-CRMA 2015 Bangkok Meeting By ANGIS General Secretariat, Prof. Tsukasa Mizushima</td>
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<td>10:00-10:30</td>
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<td>10:30-12:00</td>
<td>Keynote session (Conference Hall)</td>
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<tr>
<td>1. Historical Study: Value, Approach, and Sequel By H.E. Dr. Tej Bunnag, Former Minister of Foreign Affair, Thailand</td>
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<td>2. Impact of Cultural Study to Young Generation By H.E. Khuon Khun Neay, Deputy Director General, APSARA Authority, Cambodia</td>
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<tr>
<td>3. Future Historical GIS in Asia - Toward New Horizon - By Prof. Tsukasa Mizushima, University of Tokyo, Japan</td>
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<td>12:00-13:00</td>
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<td>13:00-14:30</td>
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<td>Ichiro Kakizaki (Yokohama City University, Japan)</td>
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<td>Development of Railway Network in Southeast Asia Before World War II</td>
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<td>Rajnsh Kumar (Jawaharlal Nehru University, India)</td>
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<td>Railways and Economic Development in India: A Study from Historical GIS Perspective</td>
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<td>Hiroshi Kato (Hitotsubashi University, Japan)</td>
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<td>“Personality” of Socio-economic Development in Modern Egypt</td>
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<td>Akira Ueda (The University of Tokyo, Japan)</td>
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<td>Ethno-demographic structure of Russian Turkistan: A Historical GIS Case Study of Ferghana Province</td>
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<td>CRMA Session 1: CRMA Project Overview</td>
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<td>Surat Lertlum (CRMA, Thailand) and Im Sokrithy (APSARA, Cambodia)</td>
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<td>Pongdhan Sampaongern (FAD, Thailand)</td>
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<td>Cultural Relationship in Southern and Central Thailand Through Archaeological Study</td>
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<td>Surapol Natapintu (SU, Thailand): Archaeometallurgy Information Implying Relationship of Ancient Cultures In Mainland Southeast Asia</td>
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<td>14:30-15:00</td>
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| 15:30-17:00 | **ANGIS Session 2: Economic and GIS**  
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Marco Stefan B. Lagman, Ma. Simeona M. Martinez and Jonathan M. Villasper (University of the Philippines Diliman)  
Describing and Understanding the Occupational Characteristics and Environment of Selected Manila Arrabales through Census Data and G.I.S.  
Amaresh Dubey (Jawaharlal Nehru University, India)  
Spatial Variation and Temporal Change in Rural Wages and Poverty in India  
Michihiro Ogawa (The University of Tokyo, Japan)  
Mapping the Transition of the land revenue system in Western India from the pre-colonial to the early colonial period -with special reference to Indapur Pargana (1761-1836)-  
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Nicolas Revire (TU, Thailand)  
A Transregional Ritual Complex – Dvāravatī and Zhenla in the Seventh-Eighth Centuries  
Fifia Wadhani (National Museum, Jakata, Indonesia)  
Makara in Temples of Old Classical Era of Indonesia  
Kabilan Balasubramaniam (Dept. of Archaeology, Sri Lanka)  
A Research on the Forts during the Europeans Period especially in North Sri Lanka  |
| 18:00-19:30 | Reception (Room 406) Hosted by Silpakorn University and CRMA project |

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Sarah KLASSEN (Arizona State University, USA) and Joyce WHITE (University of Pennsylvania, USA)  
Preliminary Analysis using Middle Mekong Archaeological Project GIS data: A Model to Recommend Prehistoric Agrarian Sites in the Middle Mekong Basin for Excavation  
Andriyati Rahayu (Universitas Indonesia)  
Majapahit Short Inscriptions and the Relation with a Spatial Context  
Tatsuki Sekino (Research Institute for Humanity and Nature, Japan)  
Tools and basic data for temporal information analysis  
| **CRMA Session 3: Cultural Relationship at Regional Scale through Communication Networks and Geo-informatics Study**  
Surat Lertlum (CRMA, Thailand) and Khien Chan (APSARA, Cambodia)  
The Regional Communication Networks  
Tran Ky Phuong (Vietnam) and Rie Nakamura (Universiti Utara Malaysia)  
Eagle-wood and Jar: Reconstructing upland and lowland exchange network in Central Vietnam  
Mr. V. Manimaran (Dept. of Archaeology, Sri Lanka)  
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Elizabeth Moore (SOAS, UK)  
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<th>Session 7: Cultural Relationship at Regional Scale through Underwater Archaeological Study</th>
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<tr>
<td>11:00-12:30</td>
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<td>Tomoko Shiroyama (The University of Tokyo, Japan)</td>
<td>Erbprem Vatcharangkul (FAD, Thailand)</td>
<td>H.E. U Than Swe (Ministry of Culture, Myanmar) : 'Historical view on towns in Lower Myanmar'</td>
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<td>Bolorchuluun Chogsom and Munekh-Erdene Batsaikhan (National University of Mongolia)</td>
<td>Ma. Simeona M. Martinez, Jonathan M. Villasper and</td>
<td>Sayak Kanda (Keio University, Japan), Tomoki Shimanishi (Kagawa University, Japan), Akiko Takahashi (Independent researcher, Japan)</td>
<td>Preeyanuch Jumprom (FAD, Thailand)</td>
<td>Shibayama Mamoru (Kyoto University, Japan) : EWCC between Myanmar and Thailand</td>
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<td>Some Historical Places of The “Secret History of The Mongols”</td>
<td>Marco Stefan B. Lagman (University of the Philippines Diliman)</td>
<td>Visualizing Changes in the Routes and Scale of Trade in 19th-Century China</td>
<td>The 9th Century A.D. Shipwreck found in Samut Sakhon Province, Central Thailand</td>
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<td>Yoshikatsu Nagata (Osaka City University, Japan)</td>
<td>Spatial Patterns of Migration in 19th Century Manilla: an Exploratory Characterization of Migrants in the Pueblos of Dilao, Malate and Pandacan from 1881-1895</td>
<td>Toshiyuki Miyata (Tokyo University of Foreign Studies) Company, Industry and Network in “The Far East” in the 1930s: A Study of Directory Published in Hongkong</td>
<td>The 9th Century A.D. Shipwreck found in Samut Sakhon Province, Central Thailand</td>
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<td>Distribution and accuracy of place names in Thailand listed in a Japanese gazetteer during World War II</td>
<td>Ryuuto Shimada (The University of Tokyo, Japan)</td>
<td>Yoshinori Kigoshi (Osaka Sangyo University, Japan)</td>
<td>Bui Van Hieu (VASS , Vietnam)</td>
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<td>Minori Yuda (The University of Tokyo, Japan)</td>
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<td>General Explanations for Chinese Trade Database in 19th Century</td>
<td>Recent maritime archaeological research at Van Don</td>
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<td>Visualization of Trade of the Dutch East India</td>
<td>Toshiyuki Miyata (Tokyo University of Foreign Studies) Company, Industry and Network in “The Far East” in the 1930s: A Study of Directory Published in Hongkong</td>
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<td>12:30-13:30</td>
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<td>Michihisa Umekawa(Tokyo University of Foreign Studies, Japan)</td>
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<td>U San Win: (Myanmar) - The study on Mon State</td>
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<td>Theoretical and Fieldwork Analyses for the Population Density Distribution in Mainland Southeast Asia</td>
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<td>Shibayama Mamoru (Kyoto University, Japan) : EWCC between Myanmar and Thailand</td>
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<td>Tomoko Shiroyama (The University of Tokyo, Japan)</td>
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<td>H.E. U Than Swe (Ministry of Culture, Myanmar) : 'Historical view on towns in Lower Myanmar’</td>
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<td>Trade and Trade Centers in China during the “Long 19th Century”: Working Hypothesis and Related Materials</td>
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<td>U San Win: (Myanmar) - The study on Mon State</td>
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<td>General Explanations for Chinese Trade Database in 19th Century</td>
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<td>17:00-17:30</td>
<td>ANGIS-CRMA Jointly Closing Session (Conference Hall)</td>
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2. Collaborative Activities

Besides hosting annual conferences, publishing JANGIS, in the activities ANGIS has also collaborated with the Research Project “GIS-based Global History from Asian Perspectives (hereafter “GGHAP”) granted by JSPS “Topic-Setting Program to Advance Cutting-Edge Humanities and Social Sciences Research: Global Initiatives”, which headed by Prof. Tsukasa Mizushima.

GGHAP had a panel on "GIS for Historians: Case Studies in Asian Urban History at the Age of Globalization" at the third congress of The Asian Association of World Historians (AAWH) in Singapore at Nanyang Technological University from 29th to 31st May, 2015. The panel aims to provide case studies, which are conducted by employing GIS (Geographic Information System), and to offer a platform for historians to exchange the ideas regarding the GIS-based historical research and its future. The panel and titles of papers are listed below.

Panel Proposal for the Third Congress for the Asian Association of World Historians (AAWH) at Singapore 2015
Proposed Panel: GIS for Historians: Case Studies in Asian Urban History at the Age of Globalization
Organizer and Chair: Tsukasa Mizushima (The University of Tokyo)

Presenters and Titles of Paper

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<th>Name</th>
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<td>Tsukasa Mizushima (The University of Tokyo, Japan)</td>
<td>“A GIS-based Study on the Emergence of Small and Medium Scale Towns in Pre-Independent South India”</td>
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<tr>
<td>Ryuto Shimada (The University of Tokyo, Japan)</td>
<td>“A Spatial Analysis of Ethnicity and Land-use of Batavia, 1619-1930”</td>
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<tr>
<td>Marco Stefan B. Lagman (University of the Philippines-Diliman, Philippines)</td>
<td>“Assessing the Demographic and Spatial Characteristics of Migrant Workers in Selected Districts of Nineteenth Century Manila using Archival Census Records and Geographic Information Systems”</td>
</tr>
<tr>
<td>Toshiyuki Miyata (Tokyo University of Foreign Studies, Japan)</td>
<td>“A Study of Business Directory published in Hongkong”</td>
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Following AAWH’s Panel, GGHAP also organized its third International Conference from 4th to 7th June 2015 at The University of Tokyo. This conference invited scholars on historical study with GIS from India, Indonesia, Mongolia, China, the Philippines, Taiwan and the USA to share and discussed our research with all of you who interested in history, GIS and related topics. The program is as follows.

The Third Conference: GIS-based Global History from Asian Perspectives
Date: Thursday, 4th – Sunday, 7th June, 2015
Venue: Professor’ Meeting Room , Faculty of Law & Letters Bldg. 2, 2F
Hongo Campus, The University of Tokyo

Program

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<td>Welcome address and the purpose of the meeting: Tsukasa Mizushima (Organizer, The University of Tokyo)</td>
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<tr>
<td>10:30-12:30</td>
<td>Southeast Asia (1)</td>
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<tr>
<td>Marco Lagman (University of the Philippines-Diliman, Philippines)</td>
<td>Assessing the Demographic and Spatial Characteristics of Migrant Workers in Selected Districts of Nineteenth Century Manila using Archival Census Records and Geographic Information Systems</td>
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<td>Ony Martinez (Miriam College; University of the Philippines, Philippines)</td>
<td>Variety and Spatial Distribution of Occupations in the late 1800s in the Pueblos of Manila</td>
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<tr>
<td>14:00-18:00</td>
<td>Southeast Asia (2)</td>
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<tr>
<td>Jon Villasper (University of the Philippines-Diliman, Philippines)</td>
<td>A GIS-Based Approach to Tracing The Spatio-Temporal Formation of Towns in the Philippines during the Spanish Colonial Period</td>
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<tr>
<td>Toshiyuki Miyata (Tokyo University of Foreign Studies, Japan)</td>
<td>A Study of Business Directory published in Hongkong</td>
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<tr>
<td>Pujo Semedi Hargo (Universitas Gadjah Mada, Indonesia)</td>
<td>Fields for Coffee: Forest lands contestation in Upland Java, 1850s–1930s</td>
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<td>Vu Kim Chi (Vietnam National University, Vietnam)</td>
<td>Historical land use dynamics in the Northern mountain of Vietnam</td>
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<td>Nguyễn Quang Anh (Vietnam National University, Vietnam)</td>
<td>GIS and geomorphology studies to determine ancient trade routes and harbors in the Red river delta, Vietnam</td>
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<td>19:00-20:30</td>
<td>Reception</td>
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| Day 2    | Friday, 5th June   | 10:30-12:30     | **Historical data and GIS (1)** | Bolorchuluun Chogsom (National University of Mongolia, Mongolia)  
                                           | GIS Development and Applications in Mongolia  
                                           | Ryuto Shimada (University of Tokyo, Japan)  
                                           | A Spatial Analysis of Ethnicity and Land-use of Batavia, 1619-1930 |
|          |                    | 14:00-18:00     | **South Asia**                | Amaresh Dubey (Jawaharlal Nehru University, India)  
                                           | Growth of Industrial Cities in India: A Case Study of Jamshedpur  
                                           | Rajnish Kumar (Jawaharlal Nehru University, India)  
                                           | Spatial evolution of Jamshedpur city and its agglomeration effects  
                                           | James Nye (University of Chicago, USA)  
                                           | Geospatial data and the integration of digital resources for South  
                                           | Tsukuasa Mizushima (University of Tokyo, Japan)  
                                           | A GIS-based Study on the Emergence of Small and Medium Scale Towns in Pre-Independent South India |
| Day 3    | Saturday, 6th June | 10:30-12:30     | **China (1)**                 | Yi Zou (Fudan University, China)  
                                           | The Distribution of Tea Industry in Huizhou: Based on the Records of Investigations during the Republic of China  
                                           | Yutian Liang (Sun Yat-sen University, China)  
                                           | Spatial-temporal changes of China’s export since the reform and openness |
|          |                    | 14:00-18:00     | **China (2)**                 | Commentator: Takeshi Hamashita (Sun Yat-sen University, China)  
                                           | Tao Sun (Fudan University, China)  
                                           | Spatial and temporal distribution of the lower Yellow River dike breaches in the Qing Dynasty (1644-1855)  
                                           | I-Chun Fan (Academia Sinica, Taiwan)  
                                           | Urbanization and Land Utilization in Tainan Region of the Southern Taiwan—with GIS Approaching  
                                           | Shi Xie (Sun Yat-sen University)  
                                           | A Preliminary GIS Analysis on the Settlement Geography under the Garrison and Military Cultivation System in the South China Mountain Area from 14 to 19 Century  
                                           | Makoto Ueda (Rikkyo University, Japan)  
                                           | A Demographic Study on the Development at Zhujitou (諸曁) Basin, Zhejiang Province |
| Day 4    | Sunday, 7th June   | 10:30-12:30     | **Disease and GIS**           | Ta-Chien Chan (Academia Sinica, Taiwan)  
                                           | The Epidemics of Hand, Foot, and Mouth Disease in Island-Type Territory, East Asia  
                                           | Kohei Wakimura and Kenji Taniguchi (Osaka City University, Japan)  
                                           | Cholera and Malaria in the Late 19th Century Bengal: A Pilot Study of Spatial Analysis a |
|          |                    | 14:00-18:00     | **Historical data and GIS (2)** | JSE Yuwono (Universitas Gadjah Mada, Indonesia)  
                                           | National Mapping System of the Archaeological and Historical Sites in Indonesia: A Proposed Model of Spatial Data Integration  
                                           | Hsiung-Ming Liao (Academia Sinica, Taiwan)  
                                           | The Collaborative Research Platform for Data Curation and Repositories: On the GIS-Based Asian-wide Historical Studies  
                                           | Tatsuki Sekino and Hsiung-Ming Liao (Research Institute for Humanity and Nature, Japan and Academia Sinica, Taiwan)  
                                           | Workshop  
                                           | Closing address: Tsukasa Mizushima (The University of Tokyo, Japan) |
Guidelines for Journal of Asian Network for GIS-based Historical Studies (JANGIS)

1. Journal of Asian Network for GIS-based Historical Studies (JANGIS) is a peer reviewed annual international journal.

2. All submissions should be sent by e-mail to: AngisJournal@gmail.com in Microsoft Word and PDF. For the time being JANGIS will be published annually.

3. All material should be written in English.

4. The length of an article should be around 10,000 words including footnotes and references. Abstract around 200 words should be submitted along with the full paper.

5. The text should be typed single-spaced in 9 point type in Times New Roman.

6. Tables should be digital in EXCEL file and inserted within the main text. Figures (maps, photos, etc.) should be submitted in EMF or JPEG file and be inserted within the main text. Tables and Figures should be numbered consecutively in the following way.
   Table 1. Table 2….
   Fig. 1. Fig.2….

7. The title of Table should be above the Table. The title of Figure should be below the Figure. Notes and Sources should be written below Table or Figure.

8. Sources of references or quotations should be indicated in the text as follows: (Stein 1984: 185).

9. Footnotes, if any, should be numbered consecutively.

10. Reference List in alphabetical order should be attached at the end of the text.
    Example (Titles in Italics):

11. Sections should be numbered as follows.
    1.
    1-1.
    1-2.
    2.
    2-1.
    2-2….

12. All the Author should provide the following information.
    Name
    Affiliation

13. Papers should be submitted by the end of April, 2013.
    E-mail
Editorial Note

In 2015, Professor I-Chun Fan, Academia Sinica in Taipei was appointed as new president of ANGIS after Professor Mamoru Shabayama. Along with this change of the president, the editorial office of JANGIS is moved to Academia Sinica in Taipei. This is the last volume that I edited as Editor-in-chief. I deeply appreciate all those who are concerned with the edition of JANGIS until now. I believe that JANGIS has stepped into a new and fruitful phase.

Editor-in-chief
Hiroshi Kato
December 25, 2015