



## A Perspective of "Diversity Creation" and "Expandability": Another Interpretation on Spanish Colonial Town Planning

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There has been a great accumulation of research on the uniform town planning philosophy since the 16th century in the Spanish colonies and now its impact on modern urban planning is an important contemporary aspect on this theme. The planning techniques of grid pattern for rational administrative management and missionary work were carefully literalized by the Laws of the Indies to create a large number of urban spaces with highly physical homogeneity. Symbolizing this planning philosophy is the Ordinances of the Philip II promulgated in 1573. However, almost no towns were built in perfect accordance with this code, and rather the process of real town construction and its transformation have been the subject of many researches. On the other hand, in view with the specific planning techniques described in the Ordinances of Philip II, there is some intentional operation that is difficult to explain clearly from the viewpoint of the planning philosophy of homogeneity. This paper is to review the Ordinances of Philip II as an accumulation of the concrete town planning techniques for the Spanish colonial town construction and to verify the perspective of "diversity creation" and "response to city extensibility".

**Keywords:** Spanish colonial town planning, Spanish early modern, Ordinances of Philip II, Laws of the Indies, Diversity creation, Expandability, Plaza Mayor

### 1. Introduction

Spain has a long history of grid town planning including the well-known Barcelona's city expansion plan of 1859 by Ildefonso Cerdá as well as the pre-modern grid town planning extensively practiced at home and abroad. Spain is, as it were, a grid city planning power. A perspective on the grid of modern urban planning has accumulated a lot of research, and there are sufficient and diverse interpretations. On the other hand, in relation with the viewpoint of the pre-modern grid, there are some studies focusing its the continuity with the modern urban planning, but the viewpoint of order for the pre-modern grid town planning is dominant. Therefore this research aims to introduce a new viewpoint to the grid town planning history of the Spanish Early Modern. Historically the greatest significance of the grid was fair conditions on military, administrative, space utilization, or health. The grid is an urban structure observed not only in the planning history in the Spanish colonial period but also in many urban planning histories in Western Europe, such as the Roman city planning, the planning philosophy of Eiximenis in the Spanish Middle Ages, the Bastide in French Middle Ages, and the Ideal City planning and the architectural treatises of Italian Renaissance, etc. The grid city or the idea of orderly planning is an old tradition and it can be understood that the Spanish colonial city is also on that extension. In the Spanish early modern town planning, as the planning techniques to create order in town space has developed vigorously, the systematization of planning regulations and methods were improved. In particular, after discovering the new route to the Americas, Spain developed a town planning code under a national strategy and built a number of colonial towns while expanding colonial territory. There is a large accumulation of research on the urban structure of the Spanish colonial towns where a homogeneous grid pattern develops around the main plaza. Its representative planning system of the Spanish colonies is *the Ordinances of Philip II* or called *the Laws of the Indies*, which were issued in 1573 by the King, Philip II, and was actually the basis for creating many Spanish colonial towns of grid patterns. However, judging from the fact that these planning norms incorporated norms from various viewpoints for the construction of urban society, not only military intentions but also premises on building relations with indigenous peoples, it is recognized that the Ordinances of Philip II was a code of an essential ideal planning philosophy that aimed a town making with "religious significance and the lives of residents".

In addition, there were few towns which were completely satisfying the conditions stated in the planning regulations of a grid pattern planning as literally. For example, in some colonial towns, there were various plazas other than the central plaza since the town's foundation. From that point, once again looking at the planning regulations of the "Ordinances of Philip II", it is understandable that the planning regulations of the Spanish colonial towns have some important aspects that cannot be easily explained by a concept of rationality and homogeneity which has been a well-studied key concept of town planning. Therefore, specifically, in this research, we verify a viewpoint of creating "diversity", a different aspect from homogeneous planning, also an attitude toward a future change of the town, that is, an intention to correspond to the growth of the town.

Regarding the town planning approach of the Spanish colonies, the architectural historian, Spiro Kostof mentions



that uniform and functional planning with administrative control superiority did not consider distinctions between individual towns. But at the same time, he points out that the grid is not planned as originally boring, and the matrix is intended to make richness and diversity for human beings over time<sup>1</sup>. This paper verifies the viewpoint of such diversity and town's expandability in the Spanish colonial urban planning law.

## 2. Method of research

The Spanish colonial town planning law is an indication of the planning philosophy of the Spanish colonies. The most notable is the Law of the Indies issued in 1680 by the King, Charles II<sup>2</sup>. In addition to the detailed provision of urban planning, this code consisting of 6447 articles was a compilation of laws of all fields concerning colonial management. However, we can tell from the information described in the Laws of the Indies that most of the planning regulations derive from the regulations described in the prior code in the 16th century, *the Ordinances of Philip II* ("Ordinances of discoveries, settlements and pacifications") which were issued in 1573 by the King, Philip II<sup>3</sup> (Figure 1). The Ordinances of Philip II consist of a preface, 148 articles divided into three parts and they provide general regulations on town making as well as a model of town planning. No explanations with appendices, index, or charts are added. These urban planning norms had strong influence, and it is said that about 330 Spanish cities were already formed by 1630 in Spanish America. There is no doubt that the compilation of urban planning law contributed to the commonality in the construction of many colonial cities.

In this research, from the *Ordinances of Philip II*, I extract some important provisions suggesting ideas on diversity creation and expandability of a town and examine their planning philosophy (Table 1).



Figure 1: The first page of the *Ordinances of Philip II* issued in 1573.

## 3. A perspective on the expandability of a town

### 3-1. Creating a grid: parallel arrangement of blocks and streets

Here we examine to what extent "the Ordinances of Philip II" were concrete as planning regulation. "*The Ordinances of Philip II*" do not clearly state the morphology of grid. However, rough layout patterns can be led from provisions concerning the construction of roads and blocks. Since the whole arrangement of the layout is also mentioned, it is possible to guide the image of city planning in a certain direction from the articles such as the Articles 111, 112, and 114.

Firstly, the plan of the rectangular Main Square [*Plaza Mayor*] which is the most important space of the city is regarded as the starting point of urban planning as stated in the code [Articles 111, 112]. Four principal streets extend from the middle point of each side of the *Plaza Mayor*. Eight regular streets (narrow streets) are extended, at right angles, two by two from four each corner of the *Plaza Mayor* as well [Article 114]. The street layout method is clearly based on the idea that the rectangle of the Main Square is the standard of whole planning. The direction of

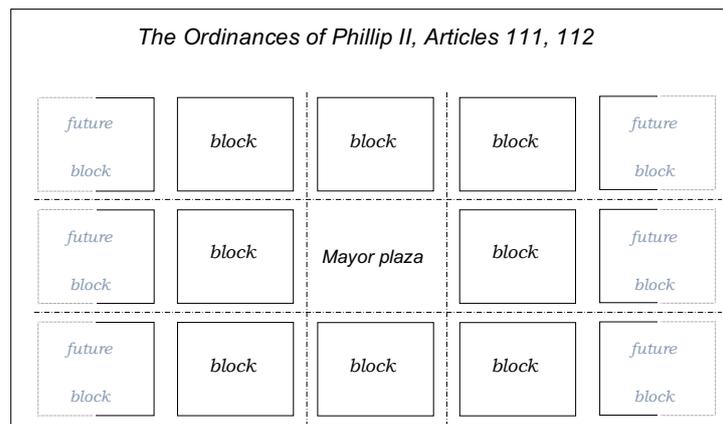


Figure 2: Arrangement of streets and blocks according to *the Ordinances of Philip II*



each side, that is, the orthogonal X-Y axis direction is first fixed. Here, the direction of the X-Y axis is determined so as to sandwich the strong wind blowing direction in the middle, that is, a 45-degree difference. Streets extending from the rectangular Mayor Square will be laid parallel or at right angles to the X-Y axis direction. It does not mention about the distance between streets parallel to each four side of the Main Square, that is, the street pitch nor street width. What "The Ordinances of Philip II" require is simply a linear arrangement of streets, squares, and blocks in the city, in short, a "sequential" and "orderly" arrangement these elements [Articles.111, 117].

Table 1: Articles (extract) of the *Ordinances of Philip II* on Diversity Creation and Expandability of a town

Articles and its points	Extracts from the provisions
<p><b>Article 111</b> Regular layout in order of central square, streets, residential lots / securing open spaces around the town</p>	<p><i>The plan of the place, with its squares [plaza], streets [calle], and building lots[solar] is to be outlined by means of measuring by cord and ruler, beginning with the main square from which streets are to run to the gates [puerta] and principal roads and leaving sufficient open space so that even if the town grows it can always spread in a symmetrical manner. (Omission)</i></p>
<p><b>Article 112</b> Placement and morphology (ratio) of the Main square in coastal cities and inland towns / rectangular main square as the starting point of planning</p>	<p><i>In the case of a sea-coast town the Main square [Plaza mayor] which is to be the starting point for the building of the town, is to be situated near the landing place of the port. In inland towns the main plaza should be in the centre of the town and of an oblong shape, its length being equal to at least one and half times its width, as this proportion is the best for festivals in which horses are used and any other celebrations which have to be held.</i></p>
<p><b>Article 113</b> Basic concept for calculating the size and size of the plaza</p>	<p><i>The size of the plaza shall be in proportion to the number of residents, heed being given to the fact that towns of the natives, being new are bound to grow and it is intended that they shall do so. Therefore the plaza is to be planned with reference to the possible growth of the town. It shall not be smaller than two hundred "pie" wide and three hundred "pie" long nor larger than eight hundred "pie" long and five hundred thirty-two "pie" wide. A well proportionated medium size plaza is one six hundred "pie" long and four hundred "pie" wide.</i></p>
<p><b>Article 114</b> Detailed plan of town nucleus</p>	<p><i>From the plaza the four principal streets [calle principal] are to diverge, one from the middle of each of its sides and two streets [calle] are to meet at each of its corners...</i></p>
<p><b>Article 115</b> Function and structure of the Plaza Mayor</p>	<p><i>The whole plaza and the four main streets diverging from it shall have arcades, for these are a great convenience for those who resort thither for trade. The eight streets which run into the plaza at its four corners are to do so freely without being obstructed by the arcades of the plaza. The arcades are to end at the corners in such a way that the sidewalks of the streets can evenly join those of the plaza.</i></p>
<p><b>Article 117</b> Planning idea for streets and plazas in town's expansion</p>	<p><i>The other streets laid out consecutively around the plaza are to be so planned that even if the town should increase considerably in size it would meet with no obstruction which might disfigure what had already been built or be a detriment to the defense of convenience of the town.</i></p>
<p><b>Article 118</b> Creation and function of small plazas</p>	<p><i>At certain distances in the town, small plazas [plazas menores] are to be laid out on which the temples [templo] such as the main church [iglesia mayor], the parish church [parroquia] or monastery [monasterio] shall be built so that the teaching of religious doctrine may be evenly distributed.</i></p>
<p><b>Article 121</b> Perspective on hygienic arrangement of hospital facilities</p>	<p><i>(Omission)</i> <i>The hospital for the poor and sick of non contagious diseases shall be built next to the church forming its cloister.</i></p>
<p><b>Article 122</b> Placement of production facilities where garbage emerges / hygienic and commercial point of view</p>	<p><i>The lots and sites for slaughter houses, fisheries, tanneries, and such like productive of garbage shall be so situated that the latter can be easily disposed of.</i></p>
<p><b>Article 123</b> Prohibition on windward placement of unsanitary garbage facilities / hygienic point of view</p>	<p><i>It would be of great advantage if inland towns, at a distance from ports were built on the banks of a navigable river, in which case an endeavor should be made to build on the northern river bank, all occupations producing garbage being relegated to the river bank or sea situated below the town.</i></p>
<p><b>Article 126</b> Land utilization around the plaza / creation of distinctive zones</p>	<p><i>No building lots surrounding the main plaza are to be given to private individuals for these are to be reserved for the church, Royal and Town house, also shops and dwelling for the merchants, which are to be the first erected. (Omission)</i></p>



The article 117 states that the streets should be extended from the Main Square and they are further extended. This prevents inconveniences such as inducing ugly rebuilding, or impairing the defense and comfort of the city, even if the town grows expanded. In other words, the urban layout indicated by the "Ordinances of Philip II" is structured based on the rectangular central block serving as an urban core, and principal streets and ordinary streets orthogonal to it. This central block is regarded as a public space or a public square, that is, a plaza, and the general residential blocks are set in parallel repeatedly (Art.111, 112). This way the basis of the grid pattern is formed (Figure 2). This implies a town planning methodology that leads to firstly establish the central urban core surrounding the Main square [Plaza mayor], then to layout streets [calle], and building lots [solar] which extend from the center towards the periphery of a town. From this interpretation, although there is no direct expression pointing to the grid pattern, the street layout is intended to be a grid across the entire city.

### 3-2. The centre and periphery: A spatial composition of a town

The Ordinances of Philip II pay special attention to the spatial composition of the urban core (Plaza Mayor). In common with Vitruvius and Alberti, the Ordinances establish detailed criteria to construct the urban core by establishing the building standards of the facades facing the square and related facilities in the surrounding area. However, there is also clear singular point in the Ordinances of Philip II. The Ordinances holds a concept that a city consists of a special fixed central core and various different surroundings. In other words, the indicated urban core is a special central city district and at the same time the startpoint of the town layout. This central urban area is given the function of a central square, it is designed as a rectangular Plaza Mayor with a proportion of length:width = 1.5:1. The Plaza Mayor is positioned as the urban core, so to speak, the starting point for the planning of the whole town [Art. 112] (Figure 3) and the porticoes are constructed around the Plaza Mayor [Art.115] (Figure 4), thus the Plaza Mayor becomes a special urban core. Although the planning method of the plaza is very similar, the viewpoint in the Ordinances that size and form of the Main Plaza composing the urban core affects the whole city layout, can not be seen in either Vitruvius nor Alberti. Also, as in the case of Vitruvius ["Ten Books on Architecture" by Vitruvius, Book V, Chapter 1, Section 2], the Ordinances of Philip II require the scale calculation of the Plaza Mayor according to the number of inhabitants. Furthermore, the Ordinances of Philip II provide an ideal square model by instructing the specific size and form of the square [Arts. 112, 113]<sup>5</sup>).

The ideal square planned at the center of the city with a special architectural composition is a so-called urban core, and it is assumed the Ordinances of Philip II holds a strong intention to build a centrality in the town. This is the idea that a strong center of town functions sustainably even if the town is expanded and the town's area spreads toward the surrounding area.

### 3-3. Growth of a town

The Ordinances of Philip II were the planning standard that describe the urban core and surroundings of a new city as mentioned above. However, although referring to the composition of the urban core, the Ordinances do not

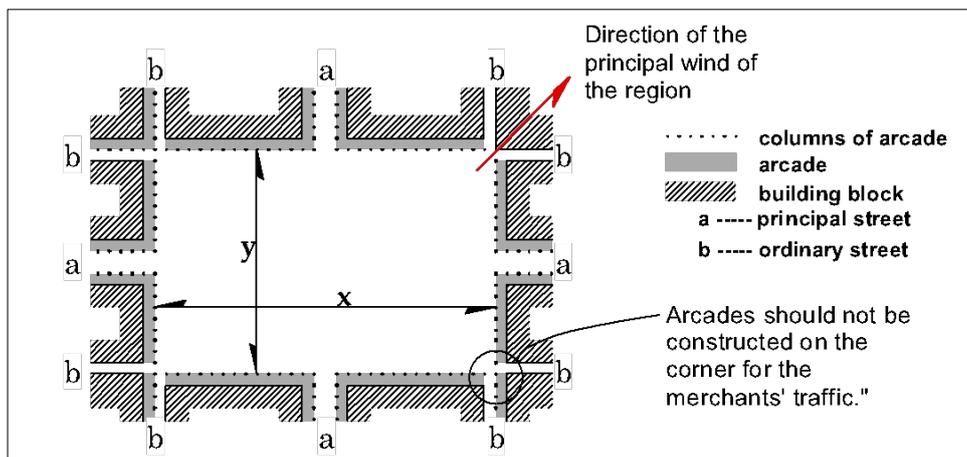


Figure 4: Urban core plan suggested by the Ordinances of Philip II

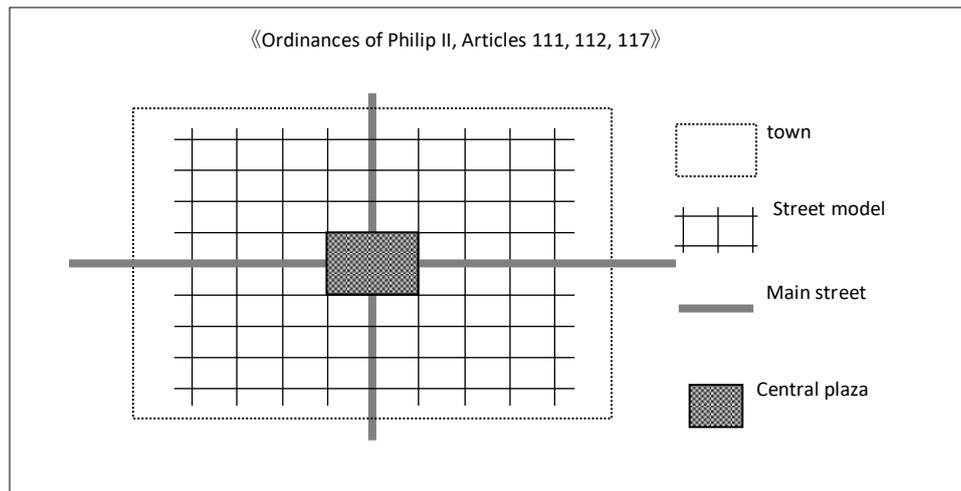


Figure 3: Street layout according to the *Ordinances of Philip II*

mention a town's spatial extent and its boundary such as concrete scale of the entire city or the construction of the city wall. It was possibly based on a trade city, but in reality, the cities with walls were not so uncommon. In practice in the colonial cities without walls, apart from the central urban area, there is an open space outwards the urban area, and it is clear that there is no fixed viewpoint of deciding the urban territory. Moreover, it is clear that the Ordinances have a viewpoint to secure vacant land as a reserve space outside urban areas. The explanation of the road in the Article 111 means a planning where the Main Square which becomes the town's core is connected to the outskirts of the town by the main road (Table 1). In addition, the Ordinances show the idea that an vacant land should be secured around the town from the beginning for future expansion of the town. Clearly, this is an idea of dealing with urban expansion maintaining the order of the block layout. This is a concept that anticipates the growth of the city.

#### 4. Viewpoint of diversity creation in urban space

Here we analyze how the Ordinances of Philip II was intending to utilize the urban space and its planning method to give various characters and functions to urban space.

##### 4-1. Hierarchy of streets

As referenced in the Article 114 of the Ordinances, the streets can be categorized into two types, *main street [calle principal]* and *ordinary street [calle]*. It is speculated that the difference is in the width of the road, but it is obvious that we are categorizing the roads. The main street [*calle principal*] in the Ordinances seems to correspond to the main street referred in the Article 111 which is to reach the city gate [*puerta*]. It is a way of thinking to raise town's function by street planning according to the function of a street (see also Figure 4). Furthermore, the Article 118 clearly establishes a category for plaza, called "plaza menor", which is different in scale from Plaza mayor. In actual Spanish colonial towns, a small plaza, *Plaza menor*, which obviously is different from the Plaza Mayor, is very common.

##### 4-2. Placement of Public Facilities and Region Creation

###### - Urban facility planning -

The Ordinances have a strong interest in planning facilities and their layout planning. Here we analyze them from the viewpoint of zoning and area's feature creation. The Ordinances of Philip II list churches, royalty facilities, other public facilities, shops and merchant houses as facilities around the Main Plaza. [Article 118, 126] As an urban facilities planning around the Plaza Mayor, the Ordinances of Philip II demand building standards with construction of the porticoes, considering flow planning for merchants [Article 115] as an appropriate planning for the town's core. In addition to the urban facilities around the plazas, placement restrictions from a sanitary viewpoint are suggested for public facilities planning such as religious facilities, customs, arsenals, and hospitals [Article 121], and commercial facilities (butchers, fish stores, leather places) where garbage problems are feared [Articles 122, 123]. Also, there is no detailed building standard, but like Alberti's opinions, the ordinances divide the hospital for infectious disease patients and the others, and states norms on their placement [Article 121]. These regulations on arrangement of urban facilities from such sanitary viewpoints and rational viewpoints suggest a standpoint of multi-



functionality of a town which is linked to the zoning visions in the modern urban planning.

**- Plaza menor (Small plaza) -**

As mentioned above, the Ordinances of Philip II provide two categories of the plazas as well as the streets. The Articles 118 and 126 of the Ordinances of Philip II also show an idea to disperse small plazas and increase various plazas in conjunction with religious facilities in the vicinity. It establishes “a small plaza [*plaza menor*]” different from the central Main Plaza and it insists that these arrangements are necessary elements of a town [Articles 118, 126]. Apart from the central Main Plaza which are mentioned above with the details of planning regulations, this small plaza [*plaza menor*] is indicated as another urban facility. In the Ordinances, the idea of categorizing the plaza develops into the idea of urban facilities distribution. Here we can recognize a way of thinking to disperse small plazas on the regularly arranged blocks of grid patterns. At the same time, this also suggests an idea of dispersing layout of temples [*templo*] such as the principal church [*iglesia mayor*], parish church [*parroquia*], monastery [*monasterio*] in conjunction with the small plaza (Article 118). We confirmed that the Ordinances do not explain concretely the relationship between the small square and the urban core, such as the central square and its surrounding streets, and the temples and small plazas. But the Ordinances at least provide a way of thinking to combine the plazas and temples. This is an attitude of incorporating a religious role into the town planning. Here we can see the image of homogeneously arranges of the urban facilities in the grid city layout as shown in the Figure 5. It is physically homogeneous, but in reality, it is understood that this is a structure that actually produces various areas in the town.

Let's see a similar perspective about small plaza by Alberti. In his treatise, “*De re aedificatoria*”, he shows a viewpoint to grasp an intersection almost equally with a plaza because it is also a place where the streets combine and intersect [“*De re aedificatoria*” by Alberti, *Book VIII, Chapter vi*].

“*The crossroad and the forum differ only in size. In fact the crossroad is but a small forum.*” (6) Alberti seeks for elegant decoration in this plaza space and recommends to construct porticoes as a means for that (7).

Furthermore, Alberti describes that it is better to incorporate a store in the urban houses and those should be in front of a crossroad and a plaza [V.18]. This is regarded as a viewpoint in which shops of different genres exist depending on each plaza, creating vicinities with different characteristics in different places. Therefore it is estimated that plazas of different characteristics are dispersed in the town.

It has been pointed out that the Ordinances were influenced by Alberti, but the Ordinances show the idea of applying Alberti's thought to distribute diverse religious facilities and small plazas as a group. Since the Main Square was an urban core in the planning vision of the Ordinances, small plazas can be understood as small cores. In other words, here we can point out that a characteristic “town's small cores” with various religious facilities are distributed in a dispersed manner on the grid urban space.

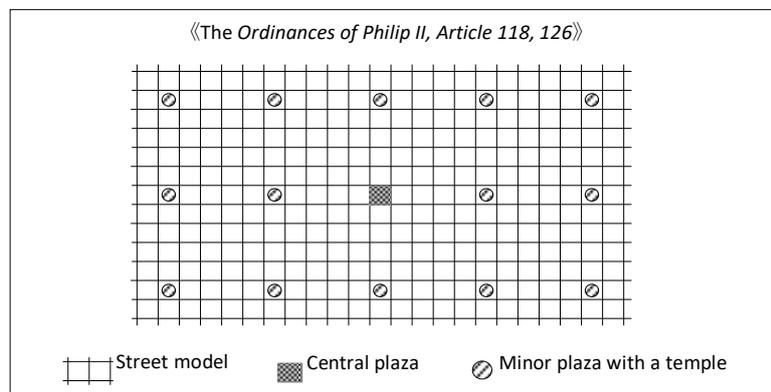


Figure 5: Concept of dispersive distribution of small plazas and temples

**5. Conclusion: Planning concept assuming change of town**

Based on the above verification, it can be seen that the Ordinances of Philip II did not merely intend a homogeneous space by a grid urban pattern. First, the concept of creating town cores is obviously recognized. In other words, this is the idea of establishing both the urban core with the highest centrality and the urban cores with a somewhat weak centrality. This can be regarded as a way of thinking similar to a multi-centred urban structure. Secondly, the concept



of "urban growth" can be considered. This is the idea that urban space grows toward the periphery with population growth while setting urban nucleus as the center. For that reason, the viewpoint of considering ways to expand cities is recognized. Thirdly, there is a concept of "giving hierarchy to streets and plazas". Streets are categorized into main street and ordinary street, and the plazas into main plaza and small plaza as well. Thus, equivalent urban facilities are categorized in this way, and as a result, the idea of effectively giving rich functionality to urban space is recognized. Fourthly, we can point out the idea of "dispersion of urban facilities".

This can be interpreted as a planning method to encourage different districts with different characteristics to be born in town by dispersing different urban facilities. In particular, it can be interpreted as a planning method to encourage different districts with different characteristics to be created in town by dispersing small plazas always arranged with religious facilities there. In other words, this can be understood as the intention to create "distinctive neighborhoods" in urban space. As many previous studies show, the Ordinances of Philip II provided a planning guideline that physically leads the urban space composition by a strong grid pattern. However, what lies there is not necessarily a viewpoint of homogeneous creation of town space, but an attitude to create a functional town core with high centrality, and make small town cores with various features around the town as the town grows. This research shows that the perspective on "diversity creation" and "growth in urban space" is considered very important in the planning historiography of the Spanish colonies.

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### Notes on contributor

The author, Akihiro Kashima, is a professor at the Department of Architecture, Setsunan University, Osaka, Japan. His research interest lies in the continuity of the planning philosophy and technique between the early modern and the modern periods. His publications include: 'An Essay on the scale of town planning in the initial colonization found in Spanish colonial laws', *Journal of the City Planning Institute of Japan No. 48-3*, pp. 219-224, 2013 (Annual Conference 2013, Tokyo) / 'Reviewing the Urban Planning History of the Spanish Colonies: Establishment of the Latin American city image', *Toshishi Kenkyu* (Japanese Journal of Urban and Territorial History) No. 2, Society of Urban and Territorial History, Tokyo, 2015 / "Determining factors for the urban form and its orientation in Spanish colonial town planning: Planning the town of Guatemala in the eighteenth century", in Carola Hein (ed.): *History Urbanism Resilience Volume 01: Ideas on the Move and Modernization*, pp.235-243, Tu Delft, 2016.

### Endnotes

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1 Spiro Kostof, *The City Shaped: Urban Patterns and Meanings Through History*, New York ; Boston ; London : Bulfinch Press, 1991. pp.103-116.

2 This code was originally named "Recopilación de las Leyes de los Reynos de Indias". "Indias" originally means the whole territories of Spanish colonies. Therefore "Laws of the Indies" refer to the laws promulgated not only to the Latin American territories but also to the other parts of the world like the Philippines. Although the *Laws of Charles II* had some imperfection and defectiveness, they were no more re-compiled until the independence of the hispanoamerican countries from the beginning of the 19<sup>th</sup> century on. This Code is also being reprinted today. PAREDES, J.(ed.). *Recopilación de leyes de los reynos de las Indias*, Tomo I, II, III, IV. Madrid:Ediciones Cultura Hispánica, 1973.

3 Originally named "*Ordenanzas de descubrimiento, nueva población y pacificación*" in Spanish. This code was issued by the King, Philip II in Segovia on the thirteenth of July, 1573. This document is preserved in the Archivo General de Indias (A.G.I.) in Seville, Spain, the Document code: Indiferente General, legajo 427, libro 29, folios 67-93; the Document title: Ordenanzas de descubrimiento, nueva población y pacificación. This is a manuscript document written in the sixteenth century Castilian language, which extends for 27 pages of almost A4 size on both sides. It was issued on July 13th, 1573 by the King, Philip II. This code consists of 149 articles in all widely about three themes on the colonization of the Indies; discovery (search for the territories for colonization), the population, and the pacification (the Christian missionary work), each of which respectively comprises a chapter. The documents about the code referred to in this study are the followings: Centro de Estudios Políticos y Constitucionales y el Boletín Oficial del Estado, 1998, and ICAZA DUFOR, 1987.

4 A pie is an old Castilian unit of length utilized in sixteenth-century Spain, and was equal to 278.33 mm. Converting pie into meters, the size of the Plaza Mayor described in the Ordinances of Philip II is about (83.5 m, 55.7 m) < (X, Y) < (222.7 m, 148.1 m), and the ideal size: (X, Y) = (167.0 m, 111.3 m). The unit conversion of pie and meter is according to the following study by Doursther (1965 Reprinting of the 1840 ed.)

5 Article 113 of the *Ordenanzas* suggests an ideal size for a plaza; "The main plaza should be larger than 200 'pies' in width and 300 'pies' in length and smaller than 800 'pies' in length and 530 'pies' in width and the medium size is 600 'pies' in length and 400 'pies' in width." A pie is a unit of length utilized in 16<sup>th</sup> century Spain, and was equal to 278.33 mm. Converting pie into meters, it is about (83.5 m, 55.7 m) < (X, Y) < (222.7 m, 148.1 m), and the ideal size: (X, Y) = (167.0 m, 111.3 m). X: long side, Y: short side. The unit conversion of pie and meter is according to the following study: DOURSTHER, H.: *Dictionnaire Universel des Poids et Mesures anciens et modernes*, (Amsterdam, 1965 [repr. of the 1840 ed.])

6 Leon Batista alberti, *On the Art of Building in Ten Books*, translated by Joseph Rykwert, Neil Leach, and Robert Tavernor, The MIT Press, Cambridge, Massachusetts, 1988, p.263.

7 Leon Batista alberti, *On the Art of Building in Ten Books*, translated by Joseph Rykwert, Neil Leach, and Robert Tavernor, The MIT Press,



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Figure 1: Archivo General de Indias [AGI:Indiferente General; legajo 427, libro 29, folios 67-93.]

Figure 2, 3, 4, and 5: Drawn by the autor.