The confluence of water and power: water management in the Brantas river basin from the tenth to the sixteenth century CE

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Chapter 1

Approaches to Early Southeast Asia Polities and Their Water Management

This chapter will explore three important aspects of the development of the polities of Southeast Asia. The first part contains an explanation of the models or approaches that have been proposed by scholars regarding the process of "Indianization". The explanation of the process is important for determining the structure of the majority of the states of Southeast Asia. The second part elucidates models of early state formation applied to ancient Southeast Asia states. The third part will focus on the concept of water management and some of its practices in Southeast Asia.

1.1. THE PROCESS OF "INDIANIZATION"

The most widely-discussed issue related to the emergence of early states in Southeast Asia is the influence of Indian polities and culture on the region. The interactions between the Indian subcontinent and Southeast Asia from the start of the first century have, in the past, been interpreted in various ways as colonization, localization, convergence, or internal development. Some scholars have seen this as a process termed "Indianization," which Cœdès defined as "the expansion of an organized culture that was founded upon the Indian conception of royalty, was characterised by Hinduist or Buddhist cults, the mythologies of the *Purāṇas,* and the observance of the *Dharmaśāstras,* and expressed itself in the Sanskrit language."[1]

1 G. Cœdès, *Indianized States of Southeast Asia* (Honolulu: East-West Center Press, 1968): 15-16.

The colonization theory emerged in the early twentieth century in the work of some Indian scholars of the "Greater India" movement,[2] such as R.C. Majumdar, R.G. Bhandarkar, and R. Mookerji. Majumdar emphasized that "Hindu" colonists transplanted their civilization to the colonized areas and, according to him, Indian "colonization" in Southeast Asia started in the first century CE or even earlier. On the basis of his study of the writing style of the Kalasan inscription and the abundant Hindu-based findings in Central Java, Bhandarkar claimed that Indian people, from both north and south India, migrated to and settled in Southeast Asia over time. Similarly, he posited that Cambodia was colonized by south Indians.[3] In 1912, Radha Kumud Mookerji suggested that the colonial expansion of India into Southeast Asia was related to the role of Kalinga and Gujarat, and provided as one example of the impact of Indian colonization the Borobudur temple in Central Java, a piece of Indian art transplanted into Java.[4]

At about the same time Dutch academics such as C.C. Berg, J.L. Moens, N.J. Krom and F.D.K. Bosch discussed this topic of Hindu colonization as well. Berg and Moens argued that Hindu culture was brought to Java by Indian colonizers. Berg, based upon his assumption derived from Javanese Panji narratives, stated that the Indianization of Java was initialized by a foreign warrior who came to Java and married to a noble woman either by a coercive force or by a peaceful way.[5] The warrior's postery became dynastic rulers of Java. Similar to Berg's arguments, Moens also proposes that the colonization of Java occurred when defeated rulers from India migrated to Java to establish a new ruling class which then became the ancestor of Javanese dynasties.[6] Krom and Bosch on the other side refused the idea of Hindu colonization of Java. Krom postulated the role of traders as important agents in transferring Hindu culture to Java, many times by marrying native inhabitants of higher Javanese ranks. Therefore, according to Krom the Hindu colonization of Java occurred in a peaceful manner, far from a violence colonization.[7] Bosch writes that a

2 The theory of *kṣatriya* is one of example of colonization theory; this states that warriors brought Indian influences to Southeast Asia. See: J.L. Moens, "Srivijaya, Yava en Kataha", *TBG*, 77/3 (1937): 317-487; C.C. Berg, *Hoofdlijnen der Javaansche Litteratuur-Geschiedenis* (Groningen, 1929); R.C. Majumdar, Hindu Colonies in the Far East (Calcutta: K.L. Mukhopadhyay, 1944/1963); R.C. Majumdar, *Ancient Indian Colonies in the Far East*: Vol. 2, Suvarnadvipa, Part 1, *Political History* (Dacca: Asoke Kumar Majumdar, 1937); Part 2, *Cultural History* (Dacca: Asoke Kumar Majumdar, 1938).

3 R.G. Bhandarkar, "A Sanskrit Inscription from Central Java", *Journal of the Bombay Branch of the Royal Asiatic Society* 17/2 (1889): 1-10.

4 R. Mookerji, *A History of Indian Shipping and Maritime Activity from the Earliest Times* (Bombay: 1912): 45.

5 C.C. Berg, *Hoofdlijnen der Javaansche Litteratuur-Geschiedenis* (Groningen: J.B. Wolters, 1929).

6 Moens, "Çrīvijaya, Yāva en Kaṭāha": 317.

7 N.J. Krom, Inleiding tot de Hindoe-Javaansche kunst. Eerste Deel ('s-Gravenhage: Martinus Nijhoff, 1923): 45; N.J. Krom, Hindoe-Javaansche Geschiedenis ('s-Gravenhage:

"Hindu colonization" can no longer be accepted. Moreover, Bosch himself proposes that monks and brahmanas ("clerks") were "the bringers" of Hindu culture to Java.[8] He also uses a metaphor "fecundation" to describe the process of Hinduisation:

> Only if we clearly realize that the awakened Indian spirit fecundated the living matter of Indonesian society, thus procreating a new life that was predestined to develop into an independent organism in which foreign and native elements were to merge into an indissoluble entity, only then does it become clear how it was possible that a small number of 'clerks', bearers of the Indian civilisation, without taking recourse to force of arms and without striving after material profits, could bring about the unparalleled development of hitherto latent forces, as we see before us in the growth and efflorescence of Hindu-Indonesian culture.[9]

One example of how scholars have attempted to view this cultural transformation from India can be found in the work of I.W. Mabbett, who tried to explain "Indianization" in terms of a cultural process over time, the result of which was two phases of "Indianization" in Southeast Asia. He states:

> It is probable that when we speak of 'Indianization' we are referring to two distinct processes that took place at different times. The first was the appearance of principalities or city states with Indian culture in the first two or three centuries after Christ; the second was the growth of peasant societies supporting civil, priestly and military elites in the latter half, largely perhaps in the last quarter, of the first millennium, and then only in relatively few place[10].

He postulates that these two stages differed in how their local organizational capacity and the social structures of Southeast Asia developed. Related to the two types of polities, Anthony Reid put forward slightly similar types for the period after the tenth century in both mainland Southeast Asia and the Indonesian archipelago.[11] He sees two distinct polities, *nagara* and *negeri*. *Nagara* refers to a cultural and sacred centre that was shared by several small polities, that had no boundaries, and that was based mainly on the production of rice, such as Angkor, Pagan, or Majapahit. *Negeri*, on the other hand, he defines as "rival ports strategically situated as gateways for upriver communities along the trade route of the Malacca Straits and the mountainous eastern coast of the mainland."[12] Moreover, after considering the means by which Indian influence was spread and its extent, Mabbett concludes

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Martinus Nijhoff, 1926): 34-62.

8 F.D.K. Bosch, "The Problem of the Hindu Colonisation of Indonesia", in: *Selected Studies in Indonesian Archaeology*, ed. F.D.K. Bosch (The Hague: Martinus Nijhoff, 1961): 1-22.

9 Bosch, "The Problem of the Hindu Colonisation of Indonesia": 20-21.

10 I.W. Mabbett, "The 'Indianization' of Southeast Asia: Reflections on the Prehistoric Sources", *Journal of Southeast Asian Studies* 8 (1977): 13.

11 A. Reid, *A History of Southeast Asia: Critical Crossroads* (Chichester: Wiley Blackwell, 2015): 39-46.

12 Reid, *A History of Southeast Asia*: 45.

that Indian influence in Southeast Asia is evident only in cultural transformation, not in politics.[13]

As scholars have explored "Indianization" from the Indian side, so they have also pointed out the role played by locals in receiving, adopting, and employing the coming culture. This view is expressed by Monica Smith, who has emphasized the importance of viewing the "senders" and recipients of Indian influences in Southeast Asia alongside each other.[14] Like Mabbett, she believes that the sources of the Indian influences were very diverse and, furthermore, that their adoption by local recipients was varied and very much dependent on circumstances and need.[15] Smith concluded that the motivation for adopting Indian culture was primarily related to attempts to imitate Indian cultural and political power as a means of legitimatizing rule, and in some cases was related to attempts to show cultural autonomy in order to resist Chinese expansion in Southeast Asia.[16]

On the other hand, and in contrast to the "colonialist" approaches, some scholars have proposed a number of different scenarios, ones which focus more on the role of the Southeast Asians in developing their own culture. One such scholar is O.W. Wolters, who has introduced the concept of selective localization of Indian cultural elements and has emphasized the innovative and dynamic character of Southeast Asian societies. "Localization" is a term he used to explain how foreign elements were absorbed by the local culture(s).[17] Consequently, the "new" culture—or, as he puts it, the "local cultural statements"—that was produced by the meeting between the local and the foreign is something different, while the process of the encounter would be varied as well.[18]

The role of the recipients in adopting Indian culture is also illustrated by Quaritch Wales. While his hypothesis is that migration from India happened in four main waves from the second to the early tenth century, he believes that this

13 Mabbett, "The 'Indianization' of Southeast Asia: Reflections on the Prehistoric Sources": 161.

14 Monica L. Smith, 'Indianization' from the Indian Point of View: Trade and Cultural Contacts with Southeast Asia in the Early First Millennium C.E.", *Journal of the Economic and Social History of the Orient* 42/1 (1999): 1-26.

15 Mabbett, "The 'Indianization' of Southeast Asia: Reflections on the Prehistoric Sources": 160. See also Himanshu Prabha Ray, "Early Maritime Contacts between South and Southeast Asia", *Journal of Southeast Asian Studies* 20 (1989): 42 and 54.

16 Smith, "'Indianization' from the Indian Point of View": 19.

17 The term "localization" is often associated with Wolters in his explanations of acculturation in Southeast Asia, as are other terms such as "*mandala*" and "man of prowess". See Craig J. Reynold, "The Professional Lives of O.W. Wolters", in: *Early Southeast Asia. Selected Essays*, ed. Craig J. Reynold (Ithaca, New York: Southeast Asia Program Publications, Southeast Asia Program, Cornell University, 2008): 19.

18 O.W. Wolters, *History, Culture, and Region in Southeast Asian Perspectives* (Ithaca, New York: Southeast Asia Program Publications Cornell University, 1999): 67.

invasion forced people to migrate to Southeast Asia from South Asia.[19] However, when emphasizing the role of the recipients, he put forward the theory of the "local genius" as playing an important role in the transformation of Indian culture to Southeast Asia which he explains in the following way:

> This local genius can be destroyed by extreme acculturation. Alternatively, as a result of a lesser degree of acculturation, it can undergo more or less change. But in the latter case some of its features will remain constant, revealing themselves as a preference for what are evidently the more congenial traits of a new cultural pattern, and a specific way of handling the newly acquired concepts. *These features will determine the reaction to the new culture and give direction to subsequent evolution*.[20]

His conclusion stressed that the local genius was not the cause of every vicissitude in the cultural evolution within Southeast Asia; instead, it only gave direction to the evolutionary process.[21]

To sum up, the approach that places more emphasis on the local culture in the reception of Indian influences can be termed the "internal development" approach. The first essential aspect of this approach is to ignore the over-emphasis, seen in most of the Indianization theories, on the role of Indians in dispersing their influence in Southeast Asia. Therefore, this approach presumes that, even before the beginning of Indian cultural influence in Southeast Asia, the region had its own socio-political organization into which Indian elements were later adapted.[22] P. Wheatley suggests that the concentration of power in, for instance, the Khmer, Cham, Burmese, Mon, and Javanese kingdoms was rooted in prehistoric times, before Indian elements arrived in those regions, and that this was a prerequisite for the later developments that took place when Indian culture entered Southeast Asia. Indian cultural components—such as language, script, architecture, mythology, and beliefs—fused with the local culture "to create the new and distinctive syntheses."[23]

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19 H.G. Quaritch Wales, *The Making of Greater India* (London: Bernard Quaritch Ltd., 1974): 29-31. What he called the "Four Main Waves of Indian Cultural Expansion" was a series of expansions which overlapped with each other: the Amarāvatī (2nd to 3rd centuries), the Gupta (4th to 6th centuries), the Pallava (ca. A.D. 550-750), and the Pāla (ca. A.D. 750-900). He also explained that there is the possibility of additional cultural expansion after the fourth wave, but that it was minor or less obvious.

20 Wales, *The Making of Greater India*: 18.

21 Wales, *The Making of Greater India*: 227-234.

22 R.R. Hagesteijn, *Circles of Kings. Political Dynamics in Early Continental Southeast Asia* (Dordrecht: Foris Publications, 1989): 61-63.

23 P. Wheatley, *The Kings of the Mountain. An Indian Contribution to Statecraft in Southeast Asia* (Kuala Lumpur: University of Malaya, 1980): 26. See also research on prehistoric Southeast Asia: Charles Higham, "The Later Prehistory of Mainland Southeast Asia", *Journal of World Prehistory* 3/3 (1989): 235-282; Charles Higham, "Mainland Southeast Asia from the Neolithic to the Iron Age", in: *Southeast Asia. From Prehistory to History*, ed. Ian Glover and Peter Bellwood (London and New York: Routledge Curzon, 2004):

This "internal development approach'' as visible in the work of Wolters and Wheatley, has been criticized by Sheldon Pollock, who states that "the conceptual framework" shaping such scholars "was itself shaped by a civilizationalist indigenism with its roots as deeply sunk into the political realities of its time as was the first, colonialist phase of research" and was generated by decolonization and new state-building.[24] He emphasizes instead the importance of transculturation at work in what he calls the Sanskrit cosmopolis.

Recently, different approaches have been posited that have resulted in various new interpretations and concepts. These are a consequence of two factors. First, because archaeological research into prehistoric and protohistoric Southeast Asia has produced many new findings, and second, because new methods for interpreting the archaeological and historical data have been developed. As such, Hermann Kulke suggests that both should lead to a re-evaluation of the early history of South and Southeast Asia.[25] Kulke refers to the "convergence" hypothesis. This differs from the Indianization concept because it gives more space to the actions of the indigenous people and interprets the development of South and Southeast Asian societies via a unified historical process. Kulke builds his theory on De Casparis, who has, Kulke says, given the Indianization theory a "*coup de grâce"* (a final blow). J.G. de Casparis, who does not agree with the idea of Indianization, explains that the complicated process of interaction between the influence of Indic culture within Indonesia and Southeast Asia should be seen as an involvement of multiple interactions within South Asia and Southeast Asia creating "a lasting relationship".[26] This hypothesis suggests the existence of socioeconomic and political convergence as a mechanism for solving social and political problems in both regions. Kulke explains:

> Whereas Indianization presumes social distance as a major cause of acceptance of Indian influences in South-East Asia, the convergence hypothesis postulates social nearness as the promoter of social change under -undoubtedly- Indian influences in South-East Asia.[27]

As such, this hypothesis highlights as an explanation for the influence of Indian

41-67; Donn Bayard, "The Roots of Indochinese Civilisation: Recent Developments in the Prehistory of Southeast Asia", *Pacific Affairs* 53 (1980): 89 -114.

24 S. Pollock, *The Language of the Gods in the World of Men: Sanskrit, Culture, and Power in Premodern India* (Berkeley and Los Angeles: The University of California Press, 2006): 531-533.

25 H. Kulke, "Indian Colonies, Indianization or Cultural Convergence? Reflections on the Changing Image of India's Role in South-East Asia", in: *Semaian 3. Onderzoek In Zuidoost–Azie Agenda's Voor De Jaren Negentig. H Schulte Nordholt* (Leiden: Vakgroep Talen en Culturen van Zuidoost-Azie en Oceanie Rijksuniversiteit te Leiden, 1990): 21.

26 See: J.G. de Casparis, "India and Maritime South East Asia: A Lasting Relationship", *Third Sri Lanka Endowment Fund Lecture* (Kuala Lumpur: University of Malaya, 1983).

27 Kulke, "Indian Colonies, Indianization or Cultural Convergence?": 32.

culture in Southeast Asia that there was a complex network of exchange relations that occurred in a mutual process.

Such an approach has been taken by Bérénice Bellina and Ian Glover, who are convinced that trade networks and maritime routes played an important role in diffusing Indian culture within Southeast Asia.[28] Furthermore, they affirm that in order to understand the history of the development of trade networks and maritime routes—through which the diffusion of Indian influence occurred—one also has to study the formation and evolution of these networks and routes from India to the various regions of Southeast Asia. By analyzing new archaeological data, especially the items that were traded between the fourth century BC and the fourth century CE, and by providing comparative data from both Southeast Asia and India, they conclude that interactions between India and Southeast Asia happened in two phases: Phase I (fourth century BCE to second century CE) and Phase II (second to fourth centuries CE). They conclude that: "by the late centuries BC, Southeast Asia was already part of a world trading system linking the civilizations of the Mediterranean basin and Han China. Thus, the process of Indianization had long roots reaching back into prehistory".[29]

Regarding the Chinese expansion into Southeast Asia, it cannot be denied that China also had cultural contacts with the region. This fact has been rather neglected in previous research, but it is a potential explanation for the transcultural interactions between Southeast Asia and the surrounding regions. On the basis of Chinese accounts, some scholars have suggested that Chinese knowledge of the Malay peninsula began at the start of the Common Era.[30] During the early Han dynasty, there was regular exchange of goods between the Chinese elite and Southeast Asian societies, while at the same time the elites of Southeast Asia had to send gifts and goods to the Chinese emperor as a sign of their subordination. The study by Wang Gungwu on the Nanhai Trade examines the early movement southward of Chinese political power into Southeast Asia.[31] On the basis of this

28 B. Bellina and I. Glover, "The Archaeology of Early Contact with India and the Mediterranean World from the Fourth Century BC to the Fourth Century AD", in: *Southeast Asia. From Prehistory to History*, ed. Ian Glover and Peter Bellwood (London and New York: Routledge Curzon, 2004): 4-20.

29 Bellina and Glover, "The Archaeology of Early Contact with India and the Mediterranean World from the Fourth Century BC to the Fourth Century AD": 83.

30 P. Wheatley, "References to the Malay Peninsula in the Annals of the Former Han", in: *Southeast Asia – China Interactions: Reprint of Articles from the Journal of the Malaysian Branch, Royal Asiatic Society* (Singapore-Kuala Lumpur: MBRAS and NUS Press, 2007): 1-7; D. Henk, *Sino-Malay Trade and Diplomacy from the Tenth through the Fourteenth Century*, (Athens: Ohio University Press, 2009): 21; G. Wang, "The Nanhai Trade", in: *Southeast Asia – China Interactions: Reprint of Articles from the Journal of the Malaysian Branch, Royal Asiatic Society* (Singapore-Kuala Lumpur: MBRAS and NUS Press, 2007): 55.

31 Wang, "The Nanhai Trade": 51-166.

Chinese account, relations between China and Southeast Asia occurred over a period of at least ten centuries, from the first century BCE to 960 CE. But also later, Southeast Asia's maritime interaction with China only began in the first millennium CE after China had enacted a policy of exploring and expanding its commercial and political power over the areas to the south of China, including those in Southeast Asia.[32]

1.2. MODELS OF EARLY STATE FORMATION

Discussions of how relations between Southeast Asia, India, and China impacted the development of the classical states of Southeast Asia led to another debate, one focused on the growth of those states. Their characteristics have been proposed by a number of scholars on the basis of a number of different perspectives. When researching the development of these states, two topics are commonly discussed: the form of the polities and their nature.

The categorization of the polities of early Southeast Asia remains sketchy, and most scholars refer to them as states, kingdoms, chiefdoms, or city-states, with "states" being the term employed most regularly. However, the use of the term "state" overlaps with the other aforementioned terms and is sometimes used interchangeably. Some scholars use a different term, such as Wolters, who suggests using "political system" as an alternative for "state". The problem resulting from this confusing use of the terms is that the definitions for each are too broad and general. The other reason is that some of the terms were influenced by western concepts and approaches that these scholars introduced to understand Southeast Asia.[33] As such, K.D. Morrison recommends seeking the origins of Asia (or, in this case, Southeast Asia) by employing the definitions related to Southeast Asia on the basis of the terms that are found in the sources.[34] V. Lieberman describes this approach as "autonomous historiography," one which is a reaction against Indian historians' approaches that overemphasize the Indian elements in Indonesian culture. This perspective of polity categorization has begun to influence other Asianists, particularly since 1950 when Van Leur's and Schrieke's writings were translated into English.[35]

32 Henk, *Sino-Malay Trade and Diplomacy*: 21; P. Wheatley, *The Golden Khersonese. The Studies in the Historical Geography of the Malay Peninsula before A.D. 1500* (Westport: Greenwood Press, 1973): 5.

33 Hagesteijn, Circles of Kings: 146; K.D. Morrison, "States of Theory and States of Asia: Regional Perspectives on States in Asia", *Asian Perspectives* Vol.33(2), Fall 1994: 183-196.

34 Morrison, "States of Theory and States of Asia": 191.

35 V. Lieberman, *Strange Parallels: Southeast Asia in Global Context, c. 800-1830. Vol. 1: Integration on the Mainland* (Cambridge: Cambridge University Press, 2007): 9-10.

As well as explaining the process of "Indianization" and how external factors influenced the emergence of states in Southeast Asia, many researchers have tried to explain the states' structures and organization. In attempting to do so, the concepts of *maṇḍala, cakravartin,* and galactic polity have been proposed by scholars.

The *maṇḍala* pattern has been very popular ever since O.W. Wolters used it to explain the structure of states in Southeast Asia.[36] *Maṇḍala* is a cosmological scheme in which an "organization" is a representation of the universe (the macro cosmos) on earth (the micro cosmos). The universe is seen as a spatial entity with Mount Meru as its centre, with gods and deities believed to surround Mount Meru from where they rule the universe. The universe itself is divided into several sections, each of which has its own god. The conceptual universe is viewed by the rulers or kings on the earth as being the equivalent of a god in the centre as the ruler of the universe.

Empirically, the boundaries of a *maṇḍala* are unfixed and thus its size could expand or contract. Each *maṇḍala* consists of several polities, and any one polity could be the centre should it attain sufficient power to form another *maṇḍala*. According to O.W. Wolters, a *maṇḍala* is not based on coercion—although sometimes victory in war causes a vassal to become obligated to the centre—but, instead, vassals often join a *maṇḍala* due to "security" needs or the influence of a spiritual or political power. The existence of a *maṇḍala* depends on how a central ruler obtains information on its vassals and how effectively diplomacy is used.[37]

Wolters' idea of the *maṇḍala* is accepted by many scholars, although it is criticized by numerous others. Christie suggests that the model of the *maṇḍala* cannot be accepted as a whole, especially for Java, and she also believes that the model is a historically static concept showing a Weberian influence.[38] Sunait Chutintaranond differentiates the *maṇḍala* model from the *cakravartin*, stating that the *maṇḍala* was a foundation for the *cakravartin*. *Cakravartin* means a "cakra/wheel turner," and it refers to a universal rule in which the king governs a territory either by coercion or through peaceful means. He states that "in the new system, boundaries were fixed rather than flexible, rituals of alliance were replaced by international law and foreign policy, and local autonomy was totally overshadowed by central authority".[39] It seems that the *cakravartin* model involved more coercion in its operation than did the *maṇḍala*.

Another model with similarities to the *maṇḍala* is that of the "galactic polity,"

36 O.W. Wolters, *History, Culture, and Region in Southeast Asian Perspectives* (Singapore: Institute of Southeast Asia Studies, 1982).

37 Wolters, *History, Culture, and Region in Southeast Asian Perspectives*: 27-29.

38 J.W. Christie, "Negara, Mandala, and Dispotic State: Images of Early Java", in: *Southeast Asia in the 9th to 14th Centuries*, ed David G. Marr and A.C. Milner (Singapore: Institute of Southeast Asia Studies, 1986): 85-86.

39 S. Chutintaranond, *Cakravartin: The Ideology of Traditional Warfare in Siam and Burma, 1548-1605* (Dissertation, The Faculty of the Graduate School of Cornell University, 1990): 296.

proposed by Tambiah.[40] Essentially, this model was based on both the *maṇḍala* model and *cakravartin*. The galactic polity model sees Southeast Asian polities as being arranged in centre-oriented galactic schemes, with the smaller polities surrounding the centre being united with it. The galactic polity—which was a characteristic of several Southeast Asia states—was, according to Tambiah, based on "indigenous" Southeast Asian concepts. However, this leads to the question of what "indigenous concept" refers to, and particularly whether it came from the prehistoric Southeast Asia or was originally Indian-influenced. In his article, this is extremely unclear.

Although the *maṇḍala* model of the Southeast Asian polity may seem ideal, its application provokes debate. One of the most debated cases is that of the Ayutthaya polity, which has seen discussions between Wolters and Chutintaranond. According to Wolters, Ayutthaya was a perfect example of a *maṇḍala* in Southeast Asia—at least, after 1350 CE, when the Ayutthaya king brought the Thai rulers into his centralized polity[41]—yet Chutintaranond suggests that Ayutthaya used the *cakravartin* concept, rather than the *maṇḍala*, as its basis.[42] Sumatra and Java are often used as the prime examples of the *maṇḍala* model, but scholars like Christie refuse to classify them as *maṇḍala* polities. The states of Java, Christie argues, were not as integrated, either politically or economically, as the *maṇḍala* model claims they should have been.[43]

Another model with a similar centre-periphery approach is that of the "upstream-downstream" network. This model was formulated for the first time by Bennet Bronson, and in it he admitted that his proposed model was merely speculative, with little supporting data.[44] In essence, the model suggests there was a process of exchange along a river between the upstream and the downstream polities. The centre of the network was located at or near the mouth of the river, which also had overall control of the whole network. Besides the centre, other parties who took part in the operation of the network included lower-level trading

40 S.J. Tambiah. "The Galactic Polity: The Structure of Traditional Kingdoms in Southeast Asia", *Annals of the New York Academy of Sciences* 293/1 (1977): 69-97. See also: S.J. Tambiah, *World Conquerer and World Renouncer: A Study of Buddhism and Polity in Thailand against a Historical Background* (Cambridge: Cambridge University Press, 1976): 128-131.

41 Wolters, *History, Culture, and Region in Southeast Asian Perspectives*: 31.

42 Chutintaranond, *Cakravartin*: 287-295.

43 Christie, "Negara, Mandala, and Dispotic State": 75, 85-86.

44 B. Bronson, "Exchange at the Upstream and Downstream ends: Notes towards a Funcional Model of the Coastal States in Southeast Asia", in: *Economic Exchange and Social Interactions in Southeast Asia. Perspectives from Prehistoric, History, and Ethnography*, ed. Karl L. Hutterer (Ann Harbor: Centre for South and Southeast Asia Studies University of Michigan, 1977): 38-52. See also: K.R. Hall, *A History of Early Southeast Asia. Maritime Trade and Societal Development, 100-1500* (Lanham: Rowman and Littlefield Publishers Inc., 2011): 22-23.

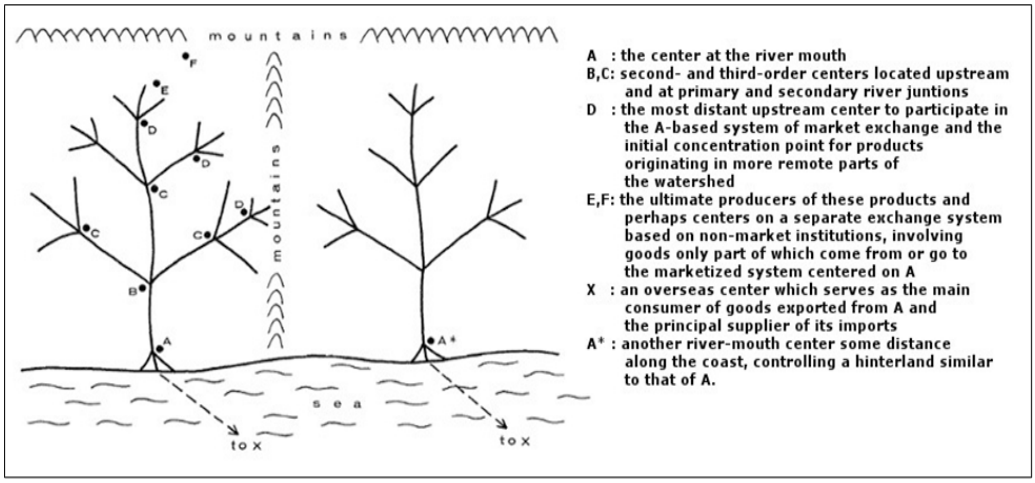

Fig. 1.1. Model of Bronson's upstream-downstream exchange network. (Source: Bennet Bronson, 1977: 42-43)

centres located upstream, a main upstream centre, the ultimate producers of the products traded, and the overseas consumers. Bronson assumes that the model would operate in two circumstances: a river as the main transportation route for the state, and an overseas consumer that has both a larger population and more advanced technology. He stresses that the relationships between upstream and downstream polities were more egalitarian and less coercive than those used in ordinary networks. He designed the model especially for certain areas in Southeast Asia, such as Sumatra, insular and peninsular Southeast Asia, and western Indonesia, although not Java or mainland Southeast Asia.

Although Bronson formulated this as a hypothetical, Aung-Thwin employed a similar model to analyse a network focused on the Ava and Pegu kingdoms of Myanmar. His article is a history of the "upstream–downstream" relationship between Ava and Pegu.[45] After Pagan had declined in the fourteenth century CE, Myanmar was dominated by the two polities of Ava and Pegu. Each had distinct characteristics, as Ava was an agrarian polity located in upstream Myanmar while Pegu was a commercial polity situated downstream. Aung-Thwin termed the relationship between Ava and Pegu as being "symbiotic dualism" in which they generally maintained their economic symbiosis; Ava supplied lower Myanmar with its basic needs—especially rice—while Pegu provided upper Myanmar with luxury or imported goods and maritime delicacies. Their relationship was very special and they always maintained the status quo, never seeking to destroy each other during

45 M. Aung-Thwin, "A Tale of Two Kingdoms: Ava and Pegu in the Fifteenth Century", *Journal of Southeast Asian Studies* 42 (2011): 1-16.

their alternating periods of control of Myanmar.[46] Coercion-less relations between upstream and downstream polities also happened with the two polities of Sriwijaya and Samudra Pasai—the latter of which was a new Islamic polity in Sumatra with origins in the fifteenth century—which also had an upstream-downstream relation based on an exchange; the upstream communities supplied products from the land to the downstream settlers and, conversely, the downstream polity provided luxury imported goods to that upstream.[47]

The upstream-downstream relations approach essentially examines exchanges or trade—in a geographically narrow sense—in what may be termed a local-to-local network, although sometimes they could be drawn into a relationship with another trading network. However, many scholars employ the trade approach in a broader sense to create a model to explain the emergence and development of the Southeast Asian states. One of the most comprehensive approaches was proposed by Kenneth Hall in his book *The History of Early Southeast Asia. Maritime Trade and Societal Development, 100-1500*, in which he explains how the function and consequences of both regional and international economic developments influenced Southeast Asian social organization and polities.[48] By examining local, regional, and international trade among Southeast Asia polities—like Champa, Vietnam, Pagan, Angkor, Sriwijaya, and Java—he was able to detail the different levels of trade and of both economic and socio-cultural exchange between the Southeast Asian states. In this way, trade led to the development of polities while trading networks generated relations between those polities, especially the ones based on or near rivers.

In the global-local perspective, it is useful here to put forward Sheldon Pollock's idea of the Sanskrit Cosmopolis.[49] Pollock argues that in the first half of the first millennium Sanskrit literature (*kāvya* and *praśasti*) began to spread in both South and Southeast Asia which Sanskrit literature got a new function as important to the state before then generating regional vernacular literature in the first half of second millennium. In this way, he emphasises the superordinate and universal qualities of Sanskrit and links it to the political power and aesthetic expressions used by the elites of South and Southeast Asia. Over time, the (regional) vernacular rose to a higher linguistic register through the use of Sanskrit and arrived at a phase of new vernacular production of *kāvya* and *praśasti*, and this led to new processes of regional centralization as, for instance, began to occur in Kannada, South India, in

46 For the concept of upper and lower Myanmar, see: Michael Aung-Thwin, "Lower Burma and Bago in the History of Burma", in: *The Maritime Frontier of Burma. Exploring Political, Cultural and Commercial Interaction in the Indian Ocean World, 1200-1800*, ed. Jos Gommans and Jacques Leider (Leiden: KITLV Press, 2002): 30-31.

47 Hall, *A History of Early Southeast Asia*: 114 and 306.

48 Hall, *A History of Early Southeast Asia. Maritime Trade and Societal Development, 100-1500*.

49 S. Pollock, *The Language of the Gods in the World of Men: Sanskrit, Culture, and Power in Premodern India* (Berkeley and Los Angeles: The University of California Press, 2006).

the late ninth century.[50] However, Pollock disagrees that this Sanskrit Cosmopolis is the same as the concept of one-directional Indianization because Sanskrit was adopted consciously by those participating in the Sanskrit Cosmopolis.

1.3. APPROACHES TO WATER MANAGEMENT AND STATE DEVELOPMENT

Another model of Southeast Asian state development focuses on the interplay between irrigation and the centralized-decentralized administration which is known as the "hydraulic society" model. The most important work on this is Wittfogel's *Oriental Despotism*,[51] is which it is posited that largescale irrigation had to be coordinated and supervised by a centralized state administration. These activities, in turn, gave rise to a more systematized and centralized political system. In other words, irrigation is believed to have been a prime mover of the emergence of a civilization, one labeled a "hydraulic society" or an "irrigation civilization".[52] It is important to note here that the hydraulic society was seen in China during both the Qin dynasty (221-206 BCE) and the Han dynasty (206 BCE-220 CE).

This model for analyzing Southeast Asian state development during the medieval period has been applied by a number of scholars, resulting in two opposing opinions regarding its suitability for explaining state development. On the one hand, Harry J. Benda believes that oriental despotism is more apt for developments in mainland Southeast Asian states than China,[53] and a similar view has been put forward by Van Naerssen, who used hydraulic theory to support ideas surrounding the emergence of the first polities in parts of Southeast Asia.[54] On the other hand, various criticisms have been made of this model, including those by Jan Wisseman-Christie and Janice Stargardt. Christie wrote an article entitled "Water from the Ancestors: Irrigation in Early Java and Bali," in part of which she examined the role of the court in water management and in the construction and maintenance of hydraulic infrastructure on the basis of epigraphic records.[55] She concluded that

50 Pollock, *The Language of the Gods in the World of Men*: 338.

51 K.A. Wittfogel, *Oriental Despotism: A Comparative Study of Total Power* (New Haven: Yale University Press, 1957).

52 Julian Steward used the term "irrigation civilization" on the basis of his research in Mesopotamia, Mesoamerica, South America, China, and Egypt; see: J. H. Steward, *Irrigation Civilizations: A Comparative Study. A Symposium on Method and Result in Cross-Cultural Regularities* (Washington D.C.: Social Science Section, Department of Cultural Affairs, Pan American Union, 1955).

53 H.J. Benda, "The Structure of Southeast Asia History: Some Preliminary Observations", *Journal of Southeast Asian History* 3/1(1962): 113.

54 F.H. van Naerssen, *The Economic and Administrative History of Early Indonesia* (Leiden: Brill, 1977): 69.

55 Christie, "Water from the Ancestors": 7-25.

water management in early Java was mostly undertaken by local agency or "the village with its large territory holdings".[56] On Wittfogel's *Oriental Despotism*, she states in another article that:

> Java's aristocracy was too strong and its royalty too weak, its villages too hierarchical and its regions too well integrated, its economy too sophisticated but too decentralized, its religion too unfocused, and its history too linear for any of its states to qualify as an "Oriental Despotism". [57]

Similarly, Stargardt's research has confirmed the autonomy of the local community in water management. This research was conducted in Satingpra, south Thailand, a site which has many hydraulic works from the period of *c.* the sixth to the mid-thirteenth centuries, but which is situated on secondary alluvial tracts, suggesting that local social structures were more active than was royalty in managing the hydraulic works.[58]

If we extend this conclusion more widely, the local autonomy seen in the examples of how Southeast Asian polities in managing water control could also have occurred in many other ancient polities around the world. It is certain that ancient local communities had the skill, capability, and social capital to build infrastructure and to control the water, despite their varying levels of political authority. Research by Vernon L. Scarborough on irrigation-based polities in both the Old World and the New World over a period from hundreds of centuries BCE to 1200 CE seems to confirm this.[59]

Regarding the role of the state in water management, it will be useful to explore relations between the development of river basin-based societies and the ecological characteristics of its river basin. Janice Stargardt has emphasised the importance of analyzing the physical geography of the landscape and the social systems of riverine societies. Moreover, on the basis of her research on the Satingpra site in south Thailand, which has been compared with sites in Cambodia, Vietnam, and Indonesia, she explains:

> In attempting to establish the real character of this part of man's dialogue with his environment, namely the reciprocal influences exerted by societies on hydraulic systems and vice versa, we need to look in detail at the way these systems operated. In particular, factors such as water volumes, water retention of the soils, equality or inequality of man's water access, and the

56 Christie, "Water from the Ancestors": 19.

57 Christie, "Negara, Mandala, and Dispotic State": 85; see also: J.W. Christie, "Theatre States and Oriental Despotisms: Early Southeast Asia in the Eyes of the West", *The University of Hull Centre for South-East Asian Studies Occasional Papers* No. 10 (1985).

58 J. Stargardt, "Hydraulic Works and Southeast Asian Polities", in: *Southeast Asia in the 9th to 14th Centuries*, ed. David G. Marr and A.C. Milner (Singapore: Institute of Southeast Asian Studies and Research School of Pacific Studies ANU, 1986): 32-33.

59 V.L. Scarborough, *The Flow of Power. Ancient Water Systems and Landscapes* (Santa Fe: School of American Research, 2003): 102-103 and 151-165.

> presence or absence of social mechanisms of inter-village co-operation in water management are those which are useful in understanding why larger polities developed in certain areas and not others and what larger polities developed part was played in the process by hydraulic works.[60]

In addition to the physical geography of the river basin—and in particular the river itself—rivers have, in various ways, helped to shape the characteristics of the Southeast Asian societies along it, based on the geographical conditions and the river itself. Kenneth Hall has noted that Southeast Asian river systems can be divided into two different types, both of which occur in mainland and island Southeast Asia.[61] The first system sees numerous streams flow from the mountains of the interior to the sea, and in this the coastal polity dominated due to its accessibility; as a result, the upstream polity controlled those downstream due to its control of the river because it could also control the exchange of goods from the inland. Its hegemony over the river consequently structured the polities along the whole river.[62] This type of river system occurred in Sumatra, Borneo, and Malaysia.

The second type depended on a major river system forming a very fertile basin in which people cultivated rice, as the rich rice-producers created centres of political power in that basin. Examples of this type of river system are those around the Irrawaddy, Mekong, and Salween rivers in mainland Southeast Asia, and the Solo and Brantas rivers in East Java.[63] Within these diverse topographies and river systems each polity and society developed its own water management strategy in order to maintain its socio-economic and political growth. Therefore, there was always a correlation between diversity in ecology and diversity in the inventions in the field of water management technology and strategy. Charles R. Ortloff has validated this correlation through an examination of the various strategies and technologies developed by ancient societies in the New World, Old World, and Southeast Asia.[64]

60 J. Stargardt, "Hydraulic Works and Southeast Asian Polities" in: *Southeast Asia in the 9th to 14th Centuries*, ed. David G. Marr and A.C. Milner (Singapore and Canberra: Institute of Southeast Asia Studies and Research School of Pacific Studies Australian National University, 1986): 37.

61 K.R. Hall, *A History of Early Southeast Asia: Maritime Trade and Societal Development, 100–1500* (Plymouth: Rowman & Littlefield Publishers, Inc., 2011): 12-13.

62 See also: J. Wisseman Christie, "State Formation in Early Maritime Southeast Asia: A Consideration of the Theories and the Data", *BKI* 151 (1995): 270.

63 Kenneth Hall suggests Central and East Java were part of a similar river system, but they were different; see: Hall, *A History of Early Southeast Asia*: 12.

64 C.R. Ortloff, *Water Engineering in the Ancient World. Archaeological and Climate Perspective on Societies of Ancient South America, the Middle East, and South-East Asia* (New York: Oxford University Press, 2009): 383-400.

1.4. CONCLUSION

For the most part, the models put forward by scholars are useful, but debates remain on the question whether they do indeed explain the real circumstances. In the case of the emergence and growth of the Javanese polities, the application of these models above is not very convincing, nor are the attempts to explain the development of Javanese states by using them. Some scholars have misapplied the concept of generalization by applying to Javanese state development a model that was generated from other examples, places, or times, while the main problems for each explanation are insufficient evidence and the misinterpretation of data used to present the development of the Javanese polities. The other problem that has arisen when using these models to explain the Javanese polities is a failure to understand the particular geographical characteristics of Java, such as the local climate and geomorphology of the island. As such, when explaining the development of the Javanese polities I propose that a new model is required, one based specifically on evidence from Javanese archaeological and historical records and the geographical data of the island. On the other hand, it should be underlined that some of the concepts surrounding water management proposed by scholars are of some use when explaining the practice of water management within East Javanese polities and society.