Agricultural Technicalities in a Few Copperplate Inscriptions of Early Medieval Bengal (6th–8th Century CE)

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Abstract

The early medieval inscriptions of Bengal are invaluable primary sources, reflecting sophisticated manifestations of agricultural science and its applied technical knowledge, particularly concerning land assessment and evaluation systems. The documentation of land grants, which began in the post-Gupta period, signals that these scientific tendencies related to agrarian administration solidified from this era onward. Given the scarcity of contemporary literary material, our investigation is strategically focused on the epigraphic corpus of both the late Gupta regime and the subsequent regional rulers emerging from the 6th century CE, including the charters of Gopacandra, Dharmāditya, Samācāradeva, Śaśāṅka, the Rātas, the Nāthas, and the Khaḍgas. These documents are the main source for understanding the practical application of scientific and technical knowledge during that period.

A key element of this indigenous agricultural science was the development of a systematic and standardized methodology for land assessment. This system integrated an agronomic factor—the crop plantation potential or yield—directly into the measurement process. Specifically, the measurement of land was inferred from the amount of crop plantation it could sustain, and the resulting price of the land was determined accordingly. For example, the size of harvested land corresponding to a standard measure like one kulya was standardized and recorded in the inscriptions, establishing a consistent frame of reference. This systematic and standardized process led to the emergence of a formalized and organized agricultural science, which simultaneously reflects the development of a standardized regional economy in early medieval Bengal. These features of agricultural scientific practice, deeply embedded in administrative procedures, thus began to flourish in Bengal from the 4th-5th century CE, providing vital insight into the knowledge systems prevalent in that era.

Keywords: agriculture, Bengal, crop, early medieval, land, measurement, regional

Introduction

The endeavour to reconstruct the early medieval history of the South Asian subcontinent is frequently hampered by a discernible paucity of contemporaneous secular literary texts. This challenge often forces historians to rely on scattered and frequently biased sources. However,

the region of Bengal offers a singular and decisive methodological advantage through its extraordinarily rich epigraphic tradition.

Spanning the critical period from the 5th to the 8th centuries CE, this tradition is defined by a significant proliferation of copperplate grants (*tāmraśāsana*). These documents are far more than mere historical relics; they functioned as authoritative legal instruments, meticulously engraved on metal sheets, documenting the formal transfer of specific land rights. These transfers were typically initiated either by the state—often under the authority of the reigning monarch—or by wealthy private donors, primarily to confer perpetual endowments upon religious beneficiaries, such as learned Brāhmins or established Buddhist monasteries (*vihāras*).

These copperplates transcend the utility of simple administrative receipts. They serve as essential windows into the daily life, governance structures, and macroeconomic organization of the era. While stone inscriptions and image dedications primarily illuminate religious history and political chronology, the copperplates are demonstrably indispensable for economic history. Their unique value lies in the level of detail provided: they specify the exact size of the land, its precise boundaries, the categorization of the soil type, the precise price paid (if a sale component was involved), and the specific currency utilized (e.g., *Dīnāras* and *Rūpakas*).

Consequently, these records collectively reveal a sophisticated and functionally standardized system of land assessment and rural administration. This system developed uniquely across the four distinct administrative and geographical sub-regions of Bengal: Puṇḍravardhana (North Bengal), Samataṭa (Southeast Bengal), Vaṅga (South/Central Bengal), and Rāḍha (West Bengal).

This study focuses acutely on a specific technical trajectory: the evolution and standardization of land measurement metrology and the systematic pricing mechanisms. Our central argument posits that the profound political transition—the shift from the monolithic imperial Gupta administration to a mosaic of independent regional kingdoms—did not precipitate administrative chaos. Instead, it spurred the crystallization of a localized, yet universally applied, agricultural economy.

Therefore, the investigation will be anchored in a detailed analysis of the inscriptional evidence, encompassing the late Gupta charters and the crucial post-Gupta inscriptions issued by regional sovereigns such as Gopacandra, Dharmāditya, Dvādaśāditya, Samācāradeva,

Śaśāṅka, the Rātas, the Nāthas, and the Khaḍgas. In the context of the region's acute dearth of contemporary literary material, these inscribed texts constitute the principal, primary source for understanding this defining trend of cultural and economic systematization.

The inscriptions under this study are as below:

1. Dhanaidaha copper plate of Kumāragupta I (113 GE=433 CE)
2. Kalaikuri Sultanpur copper plate (120 GE= 440 CE)
3. Damodarpur copper plate of Kumāragupta I (124 GE=444 CE)
4. Damodarpur copper plate of Kumāragupta I (128 GE=448 CE)
5. Jagadishpur copper plate (128 GE= 448 CE)
6. Baigram copper plate (128 GE=448 CE)
7. Paharpur copper plate (159 GE=479 CE)
8. Damodarpur copper plate of Budhagupta (159 GE=479 CE)
9. Raktamala copper plate (159 GE=479 CE)
10. Nandapur copper plate (169 GE=489 A.D)
11. Undated Damodarpur copper plate of Budhagupta
12. Gunaighar copper plate of Vainyagupta (188 GE= 507 CE)
13. Damodarpur copper plate (224 GE=544 AD)
14. Jayrampur copper plate of Gopacandra, year 1
15. Faridpur copper plate of Gopacandra, year 18
16. Mallasarul copper plate of Vijayasena, year 33 of Gopacandra
17. Faridpur copper plate of Dharmāditya, year 3
18. Faridpur copper plate of Dharmāditya
19. Kotalipada Copper-plate of Dvādaśāditya
20. Ghugrahati copper plate of Samācāradeva, year 14
21. Kurpala Copper plate of Samācāradeva
22. Vappaghosavata copper plate of Jayanāga
23. Egra copper plate of Śaśānka
24. Medinipur copper plate of Śubhakīrtti, year 8 of Śaśāṅka
25. Medinipur copper plate of Somadatta, year 19 of Śaśāṅka
26. The Tipperah copperplate of Loknātha, middle of the seventh century C.E.

27. The Kailan copperplate of Śridhāraṇa Rāta, middle to the last quarter of the 7th century CE.
28. The Ashrafpur copper plate of Devakhaḍga, c. eighth century CE

Historiography and Theoretical Framework

To contextualize the primary data, one must acknowledge the foundational secondary scholarship that has shaped our understanding of this era.

The pioneer of this field, Ramesh Chandra Majumdar, provided the initial political and chronological framework in his seminal volume, *The History of Bengal*. His work established the dynastic succession that allows us to date these inscriptions (Majumdar, 2003). However, the shift from purely political history to socio-economic analysis was spearheaded by Nihar Ranjan Ray. In *Bāṅgālīr Itihas: Ādi Parba*, Ray moved beyond kings and wars to discuss the life of the common people, the crops they grew, and the taxes they paid (Ray, 2009).

The discourse has been refined by Brajadulal Chattopadhyaya and Ryosuke Furui. Chattopadhyaya's work on rural settlements utilized inscriptions to map the distribution of agrarian clusters, highlighting how settlements expanded into "zones of isolation"—forests and wetlands (Chattopadhyaya,1990). In recent times, Furui took this further by analyzing the power relations embedded in the texts (Furui, 2020). He has made an in-depth study of the economic structure of early medieval Bengal based on the epigraphic records. His hypothesis suggests that the rural society of Bengal was stratified based on control over land. This control was negotiated between a hierarchy of powers: the King, the subordinate rulers, the local landed magnates, and the actual cultivators.

Using Furui's framework of "power relations," this article examines how the technicalities of land measurement were not just mathematical abstractions but tools of social control and state formation.

While the referred secondary works furnish crucial contextual and theoretical frames for analysis—establishing the political contours and broad socio-economic dynamics of the era—a dedicated, extensive research focus on the intricate agricultural technicalities remains a significant lacuna in the existing scholarship. This study, therefore, was necessitated by the need to delve deeper into the primary epigraphic sources to formulate and test several key

hypotheses. The central investigative trajectory focused on two specific, hitherto unveiled chapters of early medieval Bengal agronomy: the land measurement system and the mechanism for fixing land prices. This primary investigation led to several corollary and essential questions: Was the land measurement system unitary across all of Bengal, or did it exhibit distinct sub-regional variations? Furthermore, what was the quantifiable impact of this systematized metrology and valuation on the overall agricultural development and the formation of a structured regional economy in Bengal? These specific, focused questions were rigorously addressed through a direct engagement with the primary copperplate charters and framed within the hypothetical parameters set by earlier studies.

The Political Context: From Imperialism to Regionalism

We commence a detailed exploration of the evolving political structure of early medieval Bengal from the 5th century CE, a transformative period characterized by the dissolution of imperial control and the subsequent crystallization of distinct regional autonomies.

I. The Zenith and Retreat of Gupta Hegemony

The initial phase, spanning the first half of the fifth century, was dominated by the established Gupta imperial authority in Puṇḍravardhana (North Bengal), a fact comprehensively documented by the numerous copperplate inscriptions issued by Kumāragupta I and his immediate successors (Basak, 1923; Sanyal, 1955; Sanyal, 1982; Sircar, 1973; Sircar, 1931; Griffiths, 2015; Dikshit, 1983; Majumdar, 1940). This formal administrative control was the culmination of an earlier, more generalized imperial expansion into Western Bengal—specifically extending towards Rāḍha and the coastal areas. This initial territorial acquisition is commonly attributed to the campaigns of Samudragupta and Candragupta II, finding foundational epigraphic evidence in the Susuniya rock inscription of Candravarman and the Mehrauli iron pillar inscription (Sircar, 1942). Under the later Gupta emperors, the core areas of Northern Bengal and significant portions of West Bengal (Rāḍha and Gauḍa) remained under secure, if increasingly strained, imperial command (Chowdhury, 2018).

Simultaneously, the seeds of regional power were being sown in the peripheral region of Samataṭa (Southeast Bengal). The political organization began to manifest clearly with the copperplate grant of Mahārāja Maheśvara Nāthacandra, dated 91 GE. This nascent polity subsequently achieved a degree of semi-independent rule under Vainyagupta, whose dual

authority is demonstrated by his action of copying Nāthacandra's charter and, more definitively, by the pivotal Gunaighar copperplate (Furui, 2015; Bhattacharya, 1930; Sircar, 1942). This simultaneous rise indicates that while imperial control was intact in the core, the fringes were already developing distinct political momentum.

II. Political Fragmentation and the Rise of Localized Rulers

The post-Gupta era proper (commencing in the 6th century CE) witnessed the full and irreversible manifestation of political fragmentation, resulting in the emergence of distinct, localized territories ruled by small-scale sovereigns across the entire geographical expanse of Bengal.

- Central and South Bengal (Vaṅga): This region became the locus for the rise of petty kings like Dharmāditya, Dvādaśāditya, Gopacandra, and Samācāradeva (Pargiter, 1985; Sircar, 1942; Islam, 2011; Furui, 2013; Bhattasali, 1983; Bhattasali, 1920). Among these, Gopacandra's political domain appears to have achieved a surprisingly wide spatial extent, potentially exerting influence over the Vardhamāna *bhukti* and the Daṇḍabhukti of Rāḍha in Western Bengal (Tripathy, 1998; Majumdar, 1940; Sircar, 1942). This demonstrates that these localized rulers were attempting to reconstruct substantial, if temporary, regional states.
- Northern Persistence: Concurrently, the inscription of Mahārājādhirāja Pradyumnabandhu in Puṇḍravardhana further confirms the proliferation of independent polities, even in the former Gupta heartland (Griffiths, 2015).

III. The Apex of Regional Autonomy: Śaśāṅka and Eastern Dynasties

The ultimate zenith of this regional assertion was achieved in the early 7th century with the powerful ascendance of Śaśāṅka. Attested not only by his own inscriptions and coinage but also by contemporary textual references (such as Bāṇabhaṭṭa's *Harṣacarita*), Śaśāṅka established the first clear indication of a truly independent, sovereign monarchical rule in early medieval Bengal, centering his firm control in northern Rāḍha-Gauḍa (Beal, 1983; Devahuti, 2001; Singh, 2009; Parab, 1918; Majumdar, 1945; Sircar, 1974; Sircar, 1982; Furui, 2011; Hultzsch, 2011).

Following the eventual disintegration of Śaśāṅka's empire, the power vacuum was briefly exploited: Karṇasuvarṇa, his capital, temporarily fell under the influence of Bhāskaravarman, the king of Kāmarūpa (Assam), a succession suggested by the Nidhanpur copper plate (Bhattacharya, 1913; Sharma, 1978).

The mid-7th century marked the final, decisive stage of regionalism, particularly in the eastern tracts:

- **Sub-Regional Chiefs:** Bhāskaravarman's Nidhanpur plate nominally referred to the Rāta and Nātha rulers in Samataṭa and Śrīhaṭṭa as subordinate chiefs. Yet, the contemporaneous and independent issuance of their own land grants by the Nāthas and Rātas strongly argues for their practical functional local autonomy (Basak, 1982; Sharma, 1935; Sircar, 1983; Gupta, 1967; Sircar, 1973; Law, 1947; Islam, 2012).
- **Eastern Crystallization:** This trend culminated in the establishment of enduring eastern dynasties: the Khaḍgas, ruling in eastern Vaṅga and Samataṭa during the middle of the 7th century, followed by the Devas in Samataṭa during the 8th century (Laskar, 1906; Rashid, 2001; Gupta, 1979; Mitra, 1885; Rashis, 2001; Sircar, 1983; Sircar, 1951; Gupta, 1979). These developments collectively signify the complete crystallization of regional polities and the end of any effective central authority in early medieval Bengal.

The emergence of diverse political dynasties in early medieval Bengal, spanning the 5th to the 8th centuries CE, was not merely a political phenomenon but inherently necessitated the formulation of distinct agrarian policies, driving profound and documented transformations in social organization. As articulated by Ryosuke Furui, the social tapestry of this multicolored polity was fundamentally structured by a persistent hierarchy of power relations centered on the control over land. This structure spanned a continuum from the king (exercising ultimate, albeit sometimes nominal, suzerainty) and his subordinate rulers to the emerging landed magnates (*mahattaras* and *brāhmaṇas*) and, finally, the cultivators (*kuṭumbins* and local populace). The differing capacities and autonomy of these actors in managing the land assessment process directly produced the diverse social manifestations meticulously documented in the copperplate inscriptions. Given that early medieval Bengal was predominantly a rural, agricultural society, discerning the social picture requires a careful analysis of the dynamic developments in landholding patterns and the shifting power balance,

which varied significantly across the regional divisions from the 5th to the 6th century CE onwards.

I. The Administrative Mechanism and Social Shift (5th–6th Century CE)

The Role of the *Adhikaraṇa*

In the core Gupta heartland of Puṇḍravardhanabhukti, the administrative mechanism for land transfer was centered on a local administrative body known as the Adhikaraṇa. This body played a critical mediatory role between the rural society and the centralized state apparatus. The *Adhikaraṇa* was responsible for receiving petitions for land transfers and granting official approval, often in consultation with local influential individuals. Furui notes that the types of land transferred in this region frequently included khilakṣetra (uncultivated wasteland slated for conversion into cultivable fallow land) and vāstu (wasteland for conversion into homestead land), reflecting a concerted, state-sanctioned drive for settlement expansion and agrarian frontier integration (Furui, 2020). The composition and organization of the *Adhikaraṇa* reflected the existing social relations among the dominant local group, confirming that both the local society and the state maintained a vested, shared interest in the management and disposal of the *khila* lands. They essentially institutionalized the process of land transformation.

The Decline of the *Kuṭumbins* and Rise of the *Mahattaras*

During the 5th century, the kuṭumbins (peasant householders or affluent cultivators) were the principal constituent of the dominant social group actively involved in land transactions in the rural society of Puṇḍravardhana (Furui, 2020). However, this demographic and economic pattern underwent a critical and structural reversal from the 6th century CE onwards. This shift directly coincided with the political transition and the rise of independent regional kingdoms in Vaṅga, Rāḍha, and Puṇḍravardhana. The kuṭumbins began to disappear from the explicit lists of powerful landed magnets recorded in the later inscriptions. Their dominant position was systematically usurped by a new, powerful elite, such as the mahattaras (village elders/magnates) and other influential landholders, signifying a fundamental centralization of land control in the hands of a wealthy, non-cultivating elite.

II. Agrarian Expansion and the Consolidation of Elite Power

This fundamental change in power relations was directly fuelled by aggressive and distinct patterns of agrarian expansion and development across the sub-regions from the mid-6th century:

1. **Vaṅga and Rāḍha: Frontier Reclamation:** In these regions, the inscriptions attest to the systematic incorporation of lowlands and wild forest tracts into the agricultural circle (Furui, 2020). This large-scale frontier expansion demanded the mobilization and consolidation of a massive large-scale labor force for capital-intensive extensive works such as forest clearing, pond excavation, and tank unearthing. This requirement significantly amplified the economic and social dominance of the mahattaras and brāhmaṇas, who were now in a position to control the labor of the *kuṭumbins* and the local populace, effectively establishing a new form of agrarian dominance.
2. **Puṇḍravardhana: Intensification:** In contrast, agrarian development in the older, settled areas of Puṇḍravardhana primarily involved the clustering of settlements within riverine tracts, a pattern geared toward the intensification and maintenance of already settled, productive lands (Furui, 2020).

Eastern Bengal: The *Samataṭa* Model and Religious Control

In Samataṭa (East Bengal), agricultural development initially focused on specialized riverine tracts like the Vātagaṅgā River, as reflected in the Vainyagupta copperplate. Landholders were diverse, ranging from individuals to collective groups. However, their rights were perpetually subordinate to superior religious institutions (like the Ājīvika *saṃgha*, a major donee in Vainyagupta's grant) and the overarching state apparatus. The extensive network of the *saṃgha* thus became an effective means for the king and state machinery to assert and impose their ultimate authority over rural society and its landholders, using religion as an instrument of social control.

III. Religious Colonization and the Complexity of Land Tenure

From the 7th century onwards, coinciding with the rise of semi-independent polities (Rātas and Nāthas) and independent kingdoms (Khaḍgas and Devas), agrarian expansion took on a distinct and powerful religious-political character:

Integrating Frontier Zones

In the territory of Śrīhaṭṭa and the fringes of Samataṭa, vast forest tracts and unreclaimed lands were systematically donated to a large number of *brāhmaṇas*. This strategically served a dual purpose: it facilitated the economic settlement and exploitation of frontier lands and, critically, brought the indigenous forest dwellers under the socio-religious system of the sedentary agrarian society. The concurrent establishment of religious deities and institutions alongside these grants, as seen in the Tippera copperplate of Loknātha, acted as a cultural and administrative anchor, allowing the subordinate rulers to exert influence as landed magnets through these religiously-sanctioned endowments, even when seeking petition from the supreme ruler.

Differentiation of Land Rights

The later inscriptions from the 7th and 8th centuries reflect an increasingly complex and mature system of land tenure, particularly in the western Samataṭa/eastern Vaṅga area, which transformed from marshy reclamation zones into well-settled areas.

- The Kailan copperplate of Śrīdhāraṇarāta illustrates this final transition by recording group landholdings that included a large number of *brāhmaṇas* alongside essential service groups like blacksmiths, confirming the successful, integrated settlement of formerly wild tracts. Here, scattered cultivated lands were often donated to Buddhist *vihāras* (Law, 1947).
- The Ashrafpur copperplate of Devakhaḍga provides the most explicit textual evidence of a mature, stratified land system by formally distinguishing between different types of holding and rights (Laskar, 1906):
    - *Pratipādita* (formally given)
    - *Bhujyamānaka* (currently being enjoyed—implying ownership or usufruct)
    - *Bhuktaka* (formerly enjoyed)
    - *Kṛṣyamāṇaka* (currently being cultivated—implying tenancy or labor status)

For instance, at Markaṭāsipāṭaka, the inscription meticulously records that specific *droṇavāpas* were *enjoyed* (*bhujyamānaka*) by Sulabdha, while others were merely cultivated

(*kṛṣyamāṇaka*) by Rājadāsa and Durggaṭa. This legal distinction between enjoyment (usufruct/ownership) and cultivation (tillage/labor) confirms a highly stratified agricultural society where rights and labor were legally separated. Under the superior authority of the independent kings (like the Khaḍgas and Devas), religious institutions gained predominant land possession, often facilitated by the king who formally arranged the transfer of land from existing 'enjoyers' to the powerful donee institutions. This underscores the continued, ultimate authority of the crown in land transfers, even in well-settled areas.

The Science of Agronomy: Land Measurement Systems

The agrarian economy of early medieval Bengal was not a haphazard system but was fundamentally structured and regulated by a rigorous land evaluation system. This structure had its roots in the late Gupta period, where the practice of land donation—initially designed to confer tax-free status—became an entrenched socio-religious custom. These grants were driven by a tripartite motivation: the grantee's ambition to accrue religious merit, the necessity to perpetually maintain ecclesiastical bodies (like *vihāras* or *maṭhas*), or the simple pursuit of self-glorification. Individuals or groups of high social standing frequently submitted petitions to the local administration for the purchase or grant of these lands, which were officially recorded as tax-free endowments (*gifts* and *sale components*).

This land grant process, which expanded and matured throughout the post-Gupta era, was critically sustained by the succeeding wave of small, localized rulers. Despite political decentralization, these sub-regional governing authorities consciously carried forward the same administrative tradition, ensuring a degree of institutional continuity. Given that land constituted the primary and finite economic resource, the administrative imperative to accurately quantify and document it became paramount, leading directly to the development of a systematic methodology for land assessment meticulously preserved in the epigraphic record.

The Metrological System: Capacity-Based Quantification

In the absence of standardized, calibrated measuring instruments prevalent today, the quantification of land area was ingeniously derived from seed-sowing capacity. This approach established a standardized, tiered system of land units across Bengal:

1. The Core Unit: *Kulyavāpa*

The Kulyavāpa served as the primary unit, defined as the land area required to sow one *kulya* (a measure of crops/seeds).

- The Absolute Measurement Disparity: Scholarly research reveals a high degree of variation in estimations of the *Kulyavāpa*'s absolute physical size, underscoring the lack of a universal, imperial standard in the pre-modern period:
    - Dr. Nalinikanta Bhattasali connected the *kulyavāpa* to the contemporary *kulavāya* system in Sylhet, estimating its area as equivalent to 14 *bighās* (Bhattasali, 1983).
    - D.C. Sircar, based on the *muṣṭi* (handful) calculation (16,384 handfuls making one *kulya*), estimated the land area to be approximately 38.5 *bighās*, correlating to a measure of 10 maunds and 8 seers of grain (Sircar, 1973).
    - F.E. Pargiter offered a broader estimate of an area somewhat bigger than one acre, derived from the dimensions of the local measuring reed (Pargiter, 1985).

2. The *Nala* (Reed) Standard and Local Variability

Land demarcation was officially performed using the Nala (measuring reed). Pargiter's analysis highlighted the use of specific dimensions, such as the "8 x 9 reed" (*aṣṭaka-navaka-nala*), which defined the measurement in terms of 16 *hasta* (cubits) (Pargiter, 1985).

Critically, the length of the cubit (*hasta*—the lower arm measure) was variable, determined by the arm length of a specific official, land agent, or local ruler (averaging about 19 inches). This inherent variability resulted in an indefinite or unstandardized measurement process in absolute terms. However, the consistent application of the capacity-based system (*kulyavāpa*) and the relative hierarchy between the units provided the essential administrative rigor needed for legal documentation.

3. The Hierarchical Scaling of Units

Despite the fluctuating absolute size, a consensus existed on the relative scaling of the land units, ensuring a consistent administrative framework:

- 1 *Pāṭaka* = 5 *Kulyavāpas*.
- 1 *Kulyavāpa* = 8 *Droṇavāpas* (This ratio, established by D.C. Sircar, is widely accepted).
- 1 *Pāṭaka* = 40 *Droṇavāpas*.

This systematic organization of metrology established the foundational scientific basis for the agricultural economy of early medieval Bengal.

Economic Valuation and Price Fluctuation

The standard unit of land valuation was the Dīnāra (gold coin). The pricing of land was rationalized through the administrative system, reflecting a variable value based on the land's type (cultivated vs. *khila*) and its specific sub-regional location (*viṣaya*). The variable land sale figures of the inscriptions are shown below:

Inscriptions	Land Measurement	Land Sale Figures
Dhanaidaha Copper Plate Inscription of Kumāragupta I (433 CE)	One Kulyavāpa of cultivated land	At the usual rate prevalent in the viṣaya of Khādāpāra.
Kalaikuri Sultanpur copper plate Inscription (c.440 A.D).	9 Kulyavāpas of uncultivated land, one of which was enclosed by an old Trench	Prevalent local rate of two Dīnāras each Kulyavāpa (Aṣṭādaśa dīnārān gṛīhitvā etān navakulyavāpā)
Damodarpur copper plate Inscription of Kumāragupta (c.444 A.D)	One Kulyavāpa of untilled apradā khila land (waste land)	At the standard rate for three dīnāras (Tra dīnārikyakulyavāpeṇa)
Damodarpur copper plate Inscription of Kumāragupta I (c.448-49 A.D)	Five droṇas of land with haṭṭa and pānaka	2 dīnāras at the standard rate of three dīnāras for each Kulyavāpa
Baigram copper plate Inscription (c.448 A.D)	Three Kulyavāpas of revenue free khila land and	6 dīnāras and 8 silver coins (as 16 rūpakas make one dīnāra) at

	two droṇas of homestead land	the prevalent rate of two dīnāras per kulyavāpa in that viṣaya. (Shaḍ dīnāran aṣta cha rūpakān)
Raktamala copper plate Inscription (479 CE)	2 Kulyavāpas of uncultivated land	At the prevalent dīnāra rate.
Nandapur copper plate Inscription (c.489 A.D)	4 kulyavāpas of fallow land.	8 dīnāras at the fixed rate of two dīnāras per Kulyavāpa. (aṣtau dīnāran upa saṁgṛhya Jaṅgoyikā grāme gorakshita tāmrapaṭṭa dakshiṇena Gopālibhogāyā paśchimeṇa khila kshettra kulyavāpa chatuṣṭayaṁ)
Gunaighar copper plate Inscription of Vainyagupta (507 CE)	Eleven Pāṭakas of uncultivated lands in five plots.	A gifted grant by the ruler Vainyagupta himself.
Damodarpur copper plate Inscription (544 A.D)	Five Kulyavāpas of uncultivated and khila land	At the standard rate of three dīnāras for each kulyavāpa
Faridpur copper plate Inscription of Gopacandra, year 18 (6^{th} c. A.D)	One kulyavāpa of cultivated land	At the standard rate of 4 dīnāras per kulyavāpa
Faridpur copper plate Inscription of Dharmāditya, year 3 (6^{th} c. A.D)	3 kulyavāpas of cultivated land.	12 dīnāras at the established rate of 4 dīnāras per kulyavāpa. (dvādaṣa dīnāran āgrato datvā Śivachandraha aṣtaka-navaka nalenām apaviñchya vātabhoga sakāśe Dhruvilātyāṁ kṣetre

		kulyavāpa ttryaṁ) (line 15, 16, 17) (IA, 39)
Medinipur CPI of Śubhakīrtti, year 8 of Śaśāṅka	40 droṇas of land (one Pāṭaka) and one droṇavāpa of homestead land	Price has not been mentioned.
Tipperah copperplate of Loknātha	Several Pāṭakas and droṇas of land granted the maṭha of the deity Anantanārāyaṇa and 192 brāhmaṇas studying the four Vedas.	Price has not been mentioned.
Kailan Copper plate Inscription of Śrīdhāraṇarāta	25 Pāṭakas of land to a Buddhist saṃgha and 13 brāhmaṇas.	Price has not been mentioned.
Ashrafpur copper plate of Devakhaḍga	In Markaṭāsipāṭaka, 27 droṇavāpas of land was enjoyed by Sulabdha and others and 13 droṇavāpas was cultivated by Rājadāsa and Durggaṭa, in Vatsanāgapāṭaka the whole settlement was given by Bṛhatparameśvara- an older king, in Navaropya 1 pāṭaka of land was given by a royal member Udīrṇakhaḍga and enjoyed by some Śakraka and finally all the settlements had been given by the king to the vihāras of ācārya Saṃghamitra.	

The rigorous methodology employed in early medieval Bengal for land quantification and sale provides invaluable economic data, allowing us to discern two critical and interlocking trends in the regional economy:

1. Sub-Regional Differentiation and Localized Valuation

The price structure for land in the 5th and 6th centuries was not monolithic but exhibited distinct sub-regional differentiation, confirming that land prices were determined by the prevalent, localized rates of a particular district (*viṣaya*).

- **The Price of *Khila* Land:** In the late Gupta period, the price for *khila* (uncultivated wasteland) consistently fluctuated between 2 and 3 *Dīnāras* per *Kulyavāpa*.
- **The Koṭivarṣa Premium:** The higher rate of 3 *Dīnāras* was systematically applied to lands located within the politically and economically significant Koṭivarṣa *viṣaya*, as evidenced by the Damodarpur copperplates. This premium suggests that proximity to the administrative headquarters or regions with superior soil fertility and infrastructure (e.g., irrigation) commanded a higher fixed price, even for uncultivated land.
- **The Standard Discount:** Conversely, lands located outside the Koṭivarṣa *viṣaya*, such as those recorded in the Baigram and Nandapur inscriptions, were typically priced at the lower rate of 2 *Dīnāras*.

This dual-pricing mechanism demonstrates that the administrative machinery was capable of implementing a graded taxation and sale policy based on geographical and economic status. Furthermore, the Baigram inscription provides an explicit exchange rate, indicating that 1 *Dīnāra* equaled 16 *Rūpakas* (silver coins), underscoring the formal integration of different metallic currencies within the local market structure.

2. Post-Gupta Economic Appreciation and Generalization

Following the decline of imperial Gupta control and the rise of regional dynasties in the 6th century, the land valuation data signals a trend of economic appreciation and price generalization across Bengal.

- **The Rise to 4 *Dīnāras*:** The standard rate for cultivated land in the Vaṅga region (documented in the Faridpur copperplates of Gopacandra and Dharmāditya) rose to a fixed price of 4 *Dīnāras* per *Kulyavāpa*.
- **Significance of the Shift:** This increase—from the 2-3 *Dīnāra* range prevalent in the older Puṇḍravardhana region to the 4 *Dīnāra* rate in the newly developing Vaṅga territories—suggests two simultaneous processes: a) Regional Economic Maturation, where increased settlement, agricultural labor investment, and infrastructure development led to a higher intrinsic value for productive land; and b) Institutional Continuity, where new regional rulers (like Gopacandra and Dharmāditya) maintained the *tradition* of administrative price fixing but at a new, higher economic equilibrium**.**

Conclusion

This rigorous land valuation system was not a product of arbitrary local customs but was officially approved and enforced at the administrative level. By systematically quantifying land and fixing its price based on type and location, the ruling authorities—from the imperial Guptas to the localized post-Gupta kings—successfully established a fixed agricultural norm at the rural level. This process served as the essential institutional framework for formalizing and organizing the agricultural economy of early medieval Bengal, ensuring that land assessment was predictable, legally defensible, and integral to state control and revenue generation. The meticulous documentation of these developments at the local level, fully manifest in Bengal from the 4th to 5th century CE, collectively offers a profound and sophisticated illumination of the region's inherent knowledge system.

The land grant system, which was formally inaugurated during the late Gupta era, rapidly matured and achieved a structurally developed and systematic form in the succeeding post-Gupta period. This administrative practice of granting tax-exempt lands evolved from a simple royal prerogative into a standardized, essential mechanism. It primarily served the dual purpose of ensuring the grantee's accumulation of religious merit (*punya*) while simultaneously institutionalizing and legitimizing the standard status and social authority of eminent figures within the burgeoning regional polities.

This robust institutional framework directly necessitated and led to the establishment of a specific, hierarchical unit of agrarian metrology. This system, comprising the pāṭaka,

kulyavāpa, droṇavāpa, and āḍhavāpa, defined the agrarian landscape. Official documentation of these measurements was rigorously maintained at the administrative level, serving as the legal and evidential foundation for the entire system. The express and vital purpose of this comprehensive standardization was to ensure uniformity and replicable methodology across the fragmented political landscape, making the process intelligible and executable at the most granular, rural level.

Furthermore, land valuation was not arbitrary; it was rigorously specified through a rational economic process. Prices were formally differentiated based on two key factors: the geographical area (specifically the *viṣaya*) and the intrinsic quality of the land (e.g., cultivated versus *khila*).

Through the systematic formalization of this entire land assessment and plot valuation process, the agricultural sciences of Bengal—encompassing metrology, hydraulic engineering (implied by the necessity of measuring cultivated land), and economic valuation—achieved a remarkable degree of organization and coherence. These crystallized aspects fundamentally shaped the modes of knowledge prevalent in early medieval Bengal, asserting that the science of agriculture was not merely a practical necessity but a profoundly important and cultured element of the region's intellectual and administrative tradition.

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