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Historical trajectory of gold-mining in the Nilgiri–Wayanad region of India

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This chapter builds on the earlier work of Lahiri-Dutt (2004) to interrogate categories of 'formal' and 'informal' as they are applied to mining, both historically and in the contemporary era. This historical perspective reveals the many difficulties that come with consistently applying ideas of formality to diverse forms and institutions of gold-mining throughout time. The difficulties of constructing such a multivariate definition of informal mining renders such a project ambiguous at best. We, therefore, propose that any suitable uni- or bi-variate definition must be recognised as contextual and subjective, dependent on the specific concern that is being raised about mining. In particular, this definitional complexity has important implications for policy, which suggest the formalisation of informal (gold) mining as a solution.

We draw these conclusions from an in-depth study of gold-mining in the Nilgiri–Wayanad region of southern India between the early nineteenth century and the present. We build a case that challenges the popular notion that institutions evolve from informal to formal, and additionally suggests the role of external rather than internal factors in precipitating any institutional changes. Given the particular evolutionary trajectory of gold-mining in the Nilgiri–Wayanad region, it is pertinent to reflect on these changes to suggest implications for the future of these institutions and the livelihoods of miners who work within them.

Institutions: Formality, informality and property rights

Institutions are 'the rules, enforcement characteristics of rules, and norms of behaviour that structure repeated human interaction' (North 1990). The conventional view on the emergence and evolution of institutions tracks a linear path from informal to formal (Zenger et al. 2001). The evolution of institutions happens through repeated interactions between individuals, groups and organisations. In this process, norms and behaviours are established through various processes, such as collective action (Ostrom 2005) in responses to uncertainty, risk and other transaction costs (Williamson 1981, 2000), or through clearly defined property rights (Coase 1937, 1959; Demsetz 1967; Libecap 1978, 1989; Barzel 1997). Implicitly, the literature in institutional economics argues that internal factors play a more critical role than the external factors in the evolution of institutions. The resistance to change, known as 'path dependency',[1] is an internal factor to the institutional continuity. Another implicit contention of this literature is that institutions become more efficient over a period of time through repeated transactions, by minimising transaction costs or setting the rules of the game through well-defined property rights. The bundle of rights that comprise property rights on the goods or resources in question includes the right to use, right to earn incomes and the right to transfer. When these set of rights exist upon a good or a resource, and are enforceable, the property rights are then said to be well defined. Well-defined property rights play important roles in the efficient allocation of resources. Whatever may be the origin of the institution, it is assumed that the more widely it is recognised, the better it will function. Full recognition is achieved when the norm is endorsed by the state as legally binding. However, it is important to note that not all institutions require the support of governments. The political economy of institutional change is therefore important in that they may evolve to confer privileges on particular groups (Sikor and Lund 2009).

1 Path dependency can be defined as a decision-making process that is not only dependent on present circumstances but also on the past and, hence, acts as a constraint for efficient allocation of resources (Liebowitz and Margolis 2000).

In this chapter, we use the standard classification of economic goods based on the property rights attributes of 'rivalry' and 'excludability'. Based on the relative strength of these attributes and their combinations, we can identify four major types of institutional structures: private, commons, club and open access (see Figure 11.1). This simple classification not only provides an understanding of the different types of institutions based on the combination of these attributes, but also does not separate formal and informal institutions explicitly. Yet, of these institutions, those with high excludability are often based on formal structures, whereas institutions operating with low excludability are guided by informal norms. As one moves from a low to a high degree of rivalry and excludability, the institutional process also moves towards more formal and structured institutions. Thus, low rivalry and excludability often lead to informal arrangements for the institutions. The 'efficiency' in resource use parameter predominates in the degree of excludability, and the 'equity' in resource distribution parameter predominates in the degree of rivalry.

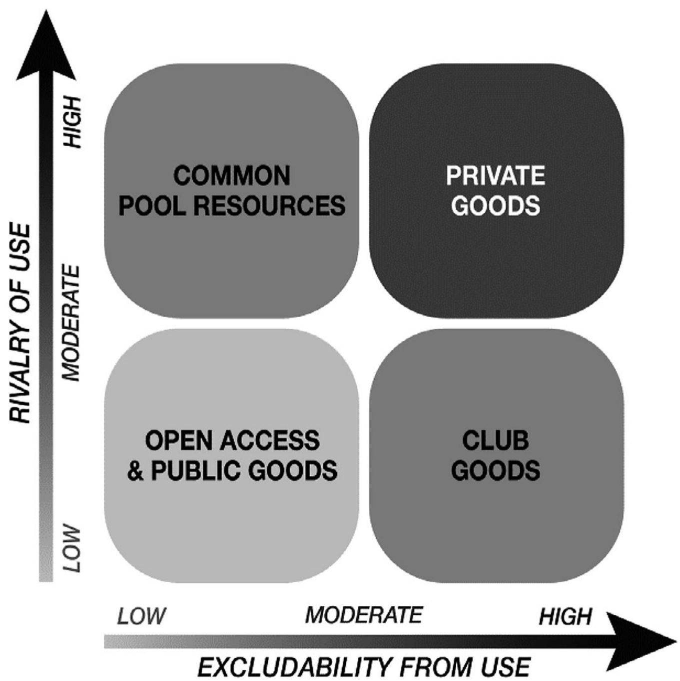

Figure 11.1: Excludability and rivalry principles of property rights
Source: The Australian National University CartoGIS.

Using this framework and understanding, we chronicle gold-mining in the Nilgiri–Wayanad region, and evaluate how the institutions have evolved and been classified over a long period of time. In the following section, we engage more deeply with the debates around nomenclature and taxonomy.

Informal, artisanal or something else: Dynamism in gold-mining

Debates about formality and informality of mining institutions are important because of the politics that lie behind these taxonomic assumptions (Lahiri-Dutt 2004). Yet, mining that is often small in scale—bordering on illegal, using artisanal technology along with entrepreneurial labour, that itself is often an expansion of a peasantry system—is difficult to slot into either category of formal or informal. The widely used term, artisanal and small-scale mining (ASM), was popularised by *Breaking New Ground: Mining, Minerals and Sustainable Development* (International Institute for Environment and Development (IIED)/ World Business Council for Sustainable Development (WBCSD) 2002); it combines two pre-existing terms, 'artisanal' (United Nations Development Program (UNDP) 1999) and 'small-scale', used by the International Labour Organisation. ASM, like other attempts to categorise mining as either 'formal' or 'informal', loses explanatory potential by focusing on a single aspect at the expense of others. By emphasising one aspect of the mining activity, such as artisanal technology, small-scale (dis)economies of scale or informal rules and norms governing the mining activity, these definitions neglect the ways in which these features not only coexist but also change their relation to one another over time. When considering mining in a single region from a historical perspective, it becomes important to consider the flexibility of these definitions to changes in mining activities or the institutions governing them. As such, one of the major shortcomings of these definitional practices is the assumption of 'staticness' of the form or practice of mining. However, a robust historical perspective can illuminate considerable changes in the form and the institutions that govern mining activities, even within a single region.

Table 11.1 offers a broad overview of how, based on these multiple characteristics, formal and informal mining is conceived. Strictly speaking, perhaps the most critical distinguishing features between formal and informal mining are that the latter is non-legal—based on customary law and/or illegal. This highlights the role of governance in the classification of formality and informality. Important differences between formal and informal mining may occur at the level of governance—the keeping of records and the monitoring of informal activities by the state, making it (im)possible to collect rent or tax.

Table 11.1: Multiple characteristics of 'formal' and 'informal' mining

	Size	Technology	Legality/ Institutional Structure	Economic Rationale	Tax	Economic Structure	State Monitoring/ Records
Formal	Large/ Small	Mechanised/ Modern/ Capital intensive/ Traditional/ Artisanal/ Labour intensive	Licensed/ Statutory	Profit	Yes	Capitalist/ Cooperative	Yes
Informal	Medium/ Small	Rudimentary/ Traditional/ Artisanal/ Labour intensive/ Low level of mechanisation	Licensed/ Non-legal/ Customary/ Illegal	Profit/ Livelihood/ Windfall	No	Individual/ Family/ Cooperative	No

Source: Authors' work.

With respect to institutional change, one of the key challenges in studying mining historically in a single site is to find an appropriate setting to empirically substantiate any resulting hypothesis, not simply quantitatively but qualitatively. Gold-mining in the Nilgiri–Wayanad region of southern India provides an interesting context for the study of institutional evolution for two reasons: first, the fundamental nature and purpose of the activity have remained unchanged over generations; second, the technological changes have been either manual or mechanical, having no major impact on the final product per se. Despite this 'staticness' of the operation, the institutions involved in such practices and their relationship to structures of governance have undergone extensive changes during this period.

In the context of mining, the establishment (and protection) of property rights is perhaps the most basic institution that performs a crucial economic function: that of presiding over competing claims of 'ownership' over both the land from which minerals are extracted and the commodities that are extracted from it. Property rights over mines can be accorded formally through state agencies and/or informal regulating agencies that include local customs and local political authorities. Historical property rights are thus recognisable in a range of forms, varying from written documents to oral histories. While property rights can be relatively easily identified at specific points of time, it is more difficult to understand how and why these institutions evolve and change over time, specifically over long periods of time. This particular empirical study of gold-mining in the Nilgiri–Wayanad region helps us address several questions that arise when considering institutional transitions over the longue durée.

Chronicles of gold-mining in Nilgiri–Wayanad

The Nilgiri–Wayanad region (Figure 11.2) lies at the southern end of the Western Ghats—the ranges lining the western coast of peninsular India. It is located in the western part of Tamil Nadu, bordering the states of Karnataka and Kerala. During the nineteenth and twentieth centuries, this area was governed by a complex network of actors that included the East India Company, local princes, *zamindars,* and the British, and from 1947 onwards, the state of India. For the larger part of history, the *Rajah* (*zamindar*) of Neelambur (which was a vassal state of the princely state of Calicut) was the ruler. Therefore, all the land transactions in the region for agriculture, mining and plantations were conducted by the various *zamindar*s of Neelambur (or Nilambur). From the early 1800s to early 1900s, the Neelambur *zamindars* leased land for coffee plantation, gold-mining and tea plantation.

In view of the dearth of sources on the extent and magnitude of informal gold-mining in India, we have collected the material from a combination of historical documents (Jennings 1881; Francis 1908), followed by a primary survey. Previously, Deb et al. (2008) documented the existence and exploration of gold in the region by various companies. Initially, we obtained information on the existence of gold-mining from the Pandular website.[2] We contacted the website owner and formed a strong working relationship. In the initial phase, his association and assistance allowed us to visit the informal gold-mining sites in the region. Subsequently, our research led us to explore the documented history of gold-mining over the last two centuries in its continuity, and more extensive socio-economic and focus group surveys.

2 www.pandalur.com.

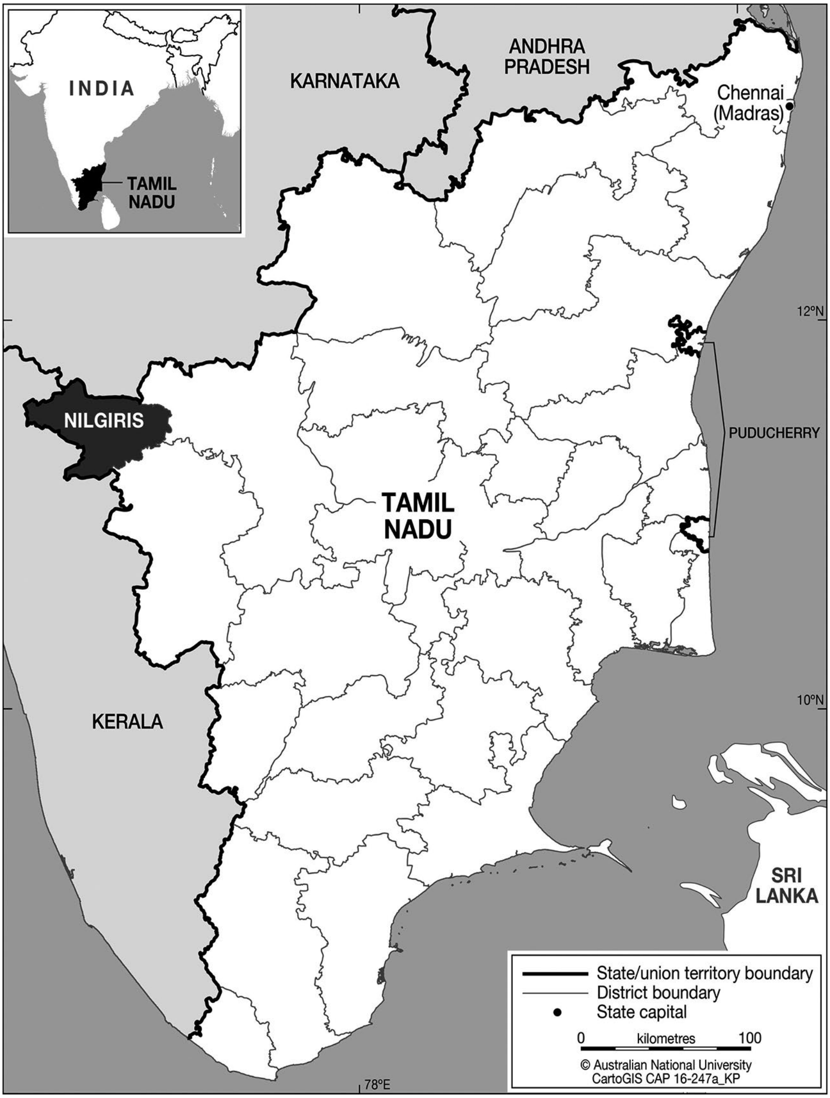

Figure 11.2: The study region

Note: Map not to scale.

Source: The Australian National University CartoGIS.

The following analysis is divided into four historical phases, each constituted by the predominant institutional structure that governed the gold-mining activities in the region at that time.

Institutional changes over two centuries of gold-mining

Phase I: Up to the 1860s

In one of the earliest colonial records on this region, Thomas Barber, an official in the East India Company, recorded in his 'Journal of a Route of the Neelghurries from Calicut' (1830) the low returns on gold-mining and payment of a tax by miners in this region (p. 314):

> Two persons are employed to each patty [tray], one to dig the earth, the other to hold the patty, wash the earth away, and extract and unite, by means of quicksilver, the golden particles. Each patty pays a tax to government of 3 rupees per month, which my informers added, absorbed about two-thirds of the net profits; and from the wretched appearance of the person employed in working the patties, it is evident they are miserably paid.

The East India Company faced strong resistance to their attempts to assess gold mines in Wayanad. An interesting letter published by Bergein (1834: 124), a correspondent of the *Mechanics' Magazine*, states:

> The natives, one and all, are very averse to our having anything to do with the mines, for obvious reasons: several hundred families are at present supported by their produce; the zemindars of the districts obtain from them a moderate revenue, which would be lost to them were these mines to come into the hands of government …[3]

Similarly, Bergein (1834) records how the *Rajah* of Neelambur and his people resisted the British—the *Rajah* tried to starve a British mining contingent by prohibiting the sale of food and even poisoning their cattle. Additionally, a number of British shafts were also filled out by the *Mapillahs*,[4] and then covered with trees and shrubs (ibid.). These conflicts aside, it appears that gold-mining, although artisanal in technology, was in this period formal in the sense that reasonably good records were being maintained and taxes were being collected. As far as institutional framework was concerned, what particularly interested us here was the

3 'Government' here refers to the East India Company.

4 One of the largest Muslim communities from Kerala. This community is a local source for labour in the region.

presence of a formal tax structure implemented by the *Rajah* of Neelambur. The formal tax structure was built on the 'excludability' principle for those who did not pay the tax.

An 1843 report titled, 'Mineral Resources of Southern India, no. 4 Gold, Tracts', by Lieutenant Newbold of the East India Company, recorded that, in the South Maratha country (now Gadag District in the state of Karnataka), mining was a seasonal occupation and carried out predominantly by a caste called *Jalgars*,[5] who had been acquainted with the art of gold-mining 'from time immemorial' (Newbold 1843: 207).

The report also notes that 'the rivulets of Hurti and Soltoor … are more productive, though I did not see many persons at work at Hurti' (Newbold 1843: 206). Moreover, the overall production of gold from the three rivulets, Hurti, Soltoor, and Doni, was not insignificant—some 200 ounces (5.7 kg) of gold was mined annually after the monsoons. These remarks point towards the relative abundance of gold and the non-competitive nature of artisanal mining during this phase in history. Newbold (1843: 208) also illuminates the governance structure of mining:

> A Mussulman, who accompanied me to the spot, informed me that he had obtained four rupees' worth of gold in two days. The hire of the three Jalgars, &c., whom he employed amounted to half that sum, leaving two rupees clear profits. The ancient lords of the soil, the Dessayes of Dummul, formerly levied a toll from the gold-washers, which ceased with the authority of the last chief, who was hanged, by the order of the Duke of Wellington, over the gate of his own fortress, for firing on a flag of truce at the siege of that place.

A careful reading of this statement reveals a lot of information. In earlier times, under the *Dessayes*,[6] it seemed that the *Jalgars* mined for gold directly upon paying a toll to the rulers. With the end of their rule, the *Jalgars* worked more as labourers for a Mussulman who bore the risk of fluctuating returns, yet retained a relatively significant portion of the revenue. It is likely that the Mussulman was a trader or capitalist and was an integral part of the supply chain of gold.

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5 The term *Jalgar,* frequently used in colonial documents related to gold-mining, is possibly associated with gold-mining and panning communities. Even today, the community with the surname Jalgar exists in the Northern Karnataka region.

6 Also know as *Desai*, these are the village heads.

While Newbold (1843) reported on gold-mining in various parts of India, of particular interest here are his remarks on gold-mining at the base of the Nilgiris, at the frontier with Mysore state. He writes, 'the mines of Wayanad district then worked were those of Cherankode Devala, Nelyalam, Ponery and Pulyode' (Newbold 1843: 208). Some 750 ounces (21 kg) of gold was extracted annually in Nilambur, where 'the golden region is rented from Government by a native chief'[7] (ibid.: 209). In the report, 'Preliminary Notes on the Gold Fields of South East Wayanad', King (1875: 45) described the land tenure in Wayanad as follows:

> Hitherto the land in Wayanad has been principally parceled out in coffee gardens, either free-hold, or paying an annual rent to the Rajahs who hold a great quantity of the ground, or direct to the Government. At the same time, after a certain period, a revenue is derived from all the gardens by the Government, whether it be Rajah's land, or not.

Ball (1869) also lends credence to our hypothesis of 'excludability'; people rarely crossed boundaries in their search for gold. This happened elsewhere in India, for example, in Singbhum district (now in the state of Jharkhand) he records (ibid.: 12):

> On my arrival in Dulmi (which is situated on the faulted boundary of these two groups of rocks) when marching northwards from the lower part of Pattrum, the gold-washer asked to be allowed to return to his own country (Dalbhum), stating that none of his race ever went north of Dulmi.

He further reports on the governance structures of gold-mining in this region, which he defines as categorised by caste exclusion and low standards of living for workers—substantiating our claim that gold-mining was essentially a 'club' good in the pre- and early colonial period (ibid.: 13).

> The gold-washers belong to the lowest and poorest races in the country, Gassees[8] according to Colonel Haughton, but some of those which I met with were a race of kumars, called Dokras. Their numbers have been greatly reduced by the famine; without exception they are all in the power

7 Here, the government means the East India Company, and the *Rajah* (*zamindar*) of Neelambur is the native chief. The Neelambur *Rajah* also leased out land to the East India Company and others for mining purposes.

8 The name *gassees* or *ghasi* refers to the occupation of cutting grass, especially for horses. In addition to collecting and selling grass, the *ghasis* are employed in scavenging work.

> of the Mahajuns,[9] for whom they work at a low rate, and are never able to free themselves of the claims which the Mahajuns make on account of the advances. The daily earnings of the gold-washers are small, but might no doubt be increased, if it were not that they are always satisfied when enough gold has been found for procuring the day's subsistence.

In 1875, Dr W. King of the Geological Survey was appointed by the government to survey the 'country'. He reported that gold-mining in this region was carried out by two tribes, the Paniyas[10] and the Kurumba[11] (also referred to as Pannirs and Korumbars), each possessing their own specific domain of labour. 'The Pannirs wash for it in the alluvium, surface soils, and river sands. The Korumbars dug down to and excavated the quartz leaders' (King 1875: 30). This description reinforces our understanding that caste or tribe provided some excludability to gold-mining. Apart from a tax payable to the 'owner' of the land, there does not seem to be any rivalry between the members within the two tribes. However, there are indications that one group (Paniyas) were employed as labour, rather than working as independent miners; they earned no more than a quarter of a rupee per day, thereby engaging in mining only during the lean season, when employment was sparse on the coffee gardens. It is also mentioned in Ball (1869: 33) that the Paniyas were 'driven by land-owners to search for gold, the land not being so well adapted for agricultural work'. On the other hand, it seems that the Kurumbas were more independent, although they may have been forced to share their profits with the *Rajahs*. Moreover, the Kurumbas were capital constrained, as mentioned in King (1875: 42):

> The big reefs were not worked by these men on account of the difficulty in breaking up the stones, and because the gold is distributed too finely through it to have paid hand labor. With machinery and modern appliances, the reefs should pay even if only 3 dwts. of gold are got always from the ton of quartz.

9 *Mahajuns* are the local moneylenders or usurers.

10 The Paniya, also known as Paniyar and Paniyan, are an ethnic group primarily inhabiting the Wayanad region. The Paniya have historically worked as agricultural labourers and serfs.

11 Traditionally, the Kurumbas or Kurubas have subsisted as hunters and gatherers. They largely reside in the Nilgiri region of Tamil Nadu. There are different groups within this tribe; some among them are Alu-Kurumbas, Betta-Kurumbas, Jenu-Kurumbas, Kurubas, Mudugas, Mulla-Kurumbas, Palu-Kurumbas, and Urali-Kurumbas.

It is also mentioned that the Kurumba sometimes found large amounts of gold, but probably had given up this work by 1875 because, as King records, the pits 'would be too deep for their style of work, water being the great obstacle likely to be met with' (ibid.: 42).

From these historical sources, we can conclude the existence of gold-mining in the region prior to 1830. Use of wage labour, as well as the presence of independent miners is likewise identifiable during this period. The existence of tax structure, payment to the *zamindars*, and the presence of intermediaries and financers (*Mahajans*) are also reported. The tax on panning trays also suggests formal recognition of artisanal forms of mining. Most importantly, it has been identified that select castes and tribes were engaged in gold-mining activities. Based on this assessment of archival records, gold-mining in Phase I may be characterised as formal, although the technology was artisanal and caste-based. Entrepreneurial labour and rudimentary technology are not by themselves sufficient conditions to make an activity informal. 'In 1879 the government of India employed Mr. Brough Smyth (for many years the Secretary for Mines in Victoria and held to be the greatest authority on the subject in Australia to examine the Wayanad reefs)' (Francis 1908: 15). It is this report that provided the basis for the rapid escalation of British interest and development of the region that we discuss next.

Phase II: From the 1870s to the 1890s

In his study of the relevance of the gold standard to India, Sivramkrishna (2015) elaborates that it was at the International Monetary Conference of 1867 that a move towards a common international currency was first propagated. Gold, which had become relatively abundant by then on account of its discoveries (and the gold rushes in America and Australia), was to be the basis of this international currency. The danger of a shortage in gold, raising its price and leading to deflation, had to be countered through an increase in the supply of gold—this led to intensification in the search for gold across the world. It was in the context of these changes in the global monetary system that India, and more specifically the Nilgiri–Wayanad region, was drawn into an international gold rush. The desperation of this search for gold proved a sufficient trigger to induce the British to explore the possibility of setting up industrial-scale gold-mining operations in the Wayanad region, in the 1870s. To do so, their immediate concern was getting access to the land. The following extract from King (1875: 45) clearly exemplifies this major issue:

> Now that gold-mining is likely to become an industry, a new set of land interests are being developed. The Rajahs, of course, retain their right to all minerals and can sell these as they like. The Government of Madras has not yet, I believe, decided as to how they are to act in the matter, except that applications for land for gold-mining and for agricultural purposes on which quartz reefs are supposed to exist, are being reserved for consideration until the question of mining is settled.
>
> In the meantime the Rajah of Nellamborhas (according to their prospectus) leased a block of 15 acres of land near Dayvallah to the projectors of the Alpha Gold Company for twelve years at an annual rent of Rs.225. Since then it is reported that the Rajah in recent applications demands 10 per cent on the outturn of any gold-mining which may be carried on; and it is very probable that he may change this rate. Nearly all the land in the Nambalycode Amsham is owned by the Rajah of Nellambor. Equally, as with the revenue derived from estates on Rajah's lands, it may be found advisable that the gold from these reefs should pay a royalty to Government.

This statement underlines two points: the growing concern of the industrialists on the ownership of land by local feudatories, and the extraction of high lease rents; and the role played by the British Government in Madras in settling these issues.

During this period, enormous amounts of investment flowed into Wayanad. Some 41 companies with a paid-up capital of more than GBP5 million were set up. Domestic companies invested some GBP250,000 and began mining operations in Wayanad. Writing in the *Madras District Gazetteers: The Nilgiri* in 1908, Francis reflects on this period and suggests that the mood was upbeat and that 'the whole mountain is worth putting through the stamps' (Francis 1908: 17). Most of the capital invested went into procuring land through mining leases; land prices varied between GBP70 and GBP2,500 per acre. These reflections by Francis provide a vivid picture of the magnitude of corporate activities in gold extraction that began in Wayanad in the late nineteenth century. The quote given below from Francis (1908: 27–9), suggests the magnitude of corporate activities in the Nilgiri–Wayanad gold extraction in the late nineteenth century:

> In 1879, however, the Government of India employed Mr. Brough Smyth (for many years Secretary for Mines in Victoria and held to be the greatest authority on the subject in Australia) to examine the Wynaad reefs; and his report, written in October 1879, was, to say the least, distinctly encouraging. He discussed in detail the value of a great number of the

> known reefs, most of which crop out in the country traversed by the road from Nadgani (same as Nadugani) to Cherambadi; gave the results of assays made by himself and others which ranged from nil to no less than 204 oz. of gold to the ton of ore; considered that low-grade ores, running even as low as 3 dwts.[12] to the ton, could be worked at a profit.
>
> The result of this sanguine report was the artificial boom of 1880. The stock markets were ripe for any speculation, however wild. Low rates of return on British Government stocks, a paucity of foreign loans, flourishing trade and an unusual scarcity of gold all contributed to make miscellaneous enterprises more attractive; while coffee-planting' was already on the down-grade and owners of estates containing reefs were only too glad to seize a chance of disposing of them at a profit. The mania began in December 1879, when a company with a capital of 100,000 pound was launched; and in the next nineteen months the number of companies floated in England amounted to no less than 41 with a capital of over five million sterling, while during the same period six companies with a total capital of £261, 000 were also started in India itself. Of the English companies, 33 went to allotment and the sum obtained by them for investment in the industry amounted nominally to £4,050,000. Of this, however £2,375,500 was allotted for payment for the land in which the supposed mines were located—the prices of this ranged from £70 to no less than £2,600 per acre—so that the sum left for working expenses was not more than £1,674,500. Mr. Brough Smyth himself was appointed manager of two of the companies, but retired on the ground of ill-health in 1882, when the tide had begun to turn.

Phase II was a marked by intense capital investment, employment of wage labour and setting up of modern public limited companies listed on stock markets, which in turn lead to a high magnitude of speculation. However, by the early 1880s, the edifice of gold-mining in the region collapsed; the concentration of gold was too low to make large-scale mining feasible. Most of the companies had to shut down and investors lost large sums of money. Tremors from the bust even rattled the London stock market. The short-lived formal corporatisation phase seemed to be merely speculation driven. However, the repercussion of this phase had significant influence on the subsequent phases of informalisation of gold-mining in the region. However, it is clear from a study of colonial records that although gold-mining remained formal, the technology employed had changed from artisanal to modern—the latter including a higher degree of capital-intensive mechanisation as well as the use of wage labour.

12 dwts is also known as penny weight. 20 dwts=1 troy ounce (also written as oz.)= 31.104 g.

Phase III: From the 1900s to the 1970s

There is little known to us of this post-corporatisation phase, apart from the gloomy picture portrayed by Francis (1908). He describes how Pandalur and Devala, by the turn of the twentieth century, had turned into nothing but ghost towns (ibid.: 31):

> At Pandalur three or four houses, the old store, and traces of the race-course survive; at Devala are a grave or two; topping many of the little hills are derelict bungalows and along their contours run grass-grown roads; hidden under thick jungle are heaps of spoil, long-forgotten tunnels used only by she-bears and panthers expecting an addition to their families, and lakhs' worth of rusting machinery which was never erected; while along the great road to Yayitri, which now, except for the two white rats worn by the infrequent carts, is often overgrown with grass, lies more machinery which never even reached its destination. Moreover, most of the numerous coffee- estates which formerly bordered this road all the way from Gudalur to Cherambaidi were acquired by the gold companies and thenceforth utterly neglected; and now not a single one of them all is kept up. They have all gone back to jungle and are covered with such a tangle of lantana and forest that it is hardly possible to make out their former boundaries. Thus the coffee industry is dead and the mining industry which killed it is dead also; and this side of the Wynaad is now perhaps the most mournful scene of disappointed hopes in all the Presidency.

What happened to gold-mining in Nilgiri–Wayanad after that is less known. This period also saw major changes taking place in monetary systems across the world that would have naturally impacted gold-mining in the Nilgiri–Wayanad region, and industrial mining in particular. Talking to a few individuals in the region and their recollections of their grandparents suggests that the mining activities continued, albeit informally, in the ruins and remains of the tunnels abandoned during the earlier phase. It would certainly be of interest to find out more about who these miners were. In materials gathered by the family members of the Neelambur *Rajah,* we found at least two expressions of interest by corporate entities to extract gold and mica, dated 1924 and 1932. However, these letters remained at the expression of the interest stage and the projects never materialised. As such, we want to suggest that this phase of mining was an 'open-access' phase without any excludability or rivalry, where a range of individuals or groups could freely ride on the already excavated tunnels. The end of the gold rush, which left gold-mining in the region unattractive for industrial-scale mining, opened up the region for open-access mining. A large tract of the land, known as section 17 or Janmam land, mired into litigation in the court of law, leaving no clear ownership of land (Menon 2014). Multiple stakes existed, including the forest department of the Government of Tamil Nadu, the erstwhile Rajah of Neelambur and tea estate and other plantation owners, all of whom left the land ungoverned and an open-access space for later entrants.

Phase IV: From the 1980s onwards

Our several visits to the field between September 2014 and May 2016 revealed the contemporary narrative of gold-mining in the region. We travelled through Nadugani, Pandalur and Devala in Gudalur *taluka*[13] of Nilgiri district and identified many individuals engaged in gold-mining. The current practice of gold-mining is informal and artisanal. The number of people engaged in this activity seems to have surged in recent decades, possibly due to the increase in global gold prices. Our attempt to identify the genesis of persistence and the regrowth of gold-mining in this region led us to understand demographic changes that occurred here during the early 1970s, when Tamil workers, previously employed on Sri Lankan tea plantations, were resettled in this region. This resettlement was the result of a pact between the then Indian prime minister, Lal Bahadur Shastri, and his Sri Lankan counterpart, Sirimavo Bandaranaike, known as the Shastri–Bandaranaike Pact (Pillai 2012). This led to a number of Tamil migrants working in Sri Lankan plantations being brought back to India in the 1970s and settled in various places, including Gudalur *taluka*. The Sri Lankan diplomat K. Godage (n.d.) wrote:

> Indentured labour from South India was brought to work on our tea and rubber plantations.[14] The issue of Indian immigrants became an intractable problem between the two countries in 1953 when India resiled from its position that these immigrants were Indian nationals. It was only in 1964 that an agreement was reached between Prime Ministers Sirimavo Bandaranaike and Shastri. This agreement was supplemented by another between Prime Minister Indira Gandhi and Bandaranaike in 1974 with India agreeing to take back 600,000 and Lanka agreeing to grant citizenship to 373,000.

13 *Taluka* is a sub-district.

14 The arrival of labourers from South India to Sri Lanka has a long history. After Ceylone was conquered by East India Company, a large-scale temporary migration happened in the 1840s to the coffee plantations, especially during harvest season. Permanent migration and settlement gained momentum since the 1870s, with the initiation of tea plantations that required regular labour.

Our observations during recent field visits show that large numbers of informal gold miners belong to this Ceylon[15] repatriate community. To provide employment to the settlers, the Government of Tamil Nadu created TANTEA, a tea plantation company to absorb the repatriates who were used to a similar kind of work environment in Sri Lanka. The state provided a financial incentive to private estates to absorb repatriates (Menon 2014). TANTEA plantations established between 1968 and 1980 comprised about 2,500 ha, created by clear felling of forests (ibid.). However, the time lag between the arrival of repatriates and absorbing them into plantations would have been one of the prime causes of a spillover into informal mining activities by this community. This also suggests that the gold-mining fields were open-access grounds in the early twentieth century for the repatriates and others to work in and earn their livelihood. Added to the time lag in absorbing the workforce, the downfall in the tea market would also have played a critical role in the proliferation of 'informal gold-mining', where neither formal records were kept nor taxes collected. The technology employed in these mines is rudimentary while the economic structure is more cooperative and family based.

In Pandalur, we found mines located within private tea estates, whereas in Devela, most of these are inside the forest reserve areas, and in Nadugani, there was a mix of both. In Pandalur, Nadugani and Devala, with the help of local people, we visited several tunnels where mining activity currently occurs. These tunnels can be 500–3,000 m in length. Some tunnels are horizontal throughout, whereas some are vertical over a considerable length before becoming horizontal. In the tunnels are several types of quartz stones with tinges of gold, mixed with varieties of other materials (especially mica). These stones are collected by these informal miners. The collection process involves digging with shovels, hammers, etc. in the tunnel, and often blasting with low-intensity explosives. In a day, a miner collects about 10 kg of such stones, which may translate into less than a gram of gold. One of the miners told the researcher, 'our target is to make 500 rupees in a day'. In today's context, this translates into a third of a gram of gold (excluding other expenses of crushing, etc.). This particular miner was young, just about 25 years of age, belonging to one of the repatriate communities from Sri Lanka resettled here.

15 Ceylon was renamed Sri Lanka in 1972. We use Ceylon and Sri Lanka alternatively, the first representing an historical sentiment and the latter a contemporary thought.

The selected quartz ores are taken to a crushing mill, in a few cases called 'rice mills'. The reason behind this obviously lies in how statutory law perceives informal mining. The crushing mill owners are often different from the miners and they charge around INR4–10 per kilogram of stone. However, it is likely that some of the crushing mills, apart from crushing the stones brought in by miners, would crush their own collected stones. Stone-crushing mills are important factors contributing to efficient production of gold. After all, a significant portion of investments of the colonial industrial-mining operations was in large-scale stone-crushing equipment. Once the stones are crushed, it is panned using mercury and gold particles are collected. These gold particles are then sold to jewellers or local finance companies in the region. With a higher level of awareness among the informal miners, the price at which the gold is sold moves with the change in market price, although the rates are lower than the market price.

Synthesising the phases

From the available records and documents in the early colonial period, we identify that a formal tax structure (in the form of trey tax) was used by the local *Rajahs* and *zamindars* to provide rights to the gold miners till the 1860s. The tax structure is a clear form of exclusion for those who do not pay the tax. In addition, like most other occupations in India, there were specific castes and tribes that engaged in gold-mining. Put together, we have interpreted one element in the then existing property rights regime as 'excludability'. The wide dispersion in rather small quantities of gold across a region, as well as the lack of capital, meant that several persons from the castes and tribes were engaged in the occupation; we therefore also impute an element of 'non-rivalry' amongst the miners, as long as they were able to pay the stipulated fee to the feudatory. The characteristics of 'excludability' and 'non-rivalry' are the essence of 'club' goods, which was considered to be the dominant form of property rights until the 1860s. There are also several instances of large tracts of land directly occupied by feudatories or *Rajahs*, who mined gold using 'slave labour' at very low wage rates. In these cases, it becomes more appropriate to characterise the property rights regime as 'private goods'. Therefore, Phase I has hues of both: club goods as well as private goods. More importantly, we are clearly able to establish that gold-mining was not an 'open access/public good' (non-excludability, non-rivalry) or a 'common pool' (non-excludability, rivalry) resource in the late medieval or early colonial period.

Gold-mining during the Wayanad gold rush (Phase II) was clearly a private good, exhibiting elements of excludability and rivalry amongst miners. Not only that, this period was also marked with intensive speculation and making short-term gain out of the speculation. The elements of speculation were in the geo-political and economic order of that time. However, Nilgiri–Wayanad witnessed it in the form of intensive deployment of capital and wage labour.

It would not be wrong to say that Phase III of mining was an 'open-access' phase, without any excludability, rivalry or free riding on the opened tunnels; though it would be worthwhile to determine who the miners were during this phase. Very little information is available on this phase. In the later phase, the existence and surge of gold-mining by Sri Lankan repatriates (who happened to be late entrants to the region, between the 1970s and 1980s) suggest that the gold-mining areas were open access, to be appropriated by anyone interested in this activity.

The fourth phase of informal mining has possibly taken the shape of commons, where creating new mining areas is not as easy. A large tract of land is under litigation due to multiple claims by the erstwhile *zamindars*, the state and the estate owners, as well as later settlers. This tract of land is known as Janmam land or section 17 land (Menon 2014). However, in recent times, the forest department is believed to have a de facto claim over the land, especially in the region where there is forest cover. In these lands, the forest department does not allow any expansion of new mining activities. This suggests that the mining activities happen in the defined and already opened areas, leading to rivalry in natural resource exploitation. The groups of people involved have shifted and changed over time. Paniyas remain active and Sri Lankan repatriates are being assimilated; however, one does not find as many Korumbas (or Kurumbas) as evident in the first two phases. If we identify the informal rules and norms governing access to the mining areas, as well as the conflicts between groups in accessing the mines for extraction of quartz stones, it would be more evident that there is rivalry in appropriation.

Governance structure over the centuries

The two centuries of the history of gold-mining in the region show the changes in its institutional and governance structure. These changes are not necessarily due to internal factors. Rather, external circumstances have played a critical role in shaping and reshaping the institutions involved in gold-mining.

We attempted to analyse these phases of changes using the concepts of property rights. The principle of 'excludability' and 'rivalry' provided us a framework to analyse the institutions and governance structure in the four different phases. Table 11.2 summarises the four phases in terms of property rights–based institutional structure.

Table 11.2: Institutions of gold-mining over the past two centuries

Phase	Excludability	Rivalry	Legal Status and Scale	Communities
Early Colonial Phase (up to the 1860s)	Yes (with tax structure)	Minimal	Formal–Artisanal	Kurubas, Paniyas, Mapillahs (engaging labour), landlords and feudatories
Corporatisation Phase (1870s to 1900)	Yes	Yes	Formal–Industrial	Privatisation of property with corporate mining initiatives
Third Phase (1900 to the 1970s)	Minimal	Minimal	Informal–Artisanal	Little is known of this phase. But mostly by Kurumbas, Paniyas and Mapillahs (engaging labour)
Ceylon Repatriate Phase (1980s onward)	Minimal	Several instances	Informal–Artisanal	Interestingly, Kurumbas are not much involved in the activity; Paniyas continue, Ceylon repatriates are in good numbers

Source: Authors' work.

The property rights–based analysis suggests that gold-mining in the region has undergone institutional changes. The first two phases show a formal mining setup, whereas the next two phases are informal. Within this transition in institutions, external factors (like the gold rush and the arrival of repatriate labour) played a critical role.

In contemporary literature, one finds classifications based on formal and informal mining, as well as in terms of artisanal and industrial-scale mining. Artisanal mining is often classified with small-scale mining as ASM. Based on this classification, approaches to understanding and categorising mining activities have been varied. In this chapter, we have added another dimension to the debates about classification by not only considering property rights, but also the way these shift and change over time, influencing the forms institutions can take. Contemporary approaches to informal mining emphasise its operation in an ungovernable space, and ignore its role as a source of livelihood for local people. Approaches to artisanal mining emphasise the scale and forms of technology used in the activity—discussions that tend to beget debates about efficiency. Property rights–based classifications, on the other hand, combine institutional and economic approaches useful for understanding governance, from both the perspective of livelihood and efficiency.

Conclusion

A number of factors worked together to create a situation in which informal mining came to prevail in the Pandalur, Nadugani and Devala settlements of the Nilgiri–Wayanad region. Mining activities in the region date back to the 1830s in the available documented history at which time, as we have argued, it was formal–artisanal; however, contemporary mining was largely shaped by the unique history of the local context. Currently, a large proportion of informal miners belong to the Sri Lankan repatriate communities. Additionally, a smaller proportion of the miners belong to the native population.

The historical, social, economic, geographical and geological factors considered together show the complexity associated with mining that transited from a formal to informal process. A long history of the profession, position of statutory law and the prevalence of customary practice add to this complexity. However, a few important aspects that come out clearly from this explorative study are worth taking note of. First, existence and prevalence of informal gold-mining in India is a fact. Second, people engaged in this mining activity are poor and belong to vulnerable social groups, and informal mining contributes substantially to their livelihood. Third, the long history of gold-mining shows the transition in the institutions—these are not only internal to the economy, but are also impacted by external, global, political and economic factors that play a critical role in shaping the institutions.

In the process, this study defies a few theoretical positions. First, a body of literature suggests that changes in institutions and the governance structure are largely due to the internal dynamics, as suggested in the evolutionary strand of institutional economics. However, our study shows that external factors like the gold rush, collapse of the gold rush and settlement of Sri Lankan repatriates in the region did play a critical role in the evolution and changes in the institutions relating to gold-mining in the region. Second, institutional economics approaches tend to emphasise either property rights or transaction cost economics, which suggest that institutions evolve over a period of time, becoming more efficient (in terms of minimising transaction costs) and well defined (in terms of property rights). However, in our study, we identify that the institutions have moved from a formal to an informal structure, or from a high-excludability to a low-excludability structure. In the pre– and post–gold rush phase, the institutions have shown a tendency towards greater rivalry in use, over a period of time.

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References

Baber, T.H., 1830. 'Journal of a Route of the Neelghurries from Calicut.' *The Asiatic Journal and Monthly Register of British and Foreign India, China, and Australasia,* Vol. III, New Series, Sept–Dec.: 310–16. London: Parbury, Allen & Co.

Ball, V., 1869. 'On the Occurrence of Gold in the District of Singhbhum.' *Records of the Geological Survey of India* II(1): 11–14.

Barzel, Yoram, 1997. *Economic Analysis of Property Rights*. 2nd edition. Cambridge: Cambridge University Press. doi.org/10.1017/CBO9780511609398

Bergein, 1834. 'Gold Mines of Malabar.' *The Mechanics' Magazine, Museum, Register, Journal, and Gazette*, Vol. XX, 5 October 1833 – 29 March 1834: 123–4. London: M. Salmon, Mechanics Magazine Office.

Coase, R.H., 1937. 'The Nature of the Firm.' *Economica* 4(16): 386–405. doi.org/10.1111/j.1468-0335.1937.tb00002.x

Coase, R.H., 1959. 'The Federal Communications Commission.' *Journal of Law and Economics* 2(October): 1–40. doi.org/10.1086/466549

Deb, M., G. Tiwari and K. Lahiri-Dutt, 2008. 'Artisanal and Small-Scale Mining in India: Selected Studies and an Overview of the Issues.' *International Journal of Mining, Reclamation and Environment* 22(3): 194–209. doi.org/10.1080/17480930701679574

Demsetz, H., 1967. 'Towards a Theory of Property Rights.' *The American Economic Review* 57(2): 347–59.

Francis, W., 1908. *Madras District Gazetteers: The Nilgiris*. Madras: Government Press.

Godage, K., n.d. 'Historical Continuities.' India Seminar. Available at www.india-seminar.com/2002/517/517%20k.%20godage.htm

International Institute of Environment and Development (IIED) and World Business Council for Sustainable Development (WBCSD), 2002. *Breaking New Ground; Mining, Minerals and Sustainable Development*. London: Earthscan Publications Ltd.

Jennings, S., 1881. *My Visit to the Goldfields in the South-East Wynaad*. London: Chapman and Hall Limited.

King, W., 1875. 'Preliminary Notes on the Gold Fields of South East Wayanad, Madras Presidency.' *Records of the Geological Survey of India* VIII: 29–45. London: Trubner & Co.

Lahiri-Dutt, K., 2004. 'Informality in Mineral Resource Management in Asia: Raising Questions Relating to Community Economies and Sustainable Development.' *Natural Resource Forum* 28: 123–32. doi.org/10.1111/j.1477-8947.2004.00079.x

Libecap, G.D., 1978. 'Economic Variables and the Development of the Law: The Case of Western Mineral Rights.' *The Journal of Economic History* 38(2): 338–62. doi.org/10.1017/S0022050700105121

Libecap, G.D., 1989. 'Distributional Issues in Contracting for Property Rights.' *Journal of Institutional and Theoretical Economics* 145(1): 6–24.

Liebowitz, S. and S. Margolis, 2000. 'Path Dependence.' In B. Bouckaert and G. De Geest (eds), *Encyclopedia of Law and Economics, Volume I. The History and Methodology of Law and Economics*. Cheltenham: Edward Elgar.

Menon, A., 2014. 'The Godavarman Judgment: Erasing the plurality of land use in Gudalur, Nilagiri.' In M. Bavinck and A. Jyotishi (eds), *Conflict, Negotiations and Natural Resource Management: A Legal Pluralism Perspective from India*. London: Routledge.

Newbold, Lieut., 1843. 'Mineral Resources of Southern India, No. 4, Gold Tracts.' *The Journal of the Royal Asiatic Society of Great Britain and Ireland* 7: 203–11. doi.org/10.1017/S0035869X00155856

North, D.C., 1990. *Institutions, Institutional Change and Economic Performance*. New York: Cambridge University Press. doi.org/10.1017/CBO9780511808678

Ostrom, E., 2005. *Understanding Institutional Diversity*. Princeton: Princeton University Press.

Pillai, R.S., 2012. 'Indo–Sri Lankan Pact of 1964 and the Problem of Statelessness: A Critique.' *Afro Asian Journal of Social Sciences* 3(1): 1–14.

Sikor, T., and C. Lund, 2009. 'Access and Property: A Question of Power and Authority.' *Development and Change* 40(1): 1–22. doi.org/10.1111/j.1467-7660.2009.01503.x

Sivramkrishna, S., 2015. *In Search of Stability: Economics of Money, History of the Rupee*. New Delhi: Manohar.

United Nations Development Programme (UNDP), 1999. *Artisanal Mining and Sustainable Livelihoods*. New York: United Nations Development Programme.

Williamson, O.E., 1981. 'The Economics of Organization: The Transaction Cost Approach.' *The American Journal of Sociology* 87(3): 548–77. doi.org/10.1086/227496

Williamson, O.E., 2000. 'The New Institutional Economics: Taking Stock, Looking Ahead.' *Journal of Economic Literature* 38(3): 595–613. doi.org/10.1257/jel.38.3.595

Zenger R.D., S.G. Lazzarini and L. Poppo, 2001. 'Informal and Formal Organization in New Institutional Economics.' Viewed at apps.olin.wustl.edu/faculty/zenger/advances6u.pdf (site discontinued)

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