

Economic Aspects during the Reddi Period

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The present paper analyzes the economic activities or the conditions during the Reddi king's rule in medieval Āndhradēśa. It discusses the occupation of the people, the contribution of Reddi kings to irrigation works and industries in their kingdom.

The Reddi kings ruled coastal and central Andhra for over a hundred years from 1325 to 1448 A.D. It is necessary to know the brief political history of Reddi kings, because the economic progress of the people depended very much of the rulers. The usage of the word Rēddi specifically was first seen in the records made during the Rēnāti Chōla period (seventh century A.D.). There are numerous epigraphical references to Rēddis or Raddis as agriculturists, businessmen and administrative officials (village headmen). It is generally agreed that the word Rēddi is related to Rāshtrakūta which itself is taken to be a Sankritizes form of the *Dravidian* word *rattakudi*. This community was variously referred to in the records as *rattadu*, *rattōdi*, *rattagullu*, *rēddi*, etc. *Rattakudi* or *rattagudi* seems to have been made up of two words *ratta* and *kudi*. The latter term conveys the meaning habitation or settlement. *Rattakudi* may, therefore, be tentatively rendered as settler in the country or cultivator as suggested by H.K. Sastry.¹ These Rēddis are mentioned in a number of records in Rayalaseema as donors.² These evidences clearly show that the term Rēddi denotes some status in the administration. The first of the Rēddi clans came into prominence as feudal lords during the Kākatīya period. After the death of Kākatīya Prataparudradēva and the subsequent fall of the Kākatīya Empire, the Rēddi chiefs became independent and this led to the emergence of the Rēddi kingdom. According to Edgar Thurston,³ Rēddis were the village chiefs and listed them under the section *Kāpu*. The village chiefs were given the title Rēddi. The Rēddi dynasty was established by Prōlayavēma Rēddi, also known as Kōmativēma Reddy. His ancestors served the Kākatīyās as officers in the army. Prōlayavēma Rēddi was part of the group that started a movement against invading the armies of the Delhi Sultanate in 1323 A.D. and succeeded in repulsing them from Warangal. The fall of the Kākatīya kingdom in 1323 A.D. after being subject to seized by the Tughlaq dynasty, led to a political

vacuum in the Andhras. The Islamic conquerors failed to keep the region under effective control and constant infighting among themselves coupled with the martial abilities of the local Telugu warriors led to the loss of the entire region by 1347 A.D.⁴ This led to the raise of Mussunūris and Rēcharlās in the Telangana region, the Rēddis of the *Panta* clan in the coastal region. The Rēddis extended their kingdom from Cuttack, Orissa to the north, Kanchi to the south and Srisailam to the west. The capital of the Rēddi kingdom was Addanki. It was shifted to Kōndavīdu and then another branch of Rēddis shifted to Rajahmundry. Prōlayavēma Rēddi's rule was (A.D. 1325-A.D. 1353) characterised by the restoration of peace, patronage of the arts, literature and broad development. Errana, the translator of the *Mahābhārata*, lived during this period. Prōlayavēma Rēddi was succeeded by Anavōta Rēddi (A.D.1354- A.D.1364) who consolidated the kingdom expansively and established its capital at Kōndavīdu in Guntur district.⁵ Anavōta had a son by name Kumāragiri but he was very young. Hence, Anavōta's brother Anavēma (A.D. 1364-A.D.1382) came to throne. He was a great warrior and administrator. Anavēma was successful in recovering his territory from Vijayanagara kings as seen from his Śrīśailam records of A.D.1377. Kumāragiri Rēddi (A.D.1386-A.D. 1404), the son of Anavōta succeeded his uncle Anavēma. Kumāragiri Rēddi was skilfully assisted by Kātayavēma Rēddi, his brother-in-law, who was also the Prime Minister and general in the task of preserving the integrity and maintaining the security of the kingdom. But, he deposed by Pēdakōmativēma Rēddi (A.D. 1404-A.D. 1420), who then governed the kingdom. Kumāragiri Rēddi and Kātayavēma Rēddi fled to Rājahmundry. The hostility between Pēdakōmativēma Rēddi and Kātayavēma Rēddi continued even after the death of Kumāragiri Rēddi. Kumāragiri Rēddi lost his life in a battle with Pēdakōmativēma Rēddi. Allāda Rēddi, a feudatory of Kātayavēma Rēddi came to the throne of Rājahmundry branch of the Rēddis. He placed Kumāragiri Rēddi III, the son of Kātayavēma Rēddi, on the throne of Rājahmundry. However, the conflicts between the Rājahmundry and the Kōndavīdu branches of the Rēddi ruling family continued and this provided a great opportunity to the Vēlamās, Vijayanagaras and the Bahmanis, to profit by it. *Vēlugōtivārivamśāvali* mentions that the conflict of Kumāravēdagiri and Lingamanaidu, the Vēlama chiefs, with Pēdakōmativēma Rēddi. Thus, checkmated on all fronts, Pēdakōmativēma Rēddi could not achieve his subject of occupying Rājahmundry. But in the cultural history of the period he occupies a unique place. He was a poet and patron of letters and was expert in the art of music. Pēdakōmativēma Rēddi was killed in a battle of Rēcherlavēlama chiefs. He was

succeeded by Rāchavēma Rēddi in A.D.1428. He was a weak and the last king of this dynasty. By the way of extreme taxation, he soon became unpopular. According to *Kōndaviti Dandakavile*⁶ Rāchavēma Rēddi is an oppressive ruler and he was assassinated by a soldier named Chadarapu Mallayya in A.D.1424, with him the Kōndavīdu kingdom gone from the political map. The Rēddis of Kōndavīdu which was occupied by the Vijayanagara rulers and the Rēddis of Rājahmundry occupied by the Gajapatis of Cuttack.

Agriculture was the main occupation or activity of the people. It was the profession mainly of the *Vaisyās* and *Sūdrās*. Though some of the members of these two *varnās* took to other professions, the majority of them were in agriculture. There was not much pressure on land since the population was very small. Every village has some fallow land. The records of the Reddis of Kōndavīdu mention two harvests; one in the month of *Vaisakha* (April-May) and the other in the month of *Kartika* (October-November).⁷ All major villages had *rāchagadēlu* or royal granaries to store the king's share of the grain. The king's share was called *kōru* or *kōru-palu*; while the cultivator's *mēdi-palu*. There was an extensive fallow land in every village. We come to know from the evidences of Muslim historians, inscriptions, Mackenzie Manuscripts and the local records, that great stretches of land were covered with scrub or jungle, and the extent of arable land was much less. Each and every local dynasty brought land under cultivation and increased the extent of arable land. Even during the period under review, there were great forests both in the coastal plain and in the mountainous region. The tract of country, on either side of the river Pampa around Mummadivīdu, the present Mummadivaram, Amalapuram taluk of East Godavari district, was a great jungle. There were great bilva forests on the banks of the river Tulyabhaga, which runs through the present Ramachandrapuram taluk of East Godavari district. In fact, there were many *ranadurgās* and forts protected, which were captured by kings. Agriculture was therefore, limited in extent and confined to the regions devoid of forests. Śrīnātha, in one of his *Catu* verses, described Palnātisīma as a region full of tiny stones, minor gods, napa slabs, Nāgulēti waters, serpents, and scorpions, besides food cooked with *sajja* and *jonna* cereals.⁸ Describing the poor dwelling of a respected priest in a Palnad village, the poet says *in a tiny hut are huddled together cattle, cots and cow dung, stinking food, children's filth and the left-over platters of leaves, dirty cloths, earthen pots and bundles of fuel, besides windows with shaven heads*.⁹

All land belonged to the state and the ruler had right to grant lands to individuals for individual ownership or common or joint ownership and to temples and *mathas*, for cultivation and irrigational purposes. When the ruler wanted to donate the lands owned by individuals to temples, he purchased from them and donated them. For example, Kāṭayavēma Reddi purchased Tadakaluru and granted it as Gōpavaram to God Gōpinātha. The donees including the *Brāhmins* and the temples both were exempt from all kinds of taxes but had to stick to the conditions of the donated lands regarding the discharge of their duties and services. They had to undergo severe punishments in case of lapses.¹⁰

Land was divided into various grades for purposes of estimation and fixation of revenue to the state. The broad and widespread divisions of land were arable or cultivable land and uncultivable land. The arable lands were sorted out into wet lands and dry lands. The terms used in records for wet lands are *nīrunēla*, *varibhūmi*, *madikuntalu*, *kalavapōlamu* *udpubhūmi*, *jalakshētra*, *cauka bhūmi*, *kilparru* of *śelakam* (land) etc., where as dry lands are mentioned as *kōru*, *vēlipōlamu*, *rēvadibhūmi*, *garuvu bhūmi*, *melparru* of *śelakam*, *metta nēla*, *kāni* (gardens) etc. The wet lands were horizontally divided into high level, medium and low level fields and further into good soil, medium soil and low soil lands. The uncultivable lands fell into two divisions' namely pastured lands and waste lands.¹¹ The records of Rēddis mentioned *kēsariṭāti-gada* or pole have been the standard rod in measuring lands in the coastal region. In setting the length of the pole, the *angula* was taken as the unit. Generally, the thumb of a person, approved by the king or other chief officers of state, is taken for setting the standard unit of *angula*. This type of poles or measuring rods of fields are found on pillars in temples in the villages of Penumuli,¹² Prattipādu, Moparru¹³ and Kommuru¹⁴ in Guntur district of Andhra Pradesh.

Rice and millets were the staple crops. There are evidences contain the names of several varieties of paddy. The famous poet Śrīnātha mentioned in his works *Harivilāsam* and *Bhīmēśvarapurānam* like *kalama*, *śāli*, *iramukha*, *swāstika*, *patanga*, and *hāyana*.¹⁵ Of these varieties *swastika* is said to be a two-month crop. *Harivilāsam* mentioned another good variety of rice is *kappurabōgam*.¹⁶ Paddy, with a variety of grains and sugar-cane were the main wet crops. Chandavōlu and Talagadāṭvi had abundant wet lands suited for the cultivation of wet crops. Gudimetta produced blackish red sugar-cane, besides paddy.¹⁷ In Nellore well known for its special variety of paddy, were raised two to three crops in a year and one such crop is mentioned as hot weather crop in records. Dry crops were raised in

Palnād and Mārellasīma. The fourteen kinds of grains grown in Mārellasīma were millets, horse-gram, *sajjalu*, red-gram, *arigalu*, green-gram, *jonnalu*, castor oil seeds, black-gram, *rāgulu*, *bobbarlu* (black species of pulses), cotton, and *chandalu* (pulses from leguminas plant). Śrīnātha mentions the dry crops grown in Palnād. In the Nellore region gingili, flex and *karujonna* (a variety of maize) were raised in dry lands.¹⁸ In lands under wet cultivation, paddy was transplanted from seedbeds. The records of Reddi kings mentioned this type of paddy known as *ākumalla-patlu*. *Simhāsanadvātrimśika* mentioned that the land was considered very fertile and crops a bumper one, if one *tūmu* of paddy sown yielded in return ninety *putti* but this seems to be a gross exaggeration. Besides paddy, there were other irrigated crops known as garden crops. These were sugar-cane, betel-vine, arecanuts, coconut, palmyra, and plantation, with extent of area and the number of trees specified, find mention in records. Mango and jack plantations were widely grown, as they are even now, in Amalapuram and Rajole taluks of the East Godavari district.¹⁹ *Bhīmēśvarapurānam* mentioned that a regular watchman called *kāvali-kāndru* or *kāvalikāru* plural form of *kāvali-kādu* were employed to watch and protect crops.²⁰

Like gift of land, building of temple, laying a park or garden, tank construction was considered as one among the *saptasantānās* that is the seven meritorious acts of an individual. So, the king to the servant, all classes of men vied with one another, singly or jointly, to raise and maintain gardens and parks and donate them to temples, to serve their various needs and for public utilities.

Anantamatya's Telugu work *Bhōjarājīyam* mentioned *pōdu-cēnu*, another method of cultivating lands in the hilly jungle tracts which was in vogue then. This method is still in use in the upland forest areas in Godavari and Visakhapatnam districts. The Gazetteers of the Godavari and the Visakhapatnam districts mention that the majority of the hill area, the Rēddis and the *kōyās* in the agency carry on shifting cultivation, called *pōdu*, by clearing in the forests. Two methods prevail: the ordinary or *calaka pōdu* and the hill or *kōnda pōdu*. The former consists in cultivating certain recognised clearings for a year or two, a time, allowing the forest to grow again for a few years, and then again burning and cultivating them; while under the latter, the clearing is not ruptured to for a much longer period and is sometimes deserted forever. The latter is in fashion in the hillier and wilder parts, while the former is a step towards civilisation. In February and March the trees and bushes in the forests are cut down and spread evenly over the portion to be cultivated, and when the hot weather comes on

they are burnt. The ashes serve as manure, and the cultivators, also think that the mere heat of the burning makes the ground productive. The land is ploughed once or twice in *calaka podus* before and after sowing but not at all in *kōnda-pōdūs*. This seed is sown in June in the *mrgasīrakārti*. Hill *cōlam* and *sāma* are the common crops. The farmer is dibbled into the ground.²¹

This type of *kōnda-pōdu* or *pōdu* system consists in cutting a part of jungle, burning the felled trees and under growth, sowing dry grain broad-cast in the ashes (without any kind of tilling) for two years in succession, and then abandoning the plot, for another else-where. The crops grown on *pōdu* cultivation are usually dry grains like *samai*, hill *chōlam*, ect.²² The work *Bhōjarājīyam* mentioned that dry grain, like *potti kandulu* (short variety of red gram) and *anumulu* (beans) were also grown. Koravi Goparaju's work *Simhāsanadvātrimsika* mentioned that *jatti-sonu*, an aspect of disposing of the agricultural produce. It also mentioned in *Bhōjarājīyam* and *Harivilāsam*. *Jatti* is a commercial term denoting a system of purchase that is in vogue even today. According to *Godavari District Gazetteer*, loans are often made, on the security of standing crops on the condition that they shall be sold to the *sowcar* (merchant) at less than the market price, an arrangement which is known as the *jatti* system.²³

Land was surveyed and revenue settlement was made in five villages in Ammanabrōlusīma in Śrīsailabhūmi during the reign of Prōlayavēma Rēddi. In this instance, the land was measured by a pole of sixteen fathoms. The cultivators had to pay tax to the state in kind was called *kōru* or *kōru-pālu* and the cultivator's share of the produce was called *mēdi-pālu* (the ryot's share).

Irrigation: Irrigation always received great attention from the state in ancient as well as private individuals for the progress of agriculture. It has also religious inviolability, so much so that officials as well as private individuals were challenging with one another in their concern to digging tanks, wells, canals, etc. Irrigation works may be classified into two types, natural and artificial. The natural sources of water supply were the rivers and rains. The lands which are irrigated by rivers, rivulets, tanks, wells, etc., are called *nadi-mātrikās* and the lands which purely depend on rains are called nature fed or *dēvamātrikās*. The artificial irrigation works are of three types. They are 1. Wells including *dāruvu* wells on river banks 2. River channels, rivulets, tanks, reservoirs or dams (*sētūs*) formed by building embankments across two hills and 3. streams and canals. The failure of monsoons and the

consequential droughts resulted in the construction of various artificial irrigation works from the very early period. The Sātavāhanās, Ikshvākūs, Pallavās Vishnukundis, Chālukyās and Kākatiyās gave importance to build tanks, wells, and canals. The Rēddi kings also gave importance to provide artificial irrigation in their kingdom. During their rule the king as the head of the state, ruling chiefs, officials, local bodies and individuals took interest to provide water facilities for the encouragement of cultivation, plantation and for their daily purpose.

Well Irrigation: Irrigation by wells must produce a high quantity of water during the driest months. Different types of wells are mentioned in *Śilpa – Śāstrās* namely *Kūpa* (well), *Vāpi* (stepped well), *Kunda* (deep pond), *Pushkarini* (shallow – pond), *Tadaga* (lake) and so on. Panini mentioned that the villagers depended for their water supply on wells (*kūpās*) to which were attached *nipanās* or water troughs from which the cattle would drink. Ten varieties of *kūpās* or wells are mentioned according to their size, i.e. *Srimukha* is to be laid-out in four *hastās* and *sankara* type to be laid-out in thirteen *hastās*, but all these should be laid circular.²⁴ The *Telugu* work *Simhāsanadvātrimsika* gives a list of sources of irrigation and appliances to lift water from a lower level to a higher level, such as *kāluva* (canal), *pāyalu* (branches of rivers), *kollu* (artificial canals of marshy) and *rātnās* (appliances to draw water or water wheels worked with feet).²⁵ In black soil, where its depth is moderate and the sub-layer is porous, well-irrigation was also vogue. Generally, well irrigation was preferred in areas where river irrigation was not present. The Rēddi kings gave importance to digging wells for arecanuts and coconut plantation. With the rivers like Gōdāvari, Krishna, Penna and their tributaries, tanks, wells, lakes, etc., there was no water problem in the coastal area except Palnad and Kōndavidu in Guntur district. In Palnad area where there was water scarcity well irrigation was in vogue and black cotton fields were supplied with water from the deep wells. A common saying in *Telugu* implies that long ropes were needed for drawing water from wells in Kōndavidu; and the ropes with double that length had to be used to draw water from the wells in Palnad.²⁶ According to East Godavari District Gazetteer, these wells were known as Reddi wells, built with brick and stone. The wells measured 18x24 ft. and the water level was 6 to 12 ft. Several wells were dug at Aminabad, Addanki, Challagundla, Janapādu, Daida, Satrasala, Karēmpudi, Adoni, Kannalur, Kurnool, Kandukur and Nagaram. Daida and Satrasāla were Buddhist centres also. Wells were dug for every house in Addanki and Kōndavidu under the rule of Prōlayavēma Rēddi. Nellore had fourteen wells including *Vēmalasettibāvi* or *Vēmalanūyi* on the south.²⁷ At Kōndavidu, the Rēddi kings dug wells like

Kattulabāvi, Lankēlabāvi, Kanyakalabāvi, and Jeddigalabāvi. *Kattulabāvi* is an ancient *Sivālayam* with great sculpture. As per history, the Kōndavīdu Rēddi kings have been deceived by the temple priest at the time of war with the Muslim rulers who came to invade the fort. The priest sided with the Golkonda Nawab; a well is dug on the way to the *darshan* of Lord *Siva* i.e. known as *Kattulabāvi* or well with swords, or *Cheekatikōnēru*. War commanders have been eliminated by deceit this way and then lower rank soldiers attacked, thus, ensured success for the enemy. There were many types of wells like *Nadaivāpi* or *Nadabāvi* or *Digudubāvi* (a well having stone steps to descend into it), *Lankelabāvi* (a well built with a double line of stones), *Ittikanūyi* (a well built of bricks), *Rajakabāvi* (a well used by washer men), etc. These were sometimes called *Jain* wells, showing the prevalence of Jain faith among people in Amalapuram area of East Godavari district. These wells were constructed with brick and stone. Kommana Sōmayājulu, the Prime Minister of Kōmatirēddi dug a fresh water well with stone revetment at Kandukuru,²⁸ and a stepped well at Chundi. Even today, we can see this type of wells being used in the Nagaram and Anantapuram taluks in the East Godavari district. In places where fields lay at higher levels than rivers and tanks, water was supplied to them *doruvu* wells by means of lifts like *ētām (rātmās)* or picottah through *kapita* or *mōta*. The relics of picottah at Kōndavidu are important of this method of irrigation.

Tank Irrigation: Tanks served as the chief means of irrigation in ancient and medieval Āndhradēsa. The terms *chēruvu, kōlanu, madugu, tatāka, kēre* and *ēri* mean a tank. In some places, due to their enormous size, they were called *ambudhi, sāgara,*²⁹ *samudra, mahāpayōdhi, vardhi, pemjēruvu, sarōvara* and because of sanctity, *tirtha, kunta* and *gunta* in *Telugu* and *benchi* in *Kannada*³⁰ mean a *pond*. Tank irrigation was also practiced by the Rēddi kings. They were built in the upland regions of Guntur, Nellore, and Kurnool districts. Irrigation tanks were especially in use, and they were as a rule constructed in the catchment area in the upland region of hard soil and the land below was utilised for growing rice and garden crops. The construction of tanks is looked upon as one of the seven meritorious acts (*saptasantānās*) which a man ought to perform during his lifetime. A son (the procreation of), a poem (the composition of), a treasure (a hoarding of), a grove (the planting of) a girl to a brāhmana (the marriage of) a temple (the consecration of), and a tank (the construction of), are considered as sacred acts. A few *ślōkās* from *Mahābhārata* cited at the close of an inscription³¹ dealing with the building and dedication of the Santānasāgara, explain the merit

accrued by digging tanks and spirits live in water; and animals, birds, and human beings drink water from the tanks and so the builders obtain merit equal to that of performing *aśvamēdha* sacrifices, at which their fathers and grand-fathers rejoiced. So, encouraged by sheer motives of humanitarianism besides religious motives, individuals built tanks near temples and in villages. The Pōrumāmilla tank inscription³² dated 1369 A.D. gives more information about the construction of tanks, hydrology and methods of water movement. It is a remarkable record which enumerates twelve different and essential *angās* or elements necessary for the construction of a new tank, like hard soil, two projected portions of hills in contact with it, a quarry containing straight and long stones, a gang of men skilled in the art of tank construction and kindred arts. Six faults or *dōśās* are also enumerated which are to be avoided, like saline soil, a tank-bed with elevation in the middle and water oozing from the tank, etc. An inscription from Phirangipuram mentioned that Surāmba or Surāmbika, the queen of Pēdakōmativēma Rēddi (A.D. 1402-1420) built a tank named as Santānasāgara at Phirangipuram in the Narasaraopet taluk of the Guntur district in A.D. 1409. She performed the ceremony of *pratishta* (completion and dedication to public use) of the tank also called Santānapayōnidhi. The above mentioned record composed by Srinātha, contains a hyperbolic description of the tank, which is stated that its waters were as purifying as those of Ganga, Yamuna, and all other sacred rivers, that it was full of water-lilies which blossomed at the touch of the rays of the moon which was the crest of (the idol of) Śīva established on its bank, that the deafening roar of its waters filled all space, that it was the sporting ground for fish, crabs and other water animals, and that its waves kissed the sky (v.24).³³ An inscription from Mollēru in the Yellavaram taluk of East Godavari district refers to the construction of a tank, Vēmasamudram at Mollēru³⁴ by one Vuppala Hanumayya for the merit of his sovereign, Kātamarēddivēmarēddi. Some tanks mentioned in records are: the tank at Vēmavaram³⁵ which supplied water to the paddy fields, Kōmāragirisamudram at Munjalur,³⁶ Chōdasamudram (Mōlleru), tank at Baddepūdi, tanks at Lingamgunta, Prōlasamudram, three tanks at Chandi, Malyadri tank near Bhimunikolanu, Bhimasamudram at Vadlakurru, huge tank of Drōnasamudram at Namepādu, tank at Chevaram, two tanks at Marripūdi, Brahmasamudram at Timmāpuram, many tanks at Sattenapalli, Bassamudram near Budapir, Ganapasamudram and Kuppasamudram, Mahadēvitātāka at Macherla, Chagipōtasamudram at Gudimētta, Mallsamudram and Gandasamudram at Nādindla Rōmpichēruvu alias Pankatakapura at Rōmpicherla, Tamarachēruvu at Pedaganjam,

Rudrasamudra and Rattasamudram at Nudurupadu, Vīrasāgaram near Panchadharala, Bhīmasamudram at Nidadavole, Viddarajachēruvu at Guntur, tank of Mankaditya and tank of low caste people near Jayatarayanapura *agrahāra*, Koddopaticheruvu at Jalur, tank near Ankepalle built by queen Tippali dēvi, Gangasamudram at Siddhāpuram at Śrisailam, Ambasamudram at Odili and Utukūru at Kanuparti, Ammapudichēruvu, Yekarajuchēruvu and Pulichēruvu, tank at Chilamakur, Svarnalachēruvu and Tamaramadugu at Nellore, Rachēruvu and Vēlpulachēruvu at Kavali, Chintachēruvu and Elamanchigunta at Timmasamudram, Tande tank at Ayyavaripalle, Diviyareri alias Kamalamahādēviputtēri at Chēpalapalle, Tondaiman tank, a huge tank at Kondapalle, etc.³⁷ The tanks were built not only by the royal but also by the private persons. A merchant, Kāvuri Vallabhasetti, built a tank called Gōvardhanasamudram at Appāpuram in Narsaraopet taluk of Guntur district, and endowed it to the local temple³⁸ with four and half *putti* of land with the permission of king Pēdakōmativēmarēddi. Srigirirēddi built many thousand huge tanks, which were useful to the public, as deep as the ocean, and famous for producing plenty of crops... His son Rācavēma caused to build a tank at Baddēpūdi.³⁹ Irrigation tanks were especially in use, and they were as a rule constructed in the catchment area in the upland region of hard soil, and the land below was utilised for growing rice and other crops.

Canal Irrigation: Canals were also used for irrigation especially in low-lying tracts. The terms *kōdu*, *peddakōdu*, *kulya*,⁴⁰ *kruchmanu*, *gartta*, *kāluva*, *kālvai* or *kal* meaning canals, *ūtakāluva* meaning an oozing canal, *uppumgāluva*,⁴¹ a canal containing saline water *adusumgāluva*,⁴² a dirty water canal, *vāgu* or *vangu* and *vanka*, a stream, which occur in the records and copper plates as making the border limits of individual fields, show that they were also used important means of irrigation. The charitable persons dug out and gifted canals to the temples, or the money gifted by private persons was invested in the digging of these canals from the beds of rivers and rivulets, and the additional yield coming from the lands was used towards the upkeep of the stipulated services in the temple. *Bhīmēśvarapurānam* mentioned about the canals. *Kūchinēnikāluva*, *Prōlirēddikāluva*, *Rēddikāluva*, *Dadlakāluva*, *Mēdavirupulagalva*, *Mādirēddikāluva*, etc. are some of the canals dug in this period. The canals were dug from the rivers filled the tanks and these tanks were used as the main source of water supply to the farms by means of branch channels. A streamlet Pāyani was dug very close to the river Godavari. An epigraph from Bhimavaram states that Yaramanāyi dug a channel and named as *Yēluturitinādu*, from the river Ēla near

Tungabhadra which was a tributary of Krishna. A canal named as *Sadāsivakōnda* dug from the river Penna. Another canal known as *Allādavalla kōnēru* dug from the river Vamsadhara. The Nāgulēru river, which flows through Palnādu irrigated the land. Rācavēma, the son of Pēdakōmativēmarēddi, got a channel called Jaganobbaganda *kāluva* dug as a feeder to the tank, Santānavardhi, which his mother Surāmba had dug.⁴³ This tank is no doubt, the same as that referred to the Phirangipuram inscription. Kōndavidu record mentions that Tungabhadra was a branch of the Krishna river. It has ceased to exist as a river after the construction of the Krishna anicut and its course is marked by the main and the Kommanur canals of the Guntur taluk and the drain which is in continuation of the latter. The Vēmavaram grant of Allayavēmarēddi dated, 1434 A.D. mentioned the Tulyabhāga is one of the main channels leading off from lower Godavari river. According to H. Morris,⁴⁴ it “*seems to have been originally a natural hollow, of which advantage was taken to form the bed of an irrigational channel by cutting a head to it from the river, and throwing earthen banks across it at various places to raise the water to the necessary height for commanding the adjacent country. It led off from the intended main feeder about a mile below the head-sluice [of the great dam of the Godavari], and conveyed water to the Kopavaram, Bikkavolu and Ramachandrapuram taluks, terminating in the salt-water creek which flows in from the sea near cocanadu.*” It shows that it leads off the Godavari a short distance south of Daulēśvaram and runs more or less eastwards until it comes a little to the east of Anaparti. A record from Kodur in Gudivada taluk of Krishna district mentioned (a pond named as Alligunta) two local streams named as Damkēru, and Vannēru. It also mentioned the Pulleru, which appears to be present representative of the river Mālāpahāri.⁴⁵ Channels from the rivulets Pālēru and Vārēru both tributaries of the Manēru, flowing into the Krishna. The big streams like Dusanēru, Buruguvayaru, and Vallapakammanēru coursing in the Pithapuram taluk of East Godavari district, Mālāpahāri or Pullēru, Dankēru and Vannēru, Tungabhadra in the Bapatla taluk of the Guntur district, Vamsadhara channel at Kollipāka, Nandivarma channel to Podasamudram tank, Indum channel at Pertrala Rayasahasramalla channel named after a title of Ambadēva by Peddināya at Lēpāka and Gandapendēra channel at Tādapāka, etc., that are referred to in some of the copper plate grants and lithic records, might have been exploited as means for irrigating the lands. Kātamarēddi of Prōli had a role in constructing the former channel from Antarganga and the latter at Tādapāka. Many channels at Prōli were the work of Kātamarēddi. At Nellore many canals were dug from Pennar and at Chepalapalle

a big channel named after Kamalamahādēvi were built. The sources of this period mention many of them, which formed the boundaries of villages and *agrahārās*. An epigraph mentions that several rivulets like Gundēru, Pāliēru and Madivangu, which formed the border limits of Tripurāntakam. During the Rēddi period many channels were dug from the rivers like Vamsadhara, Sapta-Godavari, Krishna, Gundlakamma and Pennar to provide irrigation facilities for the development of agriculture. Evidences to ponds are fewer than wells in records. Many public ponds or baths were built in the reign of Kumāragiri, at Kōndaividu and other places. The record from Nudurupādu figures a pond⁴⁶ at Konidena was dug by a minister. Possibly several *guntās* figuring in records are ponds, as terms like *samudram* and *tatāka* apply to tanks.

A few reservoirs are also mentioned in records of Rēddi kings. They are: the reservoir near Kandukur was dug by the minister Kommana, reservoir at the hill Bellamkōnda and an artificial reservoir half way up to the hill to Vinukonda.⁴⁷ As regards lakes, Kollēru was the largest fresh water lake.⁴⁸ There was a huge artificial lake at Dharanikōta. Sluices to the tanks also for supply of water to lands find mentioned in records. They are: a sluice in the field near Pithapur, a sluice to the Pōdasamudram tank by Nandivarma and a sluice to the tank at Tōndamanād by Tikkyadēva.⁴⁹

The role played by the Rēddi kings, their family members and the officers of the state in reclaiming the land for agricultural purposes and providing them with irrigation facilities. According to the records the forests and rocky soils were more than the agricultural land. These areas were destroyed and then converted into cultivable lands. There were great forests both in coastal plain and in mountainous regions. The great tract of country on the side of the river Pampa around Mummavidu of the East Godavari district was a great jungle. There were great bilva forests on the banks of the river Tulyabhāga, which runs through the present Ramachandrapuram taluk of East Godavari district. Agriculture was therefore, limited in extent and confined to the regions devoid of forests. The irrigation facilities were developed in *agrahārās* by the rulers.⁵⁰ Unfortunately, very little information about this type of lands was mentioned in the records of Rēddis kings.

The Rēddi kings not only paid their attention to build the irrigation works but also bestowed great attention on the maintenance and repairs of these irrigation works. The digging of tanks and canals naturally invested the state with the duty of their maintenance and

repairs. Several records of Rēddi kings reveal *daśabandha* or *daśabandham*, means making an *inām* (gift) about one tenth of irrigated land under particular tank or canal to the person who under takes the construction of a tank, and also the contribution of one tenth of the production of each measurement of grain from cultivated land in the catchment area was meant for the up keeping of a tank. Such encouragement took the form of either *daśabandha* or *kattu kōdage* grants, according to which the person who undertook or executed the work was given a piece of tax free land for tank which he constructed.⁵¹ Baden Powell, which enumerating the nine kinds of *ināms* classified according to their object, or purpose, defined *daśabandham* as an *inām* given for the maintenance and repairs of irrigation works in the district of Krishna and Nellore.⁵² Precautionary measures were taken to reduce the loss due to flooding of rivers and over-flowing tanks. In such adverse circumstances, the level of embankments was raised. At Kōndavidu on the top of a hill, there were many springs and tanks one leading into other, so that when the first was filled the water flowed into the second,⁵³ then the third. As a result there was no over-flowing and flooding of tanks. This type of tanks was mentioned in the records of Rēddis. Ex: Vēmavara tank, Kōmaragirisamudram, Santānasāgara, etc. This system of irrigation during the reign of Rēddis is similar to the irrigational system of the Vijayanagara period. When the tank at Utukūru, built by the Rēddis of Odumūr became dilapidated, it was repaired by Ambadēva and named as Ambasamudram after him.⁵⁴ The expenditure on irrigation works either construction or repairs during this period were not mentioned in the records. In our imagination, they spent large amount on irrigation works. A record from Amarabad village dated thirteenth century A.D. belonged to Kākatīya period states that a tank belonging to the temple of Svayambhudēva was repaired by way of raising its bund and increasing the capacity by a certain Mallisetti. Thereby, he irrigated new land and paid thirty *mādās* towards the cost of the land, twenty five *mādās* for acquiring *niri-mudi*, the right of using water cess, all the three items being paid to the temple treasury.⁵⁵ It is interesting to note here that a private individual on his own accord raised the tank bund and got the land irrigated paying the amount to the temple under the above heads. The individual as well as the owner of the tank, i.e. temple are benefited. This is an appropriate example to show how irrigation works were carried out in those days. Like this in the Rēddi period charitable persons also dug out and gifted canals to the temples, or the money gifted by private persons was invested in the digging of these canals from the beds of rivers and rivulets, and the additional yield coming

from the lands was used towards the upkeep of the stipulated services in the temple. Srinātha's *Bhimēśvarapurānam* mentioned that the lands of the Brāhmin *agrahārās* were irrigated by *Krōppungaliyālu* (dug out canals).⁵⁶

The people were appointed to perform the duties of distribution of water under the tanks during the Kākatiya period. The persons who belonged to the specific communities such as *vaddaras*, *peddabōyās* and *upparās* were engaged in doing the manual work of tanks. These persons were exempted from the payment of the taxes. One *kuncha* on every *putti* was to be given to above mentioned communities. These persons had the privilege of grazing their cattle and sheep without paying *pullari* to the state.⁵⁷ But, the records of Reddi kings did not give information about the appointment of people to look after the irrigation works.

If there were any disputes between people or different villages, regarding the distribution of water, they used to settle them politely with the help of mediators. Generally, the decision of a mediator was accepted by the villages. When the disputes arose between two or more villages, they were settled in the presence of the *mahāpradhāni* or the leading men of the both villages. When the local governing body failed to settle the disputes, the kings used to interfere to settle the disputes. But unfortunately, the records of Rēddis did not mention the disputes.

The steps taken by the ruling class to promote agriculture by means of irrigation works and land grants benefitted the upper crust of the society most. The Reddi kings continued the ancient tradition of bestowing lands on *Brāhmins* and temples, thus helping the growth of agriculture under conditions of semi-serfdom. The Chīmakurti⁵⁸ (Guntur district) plates of Anavema Reddi dated, 1335 A.D. mentioned that the grant of Ramatīrtham in Ammnabrōlu *sīma* of Śrīśailabhūmi as a *sarvāgraha* to one Timmana Bhatta. In addition, the done was granted a fourth portion of the produce of the wet lands, betel leaf gardens and sugarcane fields of each of the five villages, viz. Chīmakurti, Bhīmēśvaram, Pulikōnda, Mailavaram and Kumārapurī and a sixteenth portion of the produce of the remaining three fourths. A fifth part of the money income (*suvarnādāya*) of these villages and the water of the *peddachēruvu* (big tank) were to be given to him. Over and above these the done was to receive one-tenth of the produce of the other villages and land at the rate of two hundred *kuntās* measured by a pole of sixteen *bāru* in big villages and one hundred *kuntās* in a small villages.⁵⁹ It also mentions that Vema founded many *agrahārās* on the banks of the rivers

Brahmakundī (the Gundlakamma), the Krishnavēni, i.e. Krishna, the Gōdāvāri and the Mahānadi and laid out gardens in the vicinity of various towns.⁶⁰ Vēmavaram grant of Allayavēma Rēddi (Rajahmundry rulers) mentioned that great brāhmanic settlements (measured by) many *go-caranas*.... remitted tax which is hard to surrender in the demesnes of Gods and Brāhmins; who performed in the lands of Dakshama *go-sahastra* rites.⁶¹ He granted two villages, Vedurupaka and Pinamahēndrada to a number of Brāhmins, abounding in crops most brilliant, having groves of coconut palms, areca trees, jackfruit trees, mangoes and plantains laden with fruit, full of all crops, such as white rice, sugarcane, paddy, sesame, chick-pea and kidney-bean, together with the cultivators, with the (right of) enjoyment, with the eight powers, with pleasant fruit trees, enduring for as long the moon and sun, associated with abundant money, grain and fees.⁶²

The fact that the eight forms of ownership were endowed together with the cultivators is significant. It attests to the continued practice of semi-serfdom in the *agrahārās*. The Kandukuru plates of Allaya Dodda refer to the transfer of cultivators along with the other rights. The cash crops mentioned as those associated with abundant money indicate the growing money economy in the countryside. According to Kaluvacheru grant of Kātamareddi Vēmareddi a list of the various villages situated in the Kōnaragiri *mandalam*, which were granted to temples and *Brāhmins* for the merit of his sovereign and his queen.⁶³ During the reign of Pedakōmati Vēma Rēddi some *ekkatlu* (temporary soldiers) of Vellatur, granted lands to temples.⁶⁴ A commander granted a plot of land to a temple at Tangeda in Palnad taluk of Guntur district.⁶⁵ A number of tradesmen from same village granted lands, house sites and gardens besides profits on the sales of several commodities to the temples.⁶⁶ Two persons granted their lands to the Bhīmēśvara temple at Draksharama.⁶⁷ A minister's son granted six *puttis* (land measure, also measure of weight, twenty *tūmūs* of grain) of land to seven *Brāhmins* in a village near Simhachalam in Visakhapatnam district⁶⁸ besides a number of other gifts.

A number of records mentioned that the sale and purchase of lands for purposes of endowment. From the Sarpavaram records we come to know that one *khandika* of dry land was valued at twenty *tankas*. We do not know whether these *tankas* were gold or silver ones. Some records refer to silver *tankas* and *madās*. The *mada* was also known as *gadde*, *gadya* or *gadyana* (gold coin). According to *Ganita* texts, ten *cinnas* make one *māda*. Traditional

accounts mention that four *tankās* make one *rūka*, two *rūkās* one *māda* and two *mādās* one *varāha*.⁶⁹

Most of the agricultural labour condition was miserable. According to Palakuriki Sōmanātha, there is three kinds of forced labour (*muvvetti*).⁷⁰ Though the three kinds are not specified by him, *raca-vetti* or free labour to the king was one of them. The other two must have been *grāma-vetti* and *kula-vetti*. *Vetti-vāri* is also mentioned in the South Indian Inscriptions as a tax. Therefore, it may be said to have been obligatory on every labour to pay this tax to the king whenever required.

Cattle rearing and dairy farming was the other occupations of the people. Besides the king and his nobles, every temple and charitable institutions had its own *kilara* or cow-pen. Common people held the cow in great respect; some even worshipped it.⁷¹

The records of this period give only few references to industries. However, from contemporary literary evidence, and from the accounts of foreign travellers, we are able to get some ideas not only of the industries but also of the trade of this kingdom. Gold-smith, black-smith, carpenter, mason (stone cutter), brazier, potter, weaver and dyer; all these constituted members of the industrial class. Of these, the first five classes of people, worked in mental who were generally called *pancanamvaru*, a corruption of *panamamvaru*. These five claim to be the descendants of the five sons of *Viśvakarma*, and hence their community is known as *Viśvakarmakula*. These five classes of people of the *Viśvakarmakula* formed the main industrial community, and were organised into a guild of their own. They were specialists in metallurgical arts, wood and stone work. Mallana in his work, *Rukmangada Charitramu*, mentioned that several kinds of cots used in the houses of courtesans. Full length mirrors, winged doors made of glass and glass halls are also mentioned in contemporary literature.⁷²

The most important industry was jewellery. Goldsmiths were experts in jewel making. They made spittoons, toys, vases, cups, plates, etc., of gold and silver. The art of inlaying precious stones was also well known to them. Copper, bronze, iron and brass industries were in a flourishing state. Copper vessels and bronze bells, lamp stands, statutes and cymbals are mentioned in literature and inscriptions. Wood carving and other wood-work, the trade of the carpenter, was in a flourishing condition. Ivory work was also common. There are references in some records to furnaces and big bellows made of buffalo hide fitted with iron tubes. There is a reason to believe that iron smelting was done in a crude fashion to some extent and

agricultural implements, iron tyres⁷³ and some of the weapons used in warfare, like spears, swords and arrow-heads were made locally to meet local requirements. Iron was used in many parts of the Guntur district. It is reported that, to the west of the Sattenapalli taluk in Guntur. In three villages, blast furnaces continued to be working till almost the middle of the nineteenth century.⁷⁴ Goparaju compares the setting sun to a red-hot iron type just removed from the blacksmith's furnace.⁷⁵

Diamond mining was another industry. It was of antiquity in the coastal area. The Venetian traveller, Marcopolo, who visited Āndhradēśa in the last quarter of thirteenth century A.D., says that diamonds were procured in the kingdom of Motupalli in the beds of torrents among mountains. He also says that the myth told by Sindbad about the method of procuring diamonds by throwing pieces of flesh into the valleys⁷⁶

Another important industry was textile industry. Cotton spinning and weaving also reached points of perfection. Cotton was grown in black soil areas of Vinukonda and Palnādu in Kōndavīdu kingdom. The Telugu poets Jakkanna and Śrīnātha refer to coloured and white muslins in connection with the description of dress in their works. Śrīnātha refers to the delicate muslins of moonlight here,⁷⁷ and those looking like snake's skin.⁷⁸ Jakkanna described a youthful maiden dressed in superfine fabrics.⁷⁹ Dyeing and printing were allied industries connected with weaving. There were many varieties of dyed and printed cloths. Red colour in its different shades and varieties was the fashion in vogue. *Chandanakavalu*, *pattedakavalu*, *cengaluvalu* and *kadambakavalu* were some of the varieties of red cloth.⁸⁰ Borders with designs of peacock tails, royal swans, rows of parrots, deer, horses, elephants, lions, doves and other figures were in use.⁸¹ Suravaram and Kamavaram villages in coastal area are for examples for this industry.⁸² Draupadisvayamvaram, Lakshmvilasam, Vasantavilasam, Rayasingaram, and Srikrishnavilasam were the names of some picturesque sarees.⁸³ They were many varieties of silk also, like *veli-pattu*, *hom-pattu*, *puligoru-pattu*, *udayaraju-pattu*, and *vajra-pattu*,⁸⁴ besides coloured silks like black, yellow and red. It was in great use among the nobles and rich.

From early times salt was manufactured from sea water in coastal villages and from saline soils in inland villages in Āndhradēśa. The salt-pans (uppatamulu) of Peda Ganjam, Pina Ganjam, Kadakuduru, Kuravada, Perali, Uppungonduru, Payundorru, Upparalla, all in the Guntur district, were some of the important ancient centres of salt manufacture. Pettipoli,

present Nizampatnam in the Guntur district also seems to have been another important centre.⁸⁵ It was a state monopoly, fetching enormous revenue every year during this period.

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