Indigenous Knowledge of Rajbanshi agriculturists of northern West Bengal, India

Ashok Das Gupta, Dept. of Anthropology, University of North Bengal, India 734004

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This paper is a small ethnographic documentation of Indigenous Knowledge of Rajbanshi agriculturists of northern West Bengal, India. Rajbanshi is a caste-community overlap and as a huge social fold intake various heterogeneous groups in plains and uplands of sub-Himalayan northern west Bengal state of India. Their informal experimentation, trial and error, folk life, tradition, cultural symbols, generation-wise intellectual reasoning are equally important to gather scattered indigenous knowledge traits and their cognate Indigenous Knowledge System extending from mode of production and division of labour to their structure and super structure. This is basically a qualitative study and will highlight various services by both Rajbanshi males and females to attain organic cultivation and management of biodiversity. North Bengal jungles, mountains and agrarian lands are biodiversity hotpots and like various other indigenous communities Rajbanshis show their contribution in production and food preservation. They have developed a lifestyle that may look poor but actually fitting into local environments. Their kitchen garden, highland and lowland cultivations and use of forest and water resources and cattle hordes cum poultry develop together a complex system that can serve a wider public.

Full Text

Natural Resource Management of Dhangdhinguri

This village in Pundibari village panchâyat in Cooch Behar I block in Cooch Behar district is the Study area here. This village is completely situated in a rural area. This is a Hindu village and most of the people are belonging to Vaishnava sect; however also fertility cults and mother Goddesses and demigods are worshipped here. It is situated by the Harobhanga water way which has become a simple canal. This village is upland with neighbouring lower regions where as usual jute and paddy are cultivated. People in this village belong to different caste groups talking in Rangpuria dialect. This is a form of Rajbanshi local language but of the immigrated people from Rangpur. At a time, Koch Bihar dynasty ruled this Cooch Behar district along with Rangpur Division of Bangladesh

independent country. Still Kurigram, Lalmonirhat and Nilphamari districts of Rangpur Division are bordered with this Cooch Behar district of North Bengal (northern West Bengal state of India). Many enclaves are shared by both these countries along this international border. In Dhangdhinguri, there are living both Rangpuria caste groups and Kshatriyas as well. The later are indigenous to this region and in census they are treated as Rajbanshi or Koch Rajbanshi, whereas the other caste groups as various Bengali castes. Actually, many of these caste groups could hold dual identity. Traditional Rajbanshis are settled agriculturists as against so many shifting cultivators and different tribal groups living in forest areas underCooch Behar forest division. And the other caste groups have enriched this agricultural diversity. This system over all does a lot in favour of natural resource management. This Dhangdhinguri was at a time forest area and even leopards and tigers lived inside this place. The lower region by Harodanga River with sandy soil was grassland; *kesia* grass used to grow there with two peoples' height and the soil was with poor water holding capacity. However, the upland area has loamy soil. This Pundibari area is just between Torsa River system and Ghorghoria tributary towards Raidak-Kaljani river system. It lies on the way to Alipurduar town of Alipurduar sub-division of Jalpaiguri district and nearby Torsa River is from Madarihat-Falakata route of this subdivision through Jaldapara National Park. Tribals like both forest Rabhas and jungle Rabhas are staying in this place. Further north there is the Duars tea belt at Bhutan sub-Himalayas and Hasimara-Phuntsholing gate way of Bhutan through Kalchini block. A mixed composition of Adivasi peoples and Nepali ethnic groups along with some caste people of Bengali and other origin could be found in this Duards tea garden and adjoining cultivable patches and town areas. Some ethnic minorities like Meches of Chhakamari and Toto Primitive Tribal Group of Totopara-Ballalguri are also staying within Madarihat block. Totopara is just at the foothill area and used to be famous for its orange orchard that has now been replaced by step cultivation land with bench terraces, banana and some other fruit plants; garden of areca nut plants and at the jungle side plants like teak, silk cotton and catechu. Totos also know about the use of Tobacco that yields in Torsa river basin but at Cooch Behar. They also told me about mulberry plant that is used for silk worm propagation. Lowlands at distance were used for cane and sugar cane likewise bamboo bushes in uplands. In steps generally millets

like *marua* and *kaon* are grown along with monsoon rice, winter maize, wheat, barley, potato, elephant gourd, tomato, arum, cabbage, cauliflower, ginger, turmeric, bay leaf, green chillies, cardamom, clove, curry leaves, coriander, mint of hill variety, peppercorn, and even garlic. Potations are are again of jungle varieties, red potatoes, brown potatoes and small sized. Yam and taro are found in the jungles. Rapeseeds like mustard and some other nuts, local *tisi* and *til* are being yield also. Hen, duck, goat, pig and mithun or*p'ka* are commonlivestock. Forest department again plans to yield rubber. Orange is generally a product of winter, but plant and its future yield generally depend on amount of raining in monsoon. Water tanks have also been built up in Totopara and Telapia fish is cultivated there. Local rivers in rainy season are considered for collection of local small and medium fish varieties. In traditional marriage ceremony, they generally slaughter two pairs of mithun (one from each side) and boar along with indigenous alcoholic beverage *Eu* (fermented *marua* millet dust with occasional addition of dust of rice and maize grains) for 1 to 3 days and then sieved it to drink the alcoholic substance). In every step of rites-de-passage, they need boar and mithun. The latter is the source of milk that a few also sold to outside market, whereas pigs are fed up with residues after *Eu* and boiled *ling* (or jungle potato in plant with spine and air potatoes also) and *laka* (or jungle gourd collected from forest). They are fond of plum that they call *buguri* or *gorse*, jackfruit or*danse*, betel leaf or *parai*, sugar cane or *mencha*. Other vegetables and different types of gourds are also propagated in the region. Settled cultivation the Totos have learnt from Nepali groups, where that for the Mech people after coming in contact with either of Rajbanshis and Nepalis. When the Totos invite outer people in their ceremonies, they offer the guests with red meat of goat, chicken, orange juice, red tea, salt tea, butter salt tea, areca nut (also known as *guai*) and even *tura purai guai* (betel leaf with areca nut or its supplement in the form of spines of young stem of silk cotton plant). Maize grains are also used as important feed for livestock if cultivated with surplus. Some irrigation might be needed in maize cultivation depending upon the weather. An average of three month is needed between seed sowing and harvesting of maize. Harvesting depends on colour of the spike and the spike leaf that whether they are green or yellow (or white). Often maize corns are tested by pressing them by nails. By rubbing two maize spikes, corn grains are collected and dried under the

sun and kept in safe within a jute bag in dark. Time to time, corn grains are brought in the sunlight as the same process done in case of other cereals. These information traits I have collected from Surja Toto, Dhaniram Toto and Satyen Toto.

So, ethnic composition and mode of production suddenly change as Torsa and Raidak-Kaljani suddenly enter intoCooch Behar. At a time, not only *Kesia* but also *Thadda, Chopsi* and *Malisa* grasses were growing on these river beds as favourite foods for elephants and rhinos. Rabbit, fox, wolf, wild dog, monkey, so many butterflies, deer, boar, buffalo and wild bison were found at these places. Still now, many birds both local and migratory like storks are coming to Harodanga. Pundibari once was a big weekly market and North Bengal Agricultural University is also situated in this region. This Dhangdhinguri is surrounded by villages like Nageshwar Kuthi to east, Basantapur West to west, Gopalpur to north and Konamali to south and other side of the Harodanga. Villagers at Dhangdhinguri have not completely destroyed the original biodiversity like so many useful plants and bamboo bushes, but added new domesticated species of vegetable use and others. The issue is that how these villagers maintain this enriched biodiversity by using their Indigenous Knowledge and Indigenous Knowledge System (IK[1] and IKS[2]). Local inhabitants of this Dhangdhinguri always do not follow the advice of agricultural university and do experiments informally on their own to improve their crop biodiversity not totally replacing the previous natural resources.

Common fruit plants are here date palm (*taal*), areca (*supari*), coconut (*narikel*), orange (*kamala*), litchi (*lichu*), mango (*aam*), jackfruit (*kathal*), aonla (*amlaki*), guava (*peyara*), black peach (*jamun*), olive (*jalpai*), fig (*dumur*), chalta (*chalta*)*, ata, nona, dalim, golapjam*, and citrus plants like *lebu* and *mosambi*. This provides a sense of orchard and a sacred grove. Many of these plants have been in existence from before alongside the bamboo now reduced to a considerable amount. *Bijalghanta* tree is also important whose barks are sold to traditional medicine men; it is believed that the water emulsion of this bark could control high blood pressure and lowers down diabetes and chances of heart attacks. One kilogram of *bijalghanti* bark costs for Rs. 100/-. *Kathgua* is a special plum variety yielding plums of guava-size and again important for wood (similar to *kadam* tree). *Haritaki* and *boira* are such trees used in preparation of ethno-medicines mostly in Ayurvedic health practice. Litchi is best grown with *kamranga*;

whereas *amlaki* with *jalpai*. Black peach and tamarind could grow well side by side. Mango, jackfruit, zambura, guava, and beal (castor apple) are the fruits of summer-monsoon. Mangos are not however of good quality and mostly jungle variety with sour taste. Mango tree is source of wood apart from *lampati, eye-khanjan, jhujhunia, jhigni, pauri, korai, akanda*, etc. *Charka* and*kakshisha* are useful plants. Neem and ghoraneem are found here and there with few *jiga* and *polash* trees also.*Kamini*, *polash*, *champa*, *togor, shefali* and *kanchan* are different flowering plants. Wood yielding *gamari* and *segun* are planted as social forestry and have economic values. A ten year old plant could give fifteen to twenty thousand Indian rupees. Such plants could be grown up in a landfscape of 15 kathas as a social forestry at upland along the homestead. So, five such plants could be dealt as any insurance for any disease treatment or good source money for any social occasion (marriage, etc.).

This is also an ideal place for bay leaf, curry leaf and ginger-turmeric mixed yield. Also, other spices like coriander (*dhone*), peppercorn (*gol morich*), clove (*laung*), cardamom (*elach*) and cinnamon (*daruchini*) are present within the village but not as any production unit. Besides *dhone*, other ingredients grown at homestead and by the roadside are known as *radhuni* (or *phodon*) as well as *methi* (fenugreek); minute fruits and dried leaves of all these three plants are used in dishes. Bengalis in their dishes put *panch-phodon* which is a mixture of several spicy ingredients (e.g., white and black cumin seeds/ *sada* and *kalo jeera*, fenugreek seeds/*methi*, fennel seeds/*mauri* and *radhuni*). Here, in Dhangdhinguri mostly *methi* and *radhuni* are used to bring taste in vegetable dishes. Four to five *radhuni* plants are adequate for a family of 4-5 members. A plant can continuously provide the spice for 4-5 years. Wild clove or *jangli laung* also grows reluctantly within the stubble divider or *aal* in the paddy fields. However, turmeric is yielded in many courtyards.

This highland area is also used for propagation of jute seeds. Tip of the **jute** plant of 100-120 days age ready for extracting the fibers from the stem is cut off obliquely and planted in post-monsoon time on a dry pond bed with some moisture in the soil; good manure of organic type is often applied; place is slightly shadowed by medium-big tree plants; jute twigs grow faster and yield seeds for the next season. Generally, the jute variety is locally known as *mesta* or sweet or *sona* producing long fibers.

Some water weeds like *trapa* or ***jalsingara*** are also planted in low-level local water bodies in rows as they are sowed in late autumn when there is little moisture in air and hot days are coming. Often power tiller and dunkel plough is applied in the pond waterbed. *Jalsingara* is not generally cultivated as the locally available ponds are meant for fishing.*Jalsingara* hydrophytes contain spine and as a result of that netting becomes much more difficult.

Onion and **garlic** yields are not so far up to the mark. These are widely cultivated in nearby Baneshwar. However, garlic of big size varieties is cultivated in such dried ditches; both garlic and onion are harvested before rain is coming. Dried stuff of *kochuripana* and other hydrophytes are used as manure. Actually, residue of the entire dried-up water ecosystem is involved in this. But this soil often becomes salty and hence this manure is not generally applied in the uplands.

These shallow ditches and pond sides are also the natural habitat of various **arum** species (*kochu*). Mainly *suji kochu*and *mann kochu* are grown here. Latter is generally consumed by common people. *Kala kochu*, *maulavi kochu*, etc. are other varieties that are not eaten here. However, arum here is also grown in kitchen garden or courtyard or under the shadow of this groove. Here, no commercial production of arum and extra pruning in this are noticed at all.

Crucial summer-**monsoon** vegetables that are yielded till late spring are not only potol, *karala*, and *jhinga*; but okra (*bhindi* or *dharosh*), various other gourds including *chalkumra* or bottle gourd as well as sweet gourd or *mistikumra*. Among other gourds, *chichinga* is locally cultivated in the village. One could use lattice or simply let these gourd plants creep in the soil. Sweet gourds need special care and manure to a good quantity; plant-to-plant distance is maximum here in comparison to other gourds and size only matters in this case.

Pumpkin is common in Dhangdhinguri upland. This has now been yielded twice a year (planted in monsoon and harvested upto winter; and again planted in after spring and harvested throughout autumn and even early summer). The most widely used variety of pumpkin is Shiva. In each mound or stubble, two pumpkin could be grown by seed germination. Good manure and regular irrigation in every five days are good setps for pumpkin cultivation. From a five katha area, in every week about fifty fruts could be

collected each of four to five Kg in weight. It needs four by four hand distances. Notable, well drainage system should be there. Water has to apply on the stubble or *mada* and not throughout the landscape. However, fruits need three months to come out. Snake gourd needs a five by five hands distance, whereas squash an eight by eight hands distance. these two are basically monsoon crops and could be cultivated along with pumpkin.

Luffa and **snake** gourd (commonly known as *jhinga* and *karala*) are such winter-autumn vegetables cultivable in the same field as mixed cropping. *Jhinga* needs an extra support of lattice, whereas *karala* or *karela* (snake or bitter gourd) is a simple creeper. Disease free condition and organic manure in the form of cow dung manure in adequacy could increase their yield and size.

Potol is mostly a monsoon vegetable indigenous to North Bengal and North East India; it is planted in early rains and yields could be got till pre-winter. Potol saplings are planted in winter and start yielding in late autumn, summer and maximum in the monsoons and a few also in spring and late spring. In the last days, quality and taste decrease to a considerable amount. Now, this potol is yielded twice in a year. Many peasants propagate this potol in winter also. They sow these new seeds in monsoon at a time when the monsoon variety is giving the maximum yield. This starts giving fruit vegetable in late spring, winter and autumn with decreasing yields till end of the summer. In this way, this potol is marketed throughout the year. One meter by one meter distance is held for both the cases (special local variety known as *rajirhat potol*).

Monsoon chilli production becomes costly not because of any extra manure or any irrigation purpose, but due to making of the bamboo lattice. In one Bigha, about seven to eight makla stout bamboos are needed each coating about INR 70-80 with an overall manufacturing coast of around four to five thousands. Which is why, many peasants are now using strong threads instead of metal ware for netting. The profit amount varies from year to year depending upon climate and diseases. In generally, monsoon chilli can give a net profit of Rs. 40,000-50,000/-. Radish is however directly sown in the prepared main farmland by scattering the seeds for both red and white varieties. An exclusive white variety of about 2-3 Kg weight is also cultivated that is used in restaurants and seeds in per hand are sown thrice (i.e., at two-figure distance each).

Potol and monsoon chilli could be grown separately or together in the same field. Potol is a creeper and chilli is a woody bust plant. However, both of them need external support in form of a well-built lattice. One meter by one meter gap for potol could be filled up by monsoon chilli plantation. Chilli plants are perennial, but potol has to be planted again in the next season. Manuring is also needed as usual. Timely irrigation is required on time. Mixed cropping provides greater yield from the same piece of land. Twigs of potol could also be consumed in curry. Dried and dead chilli plants are often used in fuel purpose. Winter chilli does not need any lattice and it is not cultivated together with winter potol. So, we can see monsoon chilli and potol are together cultivated; whereas winter chilli and potol are cultivated separately. Sometimes, winter potol is cultivated on the same ground holding the system of monsoon potol and monsoon chilli. When the annual monsoon potol dies out, winter potol starts yielding and perennial monsoon chilli plants stay the same. However, winter chilli variety (if cultivated) is grown on a separate land (if available). One could yield potol twice and monsoon chilli at the same land, but winter chilli needs extra land. However, that extra land could be used for any other type of mixed cropping with winter vegetables of one's own choice.

Brinjal is planted in early winter and if diseases are restricted, then a maximum seven times yield could be expected till the monsoon. Three months after sowing the seeds in early winter, a fully bloomed brinjal plant is started yielding its product. Generally, harvesting is done with a gap of 7-10 days. Like chilli plant, it is also woody shrub in texture. Brinjal fruit of both elongated and round types are cultivated here. Brinjal is generally affected by various diseases and the most severe of them is the attacks on leaf, untimely shedding off of flowering inflorescence, leaf curling, pathogen attacks in roots, and fruit borer. For procurement, ash is traditionally used. Micronutrients like boron and zinc are used here good for flowering and foliage. NPK is also applied here. Nitrogen application can be controlled. One could use cow dung and rotten leaves or the vermicompopst for a better yield. Foliar spray of micronutrients would be a better option. The affected plants or plant parts are to be removed, buried under the ground and even burnt. Lime is added to the soil to maintain the acidity. Apart from different pesticides applied after consultation with agronomists, azadirechta oil, its cake and even its watery emulsion with organic fertilizer can be applied here. Weeding and seed treatment are also

very important. Hybrid brinjal seeds are also available in the market. Mustard cake is good for its cropping system as this is also valid in case of monsoon chilli-potol mixed cultivation.

Indophil M 45 is a common pesticide applied at a rate of 20 ml in a 15-liter water tank and sprayed on the plants uniformly. Also *Astha* is applied measuring 15 gram. Rogor is sprayed on brinjal and pumpkin. In every cultivation, cow dung fertilizer is common organic manure. It is applied generally before cropping. Compost or *chapan* (that might be the vermicompost) is applied for minimum two times during a single cropping. Manure should be applied in a scattering manner and mostly by hands. It depends on crop, informal experiment, farmer's choice and agronomist's advice. Pesticides and herbicides are applied before cropping, during sowing and twice a month in every month. This spraying is controlled during harvesting. Cow dung and weeding are common in nursery. Organic way of seed treatment is often followed. Costlier processes of cultivations are often met with chemical fertilizers and pesticides in farms; but this is criticized for a fertility decline of the entire cropping system.

Sosha or **cucumber** is another important monsoon vegetable, but with no fixed prediction of profit or loss and therefore many do not show any interest in cultivating it. Two types of cucumber are usually cultivated. One that is sowed for monsoon is local variety, whereas the other planted in late spring is known as *malani* or *mico* recently introduced. The local monsoon variety is actually planted in late autumn-summer or at the beginning of monsoon and provides fruits for the whole season followed by spring and late spring. Ideal weather of seed germination is when dryness of the winter season is over and there is bit moisture in weather condition. A little irrigation in hot humid summer and some mild rains of per-monsoon are essential. That would not then let the soil dry out and keep free from cluster. Cucumber needs sandy soil and at a time it is grown on the sands of river bed along with watermelon. A bed prepared by sand and paddy straw is often built up on the soil. Bright sunlight is however essential for flowering. White hairy texture of fruit is the indication that the fruit is now edible. Harvesting is generally done in very 2 days interval and initiates from monsoon. Fruits of five to seven days age are generally marketed. At the end of spring, some fruits are let to grow for a month and seeds are generally collected for the next season. Like okra and

monsoon chilli, this herbaceous plant also needs lattice that could be raised up to a maximum height of five feet. Local variety is capable of yielding 20-25 Kg cucumber per Bigha. Fruits are here slender and with pointed tip. It often looks brownish with yellowish leaves and yellow flowers. The late spring variety is cultivable at the same time of pea and mustard cultivations. Local variety is juicier than the introduced spring variety which is however more thicker with lesser seeds. This late spring variety is more resistant to disease spread. It could be cultivated along with mustard and spinach. This**cucumber-mustard** mixed cultivation of winter could be further diversified with side cropping of turmeric. Vermicompost and banana trunk could be applied in the form of manure. Actually, the local monsoon variety needs extra care in terms of seed treatment, saplings, attack of the beetles and manuring. Seeds are advised to treat withbavistin solution for the whole night or for five hours under shade and then sun-dried. Seeds are further advised to be planted in plastic bag of two finger diameter. Three to four seeds could be planted at the center of the polybag, but only one creeper is selected. Unlike okra or *dharosh*, side branches of the plant are to be cut off regularly. These cuttings collected from both lattice and base portion could be used for vegetative propagation. This seedling could be directly transplanted in the field, or still cared off in earthen pot of medium size earthen pot (four finger diameter). In field, a well-built lattice is to be constructed. Rotten cow dung and vermicompost are to be applied in the field. In polybag and pot, such manures are also to be applied. Controlled use of ash, NPK, azadirechta cake and its watery emulsion are some other necessary things. Cucumber is not suitable for propagating in a plot with any nitrogen fixing plant like pulses. NPK should be applied in such a ration that nitrogen should be controlled (like 10:26). Azadirechta oil or its cake and other organic manure with its watery emulsion as well as ash are good for plant health. Before the cropping process begins, soil has to be treated with lime to reduce acidity best for preventing pathogen and harmful insects. Micronutrient boron is good for flowering. But such an intensive care for the monsoon variety is costly, and this capital could be applied in other cultivations. This is actually happening in Dhangdhinguri village. This place was previously a forestland and this Harodanga River was more active- lower portion held for paddy and jute were sandy grassland with clayey soil. They are the farmers who have improved this lowland by adding more clay and loam. They appointed labourers and paid

enormous attention in order to improve this area into a fertile cropland for paddy and jute. Till now, a dig of one to two hands in places would bring out sandy soil ideal for cucumber local varieties if cultivated with extra effort. When the winter variety is increasingly more cultivated, the monsoon type is being less used.

Common **winter crops** are potato, radish, cabbage, cauliflower, carrot and tomato. These are cultivated together in mixed cropping and also as side cropping or even at alley cropping. Organic manure is applied. Beans including *shim*and *borboti* are also started cultivating as winter crop to the place. A few experimentally cultivate pea in winter and they are quite successful. Vegetables are grown so reluctantly that other winter crops like gram, *musur* pulse, *maskalai*pulse, maize and wheat are severe neglected and there is absolutely no trace of tobacco cultivation at Dhangdhinguri. However, using shallow pumps and power tillers and at the riverside lowland (*dola jomi*) of Harodanga water system,*bodo* winter paddy variety is cultivated yielding in autumn-summer (depending on weather temperature and day duration in winter).

Actually, monsoon vegetables are followed by **radish** which is then by potato and finally by winter chilli. It is one kind of crop rotation in vegetable cultivation.

Potatoes are of brown (*badami*), white (*sada*), red (*lal*), *kupri* (or *chupra*), and *lalgolap* varieties. These all are cultivable and propagated mostly in winter. White and red varieties are the most profound in use. The brown variety is actually local. Agriculturists store the potato or buy then from market and then cut them into such pieces so that one should contain 2-3 buds in order to develop into a full bloom plant. In a 15 katha land piece for potato yield, about two kilogram of NPK fertilizer is to be added.

Interesting to see this that the peasants of Dhangdhinguri generally choose one hand by 1.5 hand distance for**cabbage** (also one hand by two hands), one hand by one hand for **cauliflower** (also 1.5 hand by 1.5 hand in addition to extra 2-3 Kg organic manure), one hand by two fingers for **turmeric** and 1.5 hand by 1.5 hand for winter sown **chilli**or *bua morich* or *birili morich* (as against one hand by one hand for monsoon **chilli** or *borshali morich* with an extra support of bamboo lattice). Before transplanting the sapling, care is taken well in the nursery bed where seeds could be unevenly scattered or sown with a one finger tip distance (in latter case, stems are well-built). Monsoon chilli is planted in winter with continuous yield in summer-monsoon-

spring-late spring. Similarly, winter chilli sapling is planted in monsoon and provides its yield in late spring-winter-autumn-summer. *Dhani*, *akashi* and *siti* variety are unusual to Dhangdhinguri. First one is of small size, second one of medium size and directed erectly upwards and third one is actually hot red chilly of big size. The last one is exclusive to Dinajpur Indo-Bangladesh region whose western part has been fallen in North Bengal but on the western side of Barindland-Dinajpur ridge-cum-watershed (continuous with Rajshahi-Malda marshland-plain area). This variety of chilli is grown in Uttar Dinajpur and Dakshin Dinajpur cum some pockets of Malda districts of North Bengal directed towards Mahananda-Ganges river system as against Teesta-Torsa-Raidak water system of Jalpaiguri-Cooch Behar on the other side of the ridge-cum-watershed. *Ol* or elephant big foot yam is an important element and quite natural to this groove. *Ol* is mostly held for side cropping. However, few years earlier this crop was tried on commercial basis. Now, this is mostly practiced in foothill regions and also some pockets in Siliguri-Jalpaiguri watershed areas incorporating Mekhliganj block and few other parts of Cooch Behar. Arum and this***Ol*** are also tried by Adivasi people. It is generally cultivated by planting its eyes (buds) at three hands by three hands distance, Once, sugarcane was also grown reluctantly in the region.

In all the cases, organic manure of dried cow dung, ash, rotten leaf manure, and water emulsion of **ghoraneem** (other variety of *Azadirechta*) are used along with locally manufactured vermicompost. Potato and elephant foot yam also need NPK. The buds are generally directly sowed and not much hamper is till date noticed as a result of any pathogenic attack. Most of the peasants involved in potato cultivation to not follow seed treatment. They say that seeds (or potato eyes) with and without effective treatment could not resist much the pathogens. *Trichoderma viridii,* dithine and carbendazim are often used. Dithine is generally used for quick seed treatment within 15-20 minutes. In one liter water, one gram carbendagim is to be added and then in this solution, these seeds are to be soaked in shade. This is fully a scientific process. This is the main problem for these peasants as there are measurement problem and no clear idea about the quantity of eyes to be treated at a time.

A minimum of 5-10 katha land can be used for **mustard** cultivation, but for self-consumption. It might be cultivated in lowland before paddy or afterwards. So, another

crop rotation of monsoon paddy-mustard-other product-monsoon paddy exists as well (that 'other product' might be winter paddy or jute; some other alternatives are tobacco, pulse, cashew, wheat, winter maize, potato and winter vegetable). This mustard is the source of unrefined oil used by local people. It costs INR 6.00 per liter and even it is often sold outside @ INR 25.00. A few also propagate mustard in 2-3 bigha size of land during winter season for commercial purpose.

Many others rather prefer to cultivate **peas** in post-spring which is similarly in a crop rotation system between monsoon paddy and winter paddy. Peas and mustard increase the nitrogen in the soil as they naturally fix up nitrogen to the soil.

Tomato is not grown here as much as radish and potato. Some tomatos are being yielded in full winter as the seeds are sown at the beginning of winter. This could be grown up with some winter vegetables in mixed condition. It is of the same botanical family in which brinjal and potato belong to. Like cabbage seed bed- *dhemsi*, an important practice of*dhemsi* and tomato mixed propagation is often practiced. This could at least refund the ploughing coast as many marginal cultivators could not manage their own plough and bullock besides other agricultural expenditures like pump-set, power tiller, transportation and even fertilizer cum pesticide. Tomato cultivation on commercial basis is much costlier. For one Bigha tomato cultivation, it needs about eight Kg potash (murate of potash), five Kg urea and 20-25 Kg single super phosphate along with one van cow dung. This cow dung has to be well fermented for 10-15 days. Often good soil and micronutrients like *sohaga* or boron are applied into this cropping system. Plant to plant distance has to managed as two hands by two hands. Tomato could be cultivated with local leafy vegetables as well as radish and bitter gourd. Lattice could be constructed near about and pumpkin and beans could also be yielded. In some cases, the distance is managed as 1.5 by 1.5 hands and it is believed that in this way fruits could be made juicier. *Pana*or *kelna* of the pond (compost of marshland weeds and other hydrophytes) is often added to tomato yielding system one in a week. Fruits are generally collected in green condition and then by using formalin in liquid form are ripened. Artificially ripening tomatos in the courtyard are to be placed under direct sunlight. Time to time they could be marketed. Tomato is stated planting in late spring and it could provide good yield throughout winter and autumn. Abinash and Jhopa are good variety of its. Local

varieties are not too juicy and small in size. Less fertilizer should definitely hamper in yield, size, taste and quality of the crop. Tomato unlike brinjal is less affected by pathogens. Furadan is often applied on tomato.

Nowadays, **squash** is propagated along with pumpkin. Squash is previously yielded on hilly areas of Sikkim, Darjeelingand Bhutan areas. But here in Dhangdhinguri, it is now successfully growing by two non-Rajbanshi Bengali families. They are using the same lattice they have constructed so far for there pumpkin. Squash has to be sown at around eight by eight hands distance. The land held for squash cultivation could be also used for radish and *dhemsi*. It needs organic manure in successive amounts. Fruits are given maximum yield in monsoon. It could be also yielded with summer-monsoon gourds like bitter gourd that requires a five by five hands distance. bitter gourd-squash mixed monsoon cropland needs weeding at an interval of four days.

Coriander, spinach, *bathua*, *lafa*, *danta* and *dhemsi* are important and the most common **leafy vegetables** of winter.*Oshni* or *sushni* and *thankuni* or *manboni* are also grown in this upland without any preconditions and special care.*Oshni* is also curative in body pain and bitter *thankuni* in stomach problems. *Bathua* grown reluctantly in cropland without any sowing and it is both consumed and marketed after collecting them from land prepared for potato or radish. Potato-*bathua* mixed cultivation is economically profitable. *Bathua* shares water and organic manure with potato, but that is not so much harmful for this potato plantation. Rather than *bathua* with its broad leaves cover up the soil and do not let other useless and harmful weeds to grow up in the soil. Similarly, mustard is often cultivated in a mixture with broad leaved vegetable (*palong* or spinach).

In comparison to *bathua* or *bothua*, *lafa* cultivation is much costlier and needs more fertilizer, water and special care. *Lafa* is of two types- broad and small leaved. It grows best in the cow dung manure. *Lafa* can reason for getting cold and body automatically gives resistance to the dust during the thrashing of harvested paddy in late-spring. *Dhemsi* and *takpata* (oxalis) are completely different weeds, but used as leafy vegetables with sour taste. *Dhemsi* is generally grown up in fertile patches of cabbage nursery beds with close intensity with the saplings. Cabbage saplings grow up within 20 days and are then transplanted into the main field. So, *dhemsi* is a product of only one month. It is a by-product of seed bed and do not cause any harm to the seedlings growing

into the saplings. Along with cabbage in the mainland, brinjal is planted. Similarly with radish, *danta* leafy vegetable is cultivated in mixture. These two are the most common examples of mixed vegetable cultivation pf Cooch Behar district.

If we include rice and jute, the cropping system at Dhangdhinguri can be illustrated as winter rice-radish-brinjal-potato-cabbage and cauliflower-maximum yield of winter chilli and potol-various beans and leafy vegetables like coriander and lafa-mustard along with spinach-tomato-turmeric and ginger-garlic and aurum-winter paddy and jute-maximum yield of monsoon chilli and potol-pumpkin and other gourd. Within only a landscape of 8-10 Bighas, all these cultivations could be possible for both self-consumption and some marketing. More intensive agriculture is also possible that I have seen by some Bengali families there. Those who have less land for vegetable cultivation can produce radish, cabbage, cauliflower, a few mustard, spinach and brinjal in winter; but at summer various types of gourds and cucumber. If they could manage a small size lattice, beans of many types can be propagated in winter. If they possess a medium size landscape, they could construct a bigger lattice and additional cultivations of pumpkin in monsoon and winter, greater number of gourds, squash, potol and monsoon chilli could be yielded. Similarly, there would be a place for winter chilli and another yield of potol. In certain case, pumpkin for both the seasons may be the main crop along with additional radish in winter and chilli-potol system twice for whole of the year. Considering this as the core of the vegetable cultivation, many other vegetables for whole of the year and/or specific season plus leafy varieties could be propagated. For example, along with radish and local vegetable like *lalshak* or *danta*, two other winter systems like cabbage-brinjal and mustard-spinach could be developed.

Previously, **betel** leaf is also cultivated in this region but not under any *boroj* but within a *charkathi* system. A stout bamboo is broken into four halves each known as a *fali*. Such four halves are used to construct a cone like structure. At the center of that structure, a hip of good soil from a fallow land or paddy land is set up. This is called building up of a *pala* or *dhip*. The spead or *kodal* is used here is generally known as *mati katar kursi*. More and more fertile soil is added to this *mada* or central hip as a climbing herb of betel is growing up there. As a plant grows, it is circulates the cone which is the *charkathi*- a structure built up on four sticks. Distance of *mada* to *mada* (the center point of

one*charkathi* to another) would be of minimum 1.5 hands. Again, the distance from one to another row would be 1.5 hands or a bit more. As the plant increases in length, it would circulate around the *charkathi* structure. New leaves are collected from the plant climbing over this *charkathi*. To save, these plants from direct heat, tips of the *charkathis* are joined by a single large bamboo or more than one tied up one after another. This bamboo may not be entire but halved into two shafts. When all the tips are connected by these elongated bamboo shafts, a rectangular structure is in form. This structure is then shaded with other bamboo strips and dry long grasses like *kashia* and *elu* grown on local riverbed sandy soil. Brown patches and strips could be found of betel leaves with the beginning of pre-monsoon rains. One percent bordo mixture is to be applied on the plants. *Trichoderma veridii* and *Pseudomonas* fluorescents of 5 gram are advised to apply with cow dung and water emulsion of azadirechta cake (neem cake) for two days with a fifteen interval. Neem oil is also to be sprayed after consulting with the agronomists. Fruit trap is also used ton control over insects. But application of neem and its products often with organic manure are the best ways of pest control and provide the plant more resistance power. Weeds inside and surrounding areas are to be cleaned up. Light and air to be passed in through the grass shade. Leaf extract of tobacco leaf extract can also be applied. Lime is often applied to control the soil acidity. But that is a pre-plantation process. Even the soil with lime and cow dung manure can be wrapped with a plastic sheet. In this way, soil treatment is done without direct contact with air. The sheet may be opened in every weekend and soaked with a little water and then again covered in thwe similar manner. This could continue for a month. Often paddy straws are added during this soil processing. Other pesticides could also be applied, but after but only ten days after the neem oil application. Now-a-day, betel leaf propagation in Dhandhinguri has been completely lost. In a few neighbouring villages, this is done but within *boroj* made up either of bamboo and concrete poles with similar shade including jute sticks.

An exclusive climbing gourd is *garya* or ***dhundhul*** that in young condition is sweet to eat. In later stage, this fruit internally becomes very much fibrous and used as alternative to sponge during bathing. It is a roadside by product but very important.

Cow dung and vermicompost are two important modes of manuring. In addition NPK is added in the soil. Ash and neem oil are important pesticides. Ash is locally produced. Potash and urea are added to the plants. In paddy cultivation, what are mostly applied to this area are 10:26 and potash. Jute is sowed in late autumn and within four months (120 days), it become prepared for fiber extract in early monsoon. Water of the early monsoon ponds are used to dip these fibrous stems and then in clean water flow of Haodanga is used to extract the inner fibers from the stem that turns it into a hollow stick or *patkathi*. Mancozeb, bavistine and microorganism *Trichoderma viridii* water emulsion are used as pesticides and in order to fertile the soil.

Besides jute and paddy along with various types of vegetables in upland and dried pond bed, a garden of **citrus** plants can be managed there by the side cow shade and social forestry of fruit-bamboo-medicine-wood yielding plants. A citrus plant generally starts yielding fruits from the second year, but fruits should be collected from the third year. If it is from a good cutting, fruits would come in the first year and that could be marketed from beginning. It could be a good source of income however varying on the basis of its quality, age, season, infection, number of plants in the garden, etc.

A seven Bigha of land could be utilized like this: three Bighas cabbage-brinjal, cauliflower-radish-leafy vegetable along with monsoon chilli and jhinga-karala system apart from ginger-turmeric-banana as upland; and at the same time, paddy and jute along with pluses in lowland on rest four Bighas. As the monsoon variety any hybrid *swarna* paddy along with local strains are cultivable followed by pulses like *musur* or *kalai* in late spring-winter-autumn and then jute for autumn to early monsoons completing the cropping year of the lowland overall. Monsoon chilli could provide a maximum profit of Rs 180/- per kilogram, whereas from four Bigha lowland rice and jute could give the yield of 40-50 maund and 10-12 maunnds respectively. If additional to this, further four Bighas are granted that would be best for bamboo and areca nut propagation. If the land amount is less than four Bighas, then paddy is better for cultivation along with half to one Bigha held for potato and ally cropping of ginger-turmeric. If the person goes to other work or leases seasonally his land to big landholder cultivating there as share cropper or even serves as an agricultural labourer, he can fallow his land or make it in use for alternative cultivation of mustard rather than costly pluses,

wheat, etc. the person can also grow winter vegetables rather than winter paddy depending upon the nature of the soil

Traditionally, carrot and beat are commercially cultivated along with leafy vegetables like spinach, *bathua* and *lafa* in winter now followed by radish, cabbage, cauliflower, winter chilli and seedlings of brinjal. In the monsoon, this brinjal yields regularly apart from monsoon chilli, okra, arum and potol. Before that summer-monsoon crops mean only jute and monsoon paddy (*amon*). *Masuri*, *paijam* and *chikon* are some indigenous monsoon variety of paddies. *Jaldhepa*,*buchi*, *pakri*, *dudhkolom* and *dharial* are some other paddy variety. Winter paddy or *boro* is locally known as china rice. Gourd, potol and occasionally cucumber could be yielded twice a year and therefore yielding the crops throughout the year. In case of these twice yielding crops and vegetables for the entire year, seeds are not chosen from the immediate harvest, but of the earlier season. This is a common thought that if the seeds are kept in storage for long, which would deteriorate the entire cropping system in successive periods. This is mostly applicable on radish and cabbage. Generally, a minimum of two to three times irrigation is needed each month for a crop in dry season.

More intensive cropping is also quite possible. Four types of potato could be grown along with *dhemsi* and mustard-spinach set up. Again, mustard could be cultivated as side cropping with potol and citrus. Radish could be intercropped with alternative rows of potol. In that case, radish is to be planted at very closer distance (less than half hand gap) and radish row has to be raised high to avoid any type of rotting in the stem portion. Potol with a plant-to-plant distance of five hands forms the alternate row in-between two upraised radish rows. This row of potol also serves as the irrigation canal. Areca could be cultivated along with papaya and coconut. Similar alternative cultivation could also be applied to patches of cabbage, brinjal, coriander, spinach, fenugreek, dhemsi and spinach (both cultivable also with mustard), radish and lafa, and potato cum other leafy vegetables. Pongside areas are good for bananas, yam, ginger, turmeric, arum and types of bean plants on lattice even constructed on pond-side water. Cucumber in lowland could be cultivated with alternative patches of onion and garlic. This could be further accompanied with *lafa* alternative with other vegetables like red amaranth and amaranth (*lalshak* and *dantashak*). In riverside areas, jute and paddy are good for winter along with

winter maize and wheat at the mid-height region and potato along with mustard and other leafy vegetables at the upland zone. Again lowland areas filled up with wastage compost of local hydrophytes of larger water bodies could be used for winter pumpkin singularly with regular weeding and support of a lattice.

People of Dhangdhinguri are really good in using their natural resources in terms of the grove and agriculture in different seasons.

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[1] IK is the information gathered by local people close to nature and as a generationwise process that they could further improve by trial and error methods during their informal experiments outside the lab. That would be a kind of ethno-science and facts so far found on the basis of assumption are not scientifically proved but widely believed. They are preserved by adding them with fear, faith and belief system (cultural values and social norms). In this way, IK traits become non-functional and therefore stable. Often a phrase like religious laboratory of survival or the unwritten book of culture is used in this.

[2] The cognate of IK in response to social, economic, political and religious matters could be coined as the IKS.

Rajbanshis in Agriculture: Pilot study in Lachka-Baunibhuta

Baunibhita-Lachka is a fully rural area; it is an overlap of Naxalbari and Matigara developmental blocks. Lachka River is flowing in this area. The land is an upland region and origin of some local water flows. It is absolutely sub-Himalayan Terai region. Naxalbari and Matigara along with Kharibari and Phansidewa are the four blocks of Siliguri subdivision. This subdivision is also known as the Siliguri Terai and located within Mechi-Mahananda basin. Naxalbari and Kharibari blocks are adjacent with Mechi River along the Indo-Nepal international borderline. On the other hand, Matigara and Phansidewa blocks are associated with Mahananda-Balasan waterways. Matigara is associated with Siliguri Municipal Corporation (SMC) and neighbouring Jalpaiguri district (Rajganj block). Phansidewa has further shared international border with

Panchagarh district of Bangladesh; this particular Indo-Bangladesh border is demarked by Mahananda River.

Balasan, Mechi and Mahananda are originated further north from Kurseong subdivision. This subdivision along with Darjeeling Sadar and Kalimpong subdivision are part of the Himalayas. These three Himalayan subdivisions are commonly treated as the Darjeeling hill. The latter along with Siliguri Terai subdivision together are treated as the Darjeeling district.

Darjeeling hill is actually the lower portion of Sikkim Himalaya where the Sikkim state is located. From north to south, we can have Sikkim Himalaya, Darjeeling hill, and Siliguri Terai. This is therefore a north-south continuation of Sikkim state and Darjeeling district of today.

Mechi-Mahananda basin of Siliguri Terai is extended further south in Thakurganj district of Bihar state of India. Both Siliguri subdivision and Thakurganj district share international border with Jhapa district of Nepal. These three regions at a time were known as the Morang. So, we could imagine a continuation of Sikkim and Morang.

So, this Baunibhita-Lachka pocket on Lachla Rivulet falls under the continuation of Sikkim Himalayas-Darjeeling hills-Siliguri Terai-Thakurganj (or Sikkim state-Morang).

This Siliguri subdivision or Siliguri Terai or ancient Morang containing Baunibhita-Lachka pocket is situated within Nepal and Bangladesh as two independent countries westwards and eastwards respectively. Again, Siliguri subdivision and Jalpaiguri district also serve as the only link between mainland India and North East India. Siliguri subdivision is also crucial for road connectivity with Himalayan state Sikkim and Himalayan country of Bhutan with mainland India. There were many such roadways between mainland India and the set of North East India plus Bhutan. But, these all are now fallen into Bangladesh. So, extra emphasis has been given to one and only connectivity through Siliguri subdivision. It is also important for the connectivity with Sikkim. It is also on the way to reach Chumbi valley surrounded by Kalimpong , Sikkim, Bhutan and Tibet. Chumbi valley now falling under Tibet Autonomous Territory of China therefore further increases the importance of Siliguri subdivision. It is a crucial geo-political region. It is also a prime trade route. It is also connected directly with Bihar and Nepal. Phulbari is a land port for Indo-Bangladesh trade and situated at Rajganj

block area of neighbouring Jalpaiguri. Many government establishments, military and paramilitary divisions, forest department, tea estates, Teesta canal and small scale power houses, peri-urban belt of SMC, new townships like Bairatishal and Upper Bagdogra, rururban areas, factories, rail stations, Bagdogra airport, university, hospital, colleges, schools and various private institutions are located in this area. Entire Siliguri subdivision falls under Siliguri Jalpaiguri Development Authority (SJDA). Which is why, this multiple connectivity provides various alternative opportunities to the local people and serves as the main cause of in-migration of so many people from within and outside the state. Many immigrants and emigrants are also akin to the place.

Till now there are peoples attached with settled agriculture and using indigenous knowledge (IK) stored inside the indigenous knowledge system (IKS) as their culture and cognate. IK is developed through generationwise accumulation of knowledge, informal experimentation, trial and error method, intimate understanding of nature. IKS is related to religious laboratory of survival, folk life and oral traditions. IKS illustrates how the traditional mode(s) of production organizes social, economic, political and religious institutions. Baunibhita-Lachka is not any exception to this.

Mech and Dhimal are two important indigenous communities of Siliguri subdivision with a concentration in Naxalbari block. Rajbanshis are also indigenous, but fall under Hindu caste groups. They are the traditional settled cultivators of this entire subdivision. Some sections of this Rajbanshis have converted into Islam and they are often treated as Nashya Seikh.

People here in Baunibhita-Lachka belong to different ethnic groups. They are Rajbanshis, Nepalis, Bengalis and Adivasis. Among the Adivasis, the most crucial are Munda, Oraon and Santhal (also Santals). People here could talk and understand one another languages and dialects. They can also talk in Hindi to some amount. Bengalis converse in Rajbanshi dialect and Rajbanshis also talk in Bengali. There is army camp in Lachka village. Baunibhita is close to Panthabari forest where again several factories, tea estates and army camps are situated nearby. This area has a sandy loamy texture and also an upland nature. Within Baunibhita, there fall Tarabari and Dhemal. Few Dhemals are still living in Dhemal who are traditionally pastoralists and staying in and around jungles of Terai region. Dhimals though have severely marginalized and Nepalis have growing number in

Tarabari-Dhemal region, but the pastoral mode of production still exists in the region. Baunibhita falling under Naxalbari block put emphasis on this pastoralism. People belonging to any community wish to maintain cow. Adivasis used to raise piggery. Hens and ducks are available in this village area. As much as ten to twelve cows could be raised in a family. Cows are fed with grasses available in local ground. Also they are served with paddy straw and other nutrients. Cattle are however raised here for subsistence. Indigenous varieties are mostly available here and kept inside traditional cowsheds. One to two liter of milk is generally collected from each cow, which is very low in comparison to a jersey cross. Basically, the cow dung is tried into fuel cakes as there is only one supply center of fuelwood in Baunibhita. Cattle are also raised by the army camps where each cow gives seven to ten liter of milk. Special grass is also propagated in the marshland used by the camps. Outsiders are not allowed to go inside the army areas; however army knows well about the local herdsmen.

University of North Bengal campus is very nearer to this Lachka. Local villagers often take lessons on how to cultivate mushroom, ornamental fishes, tea plantation, rubber plantation, social forestry, floriculture and medicinal plants.

High tension electric lines are passed through the Baunibhita-Lachka paddy fields. Local peasants are of opinion that the places around the electric posts could not yield much crop and even it could deliver some bad effects on the health of human and cattle. Which is why, the price value of such landscapes is bit lower than other areas. This electricity from Teesta water canal project is supplied to the factories situated at further interior region. Factories are mostly tea factory, trunk factory and hosiery factory.

Many people work as day labour in others' agricultural field and also as wage labour. Wage labourers are appointed by contractors. From road construction to building construction are different works where these labourers are deployed with different wage scale that might vary from Rs. 100-300/-.

Baunibhita has a primary healthcare center and also a primary school. School education is in Bengali medium. Pupils go to Upper Bagdogra and Bairatishal for high school education. In Tarabari, a junior secondary school up to class VIII has been built so far. There are other primary schools in Lachka. Missionaries have established schools next to the university campus. Some send their children in Army schools also. Pitch road has

been so far constructed in this countryside that was not so good a decade ago. At that time, roads were built up of stone chips. Villagers used to go to their agricultural fields with traditional large hats that protected them from rains and heat waves. Herdsmen at that time spent whole of the day in the field with their cattle. They took rest in the shadow of bamboo bush and eat potatoes and yams.

Other alternative income sources are bamboo, wood yielding plants and areca. Bamboo is of two types. Bamboo with lesser diameter is used for fencing. Makla bamboo is thicker and used in thatching purpose. Fences are also made up of dry areca leaves, dry sticks and jute sticks in a bamboo frame. At a time, there were big patches of bamboo bushes. Wood of kadam tree is used for domestic purposes. Some however raise teak plantation that are far more valuable. Logging of such plants needs letter from the village panchayet (local village-level governing body) and forest department.

Agricultural production is here low; therefore people have to go outside in search of job. Many are in carpentry and again involved in other factory works and construction business. Land is an important property here and sold to the outsiders as well as hand to hand among the localities. People are demanding for infrastructure in their villages and work in the sectors under various government schemes. There are constructions inside the army camps also (such as housing and water tanks). Land selling is another source of income here. A small scale tea plantation can be seen in New Lachka.

Baunibhita-Lachka region yields paddy at a time in the year. This is the monsoon paddy locally called as the Amon. Basically, Swarna variety is yielded here. Traditional variety like bhogdhan is seldom cultivated for self consumption. For a land of one bigha rise yield, two katha size of land is taken for seedlings. Seed amount varies from seven to eight Kg. It is better if the seeds are treated and set free from fungus. Carbendazim two grams are mixed up with one Kg paddy seed in 1.5 liter water for about ten to twelve hours. Seed treatment can also be done through Trichoderma viridii. About four to five gram mold of this TV has to be added in 1.5 liter water for one Kg seed. The riverside zone or marshland with sandy-clayey soil is generally preferred for paddy seedlings. This is first ploughed well and weeding is done properly. It is leveled well by using a ladder and good if organic manure is added to this. In one katha land, three to four Kg vermicompost is good enough. Seeds are spread unevenly in the muddy soil of first

monsoon. Seedlings come out quickly. Weeding is necessary here. Water should not stay in the nursery. Softness in the soil is necessary. If for any reason soil becomes dry, it would need regular drenching by water irrigation. Two to three inches level of water has to be maintained. Regular weeding is needed. Weeds are to be uprooted and burnt before flowers appear. Grasses have also to be removed or pasted by foot. NPK and organic manure are necessary here. For seven to eight Kg paddy seeds in two katha nursery; what are needed to apply about15 days before are four Kg single super phosphate and 1.5 Kg urea and one Kg murate of potash (along with six to eight Kg organic manure). In this case, brown spots or blight could appear on leaf. For procurement of this, neem cake could be applied. This is called khoira disease. Neem oil can also be sprayed on the leaves. If cow dung manure is added to the soil, then that should be nearly ten times higher than the vermicompost. Generally 50-60 Kg dung manure could be applied five days before as an alternative of vermicompost and NPK. Cow dung manure could cause rotting of the plant base. Two Kg Trichoderma viridii could be again applied to this seed bed to get rid of this rotting due to this fungal infection. With growth, paddy seedlings are to be transplanted to new soil till they become saplings. Saplings are to be again transplanted in the main cropping land. Through sprayer Carbendazim could be applied one gram in one liter water solution on affected saplings a week ago before transplantation. Generally, SRI method of cultivation is followed here. Here, paddy seedlings are to be planted with 15 cm by 15 cm distance. In every point, two to three plants are generally sowed. After every eight to ten rows, there should be one row gap. That would permit the peasant to enter into his land and perform weeding easily. In this case also organic manure and NPK are more preferred now. Prior to this, dung manure was applied only. During preparation and leveling of the land, 25 Kg of Single Super Phosphate (SSP) along with half of half of nine Kg urea and 90 percent of total six Kg potash is to be applied. Saplings of a month age are then sowed in rows. Chemical herbicides within one week of sowing could be drenched to check the unnecessary weeds. Their range varies from 100-500 ml in 100 liter water solution for the whole one bigha land. Within 15 days after sowing, half of the 50 Kg vermicompost are to be added. After 30 days from sowing, rest half of the 50 Kg vermicompost along with rest half of nine Kg urea and ten percent of six Kg potash should be added. However, one Kg more potash

could be applied here. For procurement from insect attack, one should apply neem cake here during application of urea and potash. Neem oil can also be sprayed on leaves. Neem oil could be applied in order to prevent the attacks of harmful insects. It is a good insecticide also. There are other insecticides also available in the market. Some other herbicides could also be applied in later stage.

Once, ash is used to check the insects. A rotten fruit like bel (ageal) is used as a fruit trap in the ground. Sand from the riverside is used to control the growth of herbs in main cropping system. If still herbs appear, then they could be perished by foot and converted into organic substances. Paddy witting machine or single plough could be applied along the 15 inches gap in-between two rows. In paddy field or the footway stubbles (aal), medicinal herbs like thankuni or manboni often grow. In vest land, dandakalash and surjasisir grow here reluctantly. White variety of thankuni is too costly here and rare. Paddy-cum-fishing is however absent in Lachka-Baunibhita area.

In spring when the side growth or ears appears in paddy, blight causes sclerosis in hot humid climate. Affected paddy looks like straw. Here also Carbendazim or other recommended pesticides should be applied. Otherwise, the microbe would stop the side growth and reduce the production to about 25 to 30 percent. And this is the main problem in Lachka-Baunibhita pocket. Maximum production of Swarna per Bigha rises up to 10-14 Mounds against 16-18 Mound in Jalpaiguri and Cooch Behar.

Harvesting is done within late-Spring followed by thrashing, winnowing, sun treatment under clear winter sky, and storage in jute bags. These things are mainly performed within the courtyard and by women.

It is a general tendency here in Lachka-Baunibhita that the paddy land is fallowed for entire winter season. They do not cultivate any maize or wheat or pulses or potato or winter paddy that is usually known as boro. In this way, they destroy the lifecycle of the pests. Fallowing is here considered as a process of pest control and restoration of soil fertility. In this way, a peasant without much using Carbendazim can get an average of ten Maund of monsoon paddy as the net yield. The paddy straws are equally important. Dried paddy straws are treated as khor which is an important cattle fodder. Therefore the cropping system is here as such: monsoon paddy-fallowing cum cattle raring.

The paddy is for self consumption and sometimes the surplus amount is marketed. Bhogdhan is also cultivated in a patch and it is used during special occasion. This paddy grains may be golden or black in colour. The black bhogdhan is treated as kalo nunia or black nunia. Seldom, this bhogdhan is cultivated for commercial purpose and sold in the market at a higher price. This price values depends on market. Bhogdhan is basically famous for its sweet essence.

Rajbanshis now go to rice mills to decoat this harvested paddy. The rice they get from the mill is without the nutritious cotyledon part. This is the khud and the decoated seed coat is known as bhusi. Both of these items are used in cattle fodder. Some Rajbanshis still prefer rice grains to be decoated in their traditional husking machine. That might be an wooden log or a foot-driven wooden paddle. By this wooden beam or paddle, paddy grains are beaten in an earthen hole and in this way through a controlled process, rice is husked. This type of husking process needs two persons- one involved in husking or paddling, whereas other putting in paddy and removing out rice from the hole. Many still prefer to pray to the husking machine and other agricultural tools before taking any initiative. During yearly worship Kali or Laxmi, both being Mother Goddesses and fertility cults, not only the Rajbanshis but all the Hindu and Adivasi community members used to pray to their cattle, cattle shed and agricultural implements. This is an annual occasion is late-Spring and within the winter thrashing and stock raising are made completed. Production of paddy in this way still remains the core of the Rajbanshi agrarian society and such annual festivals as the symbols of this production unit and cognate as well.

In Cooch Behar, I have found a specific custom where the peasants used to go in the paddy field at night during the Spring season. The male head of the family cuts a bunch of paddy and takes back this into home. They collect the paddy grains and make rice of it and consume the same. This is a tasting process. In case of indigenous varieties, they keep these grains in form of seeds. They do this before side growth in the form of ears initiates. They call it as Lokhir Dak. It is also worship to the Mother Goddess Laxmi. Laxmi is the Goddess of paddy. Laxmi is associated with the animate of owl that is called Laxmipencha or Pencha (owl) of Mother Laxmi. This bird is nocturnal and hunts rats that could cause harn to the ripen paddy grains. After harvesting, the remaining paddy grains

fallen here and there as wastage is however collected by these rats and mice in their subterranean holes. Rat soil is a good preservative of paddy, however in these days this has no use. Paddy stock is usually kept in jute bags. In earlier days, these are stored in a huge basket made up of Makla bamboo thatches plastered with cow dung. Dry leaves of neem (margosa), mango, chilli pepper, tobacco, bel (ageal) and/or erenda (life plant) are used as natural preservatives inside this dhaner gola or traditional storage system of paddy. Here in Lachka such storage systems used to be there, but now-a-days people with small pieces of lands and even nuclear families (separate hearth) are more using the jute bags.

In winter season, local Rajbanshis of Lachka-Baunibhita cultivate various vegetables but in their kitchen garden. They do not go to the crop field. They let the land for fallowing and grazing. In this way, they unintentionally and informally do pest control. This is a cost free technique of pest control. They get another benefit from doing so. Cattle in grazing land do not enter into the kitchen garden and in this way; the cost of fencing is reduced to a considerable amount. Rajbanshis also use joma or mukhuri to cover the mouth of their cattle. This is a small pocket that is tied up in the mouth of the cow. In this way, cattle could not destroy their kitchen garden. This mukhuri is basically made of bamboo strips and tied in the mouth with strong ropes. Animal loving organizations could protest against this type of behaviour with the cattle, but there are no other alternative ways. Cattle are not domesticated for commercial purpose only. They are treated as wealth and this consideration of cattle as one of the prime wealth is an indigenous concept of subsistent economy. Cattle breeding are performed at local level. Calves are not starved for extra income, rather considered as future assets. Various Vaishnava organizations are active in Lachka and Vaishnava sect in Hinduism is best known for cattle raring. This is directly linked up with the value for what the majority of Hindus avoid beef consumption. The cattle shed and feeding bowl are kept neat and clean. A cattle shed is situated just next to the house and close to hearth. Some Maithili Brahman families and other Bihari castes also live in nearby Bairatishal. These families used to raise buffalo, but this tendency is now lowering down. Cattle are bathed well with hose pipes. For that purpose, many use their tube wells at homestead. Cattle sheds are kept intact and constructed in such a manner so as to provide free passage for air and sunlight.

Both winter and monsoon vegetables are cultivated in due course. Along the winter vegetables, they take initiative steps for cultivation of monsoon vegetables. Similarly in spring when monsoon vegetables are showing a declining production, peasants take initiatives for winter production.

Jogesh Chandra Roy of Chhoto Lachla Jote in Lachka propagates this cabbage in completely organic ways. He applies vermicompost that he used to produce on his own. He has two vermicompost chambers in his court guard. He has told me that if one applies only cow dung manure, it would be about ten times than the vermicompost. So, he prefers to apply vermicompost more. In vermiconpost, he has to add cow dung along with ashes of the dry weeds, rotten organic matters, paddy straws, food waste, dry leaves and so many things. There these things are converted into compost by using earthworms. He has further compared this organic cultivation with the slow but steady process and too indigenous and natural to be compared with Gandhism. He belongs to the Rajbanshi community. Jogesh (43) and his father Manindra Nath Roy (62) are renowned for small-scale farming. He has own many prizes at block level and subdivision stage in agriculture oriented quiz competitions. He has worked in medicinal plantation of the university also. His family is also invited in Jalpaiguri division for agricultural meet. He has told me that one can increase the size of the cabbage to a maximum of ten Kg, but for that special care is to be taken. The gap between plants has proportionately linked up with the size of the bud. A cabbage of 5 Kg size may have demand in hotels, hospitals and even jail. But, depending on market demand where most of the buyers now belong to nuclear families, they are producing cabbage of the size varying from 800 gram to one kilogram. He showed me that the leaves within the bud are much thicker than the hybrid quality. It takes more than seventy days, whereas in this time span one could deliver the vegetables to the market. He generally prefers the Bagdorga Haat (vegetable mart) twice in every week (Sunday and Thursday). Till the cabbage is not fully grown, he would sell palong (spinach) and lafa (lafa) regularly in the market. The reason he has told me behind the thicker leaves of the cabbage bud is only due to use organic manure. I have seen that local peasants feed their cows with these thicker leaves that usual buyer asks to remove them out. But this peasant of New Lachka is so close to nature that he further explains the reason to me. It is like a cell drum of a battery that has secured all the energy within the

carbon. Bud leaves are green and can do photosynthesis and store the energy inside the food they prepare and store within the cells. This is the main cause for what the leaves look thicker; its food value and nutrients are much higher than the cheap hybrid cabbage cultivated by using chemical fertilizers only. A poor battery can not run long and extracts its acid. A mosquito can suck up the blood in a much easier way if the skin is comparatively thinner. A bludder can be used as an outer shield and prevent external attacks. It is the stored food for the future plant. It is also like the medicine. Chemical fertilizers with excessive use and provide much yield, cheaper crop and attractive look. But eventually soil fertility here gets reduced. Such foods are not so natural and nutritious. Even they might contain any non-biodegradable toxic substance. It is like any express bus or train that could meet with an accident. He also yields gourd in summer-monsoon season. The inner portion of the gourd behaves like a womb and the moisture and nutritious portion there provides food to the seeds. So, concept of storage is a natural phenomenon (whether it is cabbage, gourd, coconut, fruits or the rat house).

Peasantry is probably the sector where on direct tax is held in India. One has just to pay the land revenue. Therefore, a rich man can also invest into this sector. Often a marginal peasant leases his land to a big farmer or plantation owner and can work as a wage labour or share cropper there. Inflation and price rise are creating such situations. Peasants are more emphasizing on alternative production systems. And among these, vegetable cultivation is the primmest associated with intercropping and mixed cropping. Jogesh Chandra Roy further states that there is another alternative of agricultural cooperative that could be run as a Self-Help Group (SHG). Even he gathers some youths of Baunibhita and Chhoto Lachka to build up a agro-based SHG. Such schemes can get fund under various government schemes like Swarnajayanti Swarojgar Yojna (SSY) that encourages unemployed youths to set up any self-employment organization. It is not like any public club. Wastage of money is strictly prohibited here. A person or a group has to open a bank account and deposit six thousand rupees and on the basis of that could get a lone of twenty four thousand rupees with lower interest rate. One could utilize this money in agriculture or a small piggery. This loan is however just an initiative. A loan of average one lakh rupees is good for set up of a poultry or piggery in a scientific way. Rajbanshis however do not rare rig here. Rather they are solely advocate for cattle like cow and

poultry of duck. Duck could be raised in local ponds and ditches further useable for mud catfishes. Often trapa or jalsingara grows automatically in the pond. Thorn of trapa could however create wounds on the fishes. Ducks are also raised on Lachka rivulet looking just like a stream at Baunibhita area. SSY is good for the landless people. Wasting of money would make them defaulter and they could not access any further loan from any nationalized bank. The main problem here is of irrigation. Here are small concrete embankments on the stream Lachka and there are some side canals also. But local peasants used to cut by-pass of these one fit embankments and which is why these have become quite useless. However, individual pump sets or in rent are available in this area. Electricity has also arrived in the village. A pump house is set inside the cropland of Jogesh and through tiny canals water could be supplied to a larger area.

Jogesh has further defined me the difference among some local terms defining the peasants. These terms are chasha, chashi and krishak. The first one is held for the entire peasant section. This chasa according to his own definition stands for the entire livelihood composed of nature, human and supernature. His statement is as follows “Ei Bishwabrahmander jatosob keetpatangadi evam pranadi jader upor kore asha tarai chasha”. It means that all the creatures of the universe expect on whom is the chasa. It is like a hymn that indicates to the entire creation whose integral part is the peasant, and on this peasantry depend a huge portion of this biodiversity. An agrarian system protects its ecosystem by virtue of feedbacks. This ecosystem indeed includes various microorganisms and insects coined by the term keetpatangadi. This also incorporates the entire flora and fauna of the nature and for them the term pranadi has been used so far. That biome also encompasses human beings irrespective of pre-agricultural, agricultural and post-agricultural performances. Therefore an ecosystem serves as a key factor for the entire social system.

Similarly, Jogesh defines me the meaning of Chashi. The latter is a person who is the key reason of the entire humanity and there lies another hymn “jader jonno amra benche aachhi tarai chashi”. A human society comprises of social, economic, political and religious institutions. From the aborigines to the westernized people all depend on these food growers who may be still using traditional mode of production or the modern one or even overlap of these two. Here, we can find out the application of the outcomes of

informal practices by an agriculturist, his traditional knowledge accumulated generationwise, understanding of nature and some scientific explanation plus applications. But everyone has hope on these food growers. Still agriculture is based on the hope. That may be hope for disease free condition, hope for regular seasonal activities, hope for good yield, hope for overcoming pathogen attacks and natural calamities. In this way, such proverbs or hymns automatically emerge out. These are also reflection of the cognate of Rajbanshi peasants where culture and religious beliefs are simultaneously involved. The month of November when the spring season ends and late-spring begins, dews are falling as a result of sudden fall of temperature but with humidity. That was the time of paddy harvest and sowing season of winter vegetables at nursery. Insects, rats and owls show increase in number. This is also the mating season of the insects. Fruit traps and other insecticides could not control this huge amount of insects. Many of these insects later cause harm to the vegetables like tomato and brinjal. Fruit borers are most harmful among these. Fire is set to attract these insects and destroy them to some extent. It is an indigenous way of pest control. This has been developed through informal experiment. This knowledge trait has attached to religious performances. During the worships of Laxmi and Kali in late spring, family head goes into the field and set fire at nightmare. This religious sanction to that particular ethno-scientific practice keeps it a permanent practice at a particular time of yearly seasonal cycle. This is not only associated with worship of earliest paddy, paddy tasting, wishing of side growth or ears of the paddy, checking of the infection, and seed collection. This fire control of insects is practiced by many indigenous agricultural communities. It dies not involve any insecticide. Again during the weather changing from winter to autumn, local Rajbanshis started collecting dry leaves and stems of deciduous trees. This region of Baunibhita and Lachka was too closer to Panthabari forest and there were patches of shorea forestry along with catechu plants. That was a mixed deciduous forest and therefore lots of dry leaves and stems were collected and either burnt into ashes or stored in a huge dig to convert into compost. Cow dung, vegetable waste and poultry by products used to add in the dig. This compost has sun dried throughout the winter, autumn and summer. Often this compost was developed in multilayer with inner sub-layers of paddy straws. Heat treatment is often given by setting fire to these paddy straws.

Then comes the monsoon season and this compost of is started applying into seed beds and agricultural fields for paddy, monsoon vegetables and sequential vegetables of the spring-winter. Bad smell therefore comes out from this compost hip. At that time, in every home Rajbanshis organizes worship to Satyanarayan. At that time, every house set fire on dhuna that they buy from the market. A sweet smell moves around the entire atmosphere. This is a traditional fragrance and its lighting produces this aroma. This also destroys the pungent smell producing microorganisms on air. However, the dumping of year wise organic waste and its compost are the best example of microbial activities by the people close to nature. This is also a good example of how the Rajbanshis could protect their indigenous knowledge by attaching these with folk life and religious beliefs.

Jogesh again defines the meaning of krishok as the big farm owners who can be a non-cultivating owner, never directly participating in agricultural performances, might have involved in other works and hence possessing alternative ways of earning. There is another proverb like a hymn and that is "jader ache shokh tarai krishok". Those who have enough surplus and the scope to perform for various informal experiments rather than just producing food and other agricultural products for self-consumption are falling under this category. These people have ambition, alternatives, surplus and thinking capability for certain new things. They are the best examples of country-town nexus, providing employments to the other people, initiating an entrepreneurial organization, applying scientific cultivation, investing equity in the agrarian production system and foremost, enough capital to overcome the loss in a much simpler way than a marginal peasant or tenant who depends more on others, more closer to nature and produces mostly for self-consumption rather providing opportunities to the other people. A krishok must be a well-established person and not a marginal or landless like a serf. He can depend on agriculture alone. He could do other non-agricultural works and perform white collar jobs. He should not be too marginal to search for other jobs. He could depend on himself and go by his own will. The situation should not be of subsistence type to say "nun ante panta furay". It is a folk proverb that indicates to such a situation when the person has no excess capital and unable to even buy any other essential commodities like the salt; to buy a pinch of salt he has to go to sell his own food and as a result he could not cook the food with salt and when he succeeds to manage the salt he has no food to cook. It

indicates to an extremely marginal condition. It is a necessity for the peasant to have at least some capital in hand and that is expressed by this phrase “poketey poisa thake”. It means when you have some money in your pocket. A krishok can raise a livestock at own cost. The situation would not be for any subsistence. Here, the peasant has some capital from his surplus production to raise these cattle. He could invest hundred rupees per day on a cattle to get a sixty rupees back with forty rupees net loss. He could feed five kilogram of good quality grasses and paddy straw costing for twenty five rupees to a cattle in morning along with other nutrients and granules costing for twenty rupees more. Then the cattle is fed with similar meal at afternoon. So, the total cost for ninety rupees. Other additional cost can be calculated for ten rupees raising the total expenditure to hundred rupees. From that cattle he could get two liter milk on daily basis. If milk costs for thirty rupees per liter, then he could earn a sum total of sixty rupees from the cattle at end of the day. So, he has a forty rupees loss. But a krishok would still prefer to raise the cattle and spend his surplus gained from his agricultural production on this livestock. Folk peasants know so many phrases, myths and chants. They know these things with intimate understanding of nature and informal experiments by virtue of trial and error. They compile these information traits generation wise. In order to preserve these, they add them with their cultural values, religious beliefs and folk life. They make them integral part of their social system. These indigenous knowledge traits eventually become integral part of their cognition (indigenous knowledge system). This tradition has been continuing since the period of non-Brahmanism. Rajbanshis are now caste people in the agrarian rural structure. They have accessed to Brahmanism and also aware of scientific application, cash system, crop and cattle, pre-agrarian condition, biodiversity, ethno-medicines, Gandhism, post-independent India and alternatives like quasi-egalitarian Vaishnavism parallel with Islam and Christianity. Another proverb could be applied here and that would be “chena bamuner poitar dorkar hoi na”. There is no such need of Brahmanism in folk religion protecting a large portion of the traditional agrarian system. It is a say to alternative Brahmanism for the so called excluded categories in agrarian and other production units as these people are suffering from identity crises and so many oppressions in terms of social exclusion, stratification, and religious sanctions. Actually, in every stages of monsoon paddy cultivation, Rajbanshis organize folk religious

performances: during sowing performance in monsoon, they participate in gochibuna; in spring season they perform the festivals like dhaner ful ana with expectation of good side growth in the form of ear; then lokhir dak associated with worship of Goddess Laxmi and setting fire or light trap for controlling the insects during the weather changing from spring to late-spring; dhan katar puja during the paddy harvest in post-spring; and finally, naya khoi indicating to processing of this paddy that is husked and eventually processed into chal (rice), atop chal (soaked rice), muri (puffed rice), chira (beaten rice), khoi (rice flakes), khud (rice dust), kuro (cotyledon), bhushi (seed coat by product), and vapa pitha or vakka pitha (rice cake on steam by rice dust). Chira with card (dahi) is a local delicacy and served in every religious occasion as dahi-chura. In this post-spring Rajbanshis also organize khet-uthani festival symbolic to the paddy land fallowing throughout the entire winter, autumn and summer. They treat their land under direct sunbeam, dryness of winter, light raining of autumn and hot-humid weather of summer. This post-spring and winter seasons are crucial as major deities like Debi, Borodebi, Bishahari, Bhandanimata, Kali, Laxmi and Shiva are worshipped. Winter season is too cold here and people used to burn a small portion of forestland at a time getting piles of ashes. Ash is a good insecticide and again manure. This slash-and-burn type of performance as a part of shifting cultivation has now lost. But still now the Rajbanshis set fire in the widespread vegetation of bhati vegetation which is of the woody broadleaf bhait shrubs. That prevents their further spread in fallow land from the waste land. Burning of grasses and shrubs in this way destroys the eggs of insects and insects in dormancy in the ecosystem. It is a good way of pest control. Heat is generated also at nightmare. In the first month of winter, Rajbanshis finally raise their stalks in the forms of paddy, processed items and paddy straw fodder. When it is completed, a feast is organized in the homestead where boiled rice (bhat) and rice cake (vapa pitha) are served to all with newly grown winter vegetables and local fishes. This ios called pushuna similar to bihu festival in Assam and nabanna in Bengal. In autumn, Rajbanshis start preparing the compost manure for monsoon and next winter. They cultivate vegetables in upland kitchen garden and let their cattle to graze in the wide crop field. In that off season, they used to manufacture wooden plough from shorea wood. They used to pray to the shorea forestry or shalbon. This Panthabari forest is basically a dry mixed deciduous type of shorea forestry. There

are patches of shalbon within university campus. In the Matigara block on the other side of River Balason, there is a Sukna forest under the Mahananda Wildlife Sanctuary. This forest is also composed of shorea plantation and a Shorea Park has been built up there for the tourists. The Bhujiabani pocket where the Bagdogra airport is now located was also a shorea forestry. Many still now practice social forestry of shorea and teak. This natural worship with the cognate of keeping this shorea vegetation intact is known as worship of Shaleshwari Thakur. There is another occasion of worshiping the symbol of the herdsmen and that festival is best known as worshipping the cult of Rakhal Thakur. People also went at a time in this autumn within these forests in search of edible foods that might be mushroom, plum, jungle berries, yam, green jackfruit, kamranga, leafy vegetables and ethno-medicines as well as small game like jungle fowl, rabbit and porcupine. Leopard, rhinoceros, elephants, deer, wild buffalo, bison and wild boars often come out of the forest and attack the forest villages or villages settled in river islands. These practices have now completely banned. However, people during this winter and autumn go to picnic spots that are spread throughout the Bangdogra-Naxalbari. Dhemal or Panighatta or Doodhie surrounding Balasan River each is an excellent example of that. Near Doodhie or Dhdhia, there is the Himul co-operative diary plant assisted by the state government. It falls in the Matigara block and on the other side of Balasan River. Many picnic parties go to the Himul area by Balasan River. This river is also a good source of boulders and sand used in construction purpose. This hunting-and-gathering festival was treated as bisau. Autumn is the season of fair and Rajbanshis pray to Shiva during Chorok, Vishnu in Gamira and Gorakhnath within the Nath sect. They also pray to Satyanarayan or Laxminarayan besides that in the monsoons. This is a pollution control technique. They keep their homestead clean, spread ash on kitchen garden, burn dhuna to check the pungent smell coming out from their decomposing manure plant. In this way they also pray to their homestead deities or Dham.

In the Lachka jote under Lachka (Matigara block) I have met with Kofur Chandra Singha indigenous to this land and belonging to this Rajbanshi people. He with his wife raised a Vishnu temple with cults of Jagannath, Radhakrishna and Shiva. The idols and their paining have been done by this aged couple. They at a time also involved in cultivation. Their son, Bireshwar Singha, is now at a job in neighbouring military services (MS).

Father of Kofur Chandra was a renowned Vaishnava Wiseman. He was known as Sukur Chandra Brajabasi. However, Kofur is not a guru like his father and follows his master who has the main temple at Phulbari area of Rajganj block that was once covered under Baikunthapur forest. Baikunthapur literally means a place where Lord Vishnu resides and it is linked with the concept of heaven. This guru is known as Boydeb Brajabasi. This is similar to the name of Joydeb who in South Bengal was a famous poet and wrote several poets on Vaishnavism. Kofur Chandra has equal interest in Hindu sacred texts and the epics of Ramayana and Mahabharata. Jagannath is the symbol when Lord Krishna (one of the nine Avataras of Vishnu) went into the jungle and forest dwellers started praying Him after making his wooden figurine). Those jungles were actually hidden transnational trade routes. Here, Jagannath is symbol for a social system beyond the caste with a cognate extended further from the agrarian social structure. Here are the indications of alternative economies like cattle and trade. Krishna was Himself from a herdsmen community known as Yadu. Local waterways are served as trade routes of orange fruits, silk, wool and ethno-medicines of high altitude Himalayas and Sino-Tibet plateau. Rivers are also worshipped and on specific days people go there and bathe there. Kafur has set up this Jagannatha temple inside a sacred bamboo groove. At a time, bamboo was needed for every instance of the folk life. The tradition of Jurabandha is clearly seen in that groove. Plants are worn up with Sari the traditional piece of cloth. Sari is worn up by women in various ways. In this way, people express their solidarity with nature and covey their gratitude to the living nature. This is absolutely a symbol of love and affection between an individual and the tree. This is a rather summer time festival. Kofur again organizes Rathjatra at local level within the village in the season of monsoon. This worship of Jagannath and Laxminarayan continues throughout the year, especially during autumn and summer-monsoon when villagers are involved in small scale production, repairing of homestead, carpentry, pastoralism, compost manufacture and social forestry.

Bhindi, jhinga, dhundhul and mukhi kochu are the monsoon vegetables, whereas cabbage and leafy vegetables are of the winter. The peasants here are primarily in favour of intercropping. For instance, if a peasant cultivates cabbage in one year, then in the next year he could try on tomato. Brinjal and cabbage mixed cropping is a common thing here.

Brinjal is gapped for 30 cm by 30 cm, whereas in the same field cabbage is propagated with a distance of two hands. Chilli pepper is not cultivated here in Naxalbari-Matigara zone with economic prospects. Cauliflower is also an important product here, but not as much as cabbage. Cabbage could be kept in kitchen garden for a longer period and harvested willfully by the producer. But, cauliflower one could not keep for a much longer period in the field and often it has to be harvested unwillingly. Cauliflower is like a ripened banana inflorescence; one it gets the maturity, it has to be collected and marketed. Its harvest does not depend on will of the peasant. Therefore, peasant has to market it at the current market price. But cabbage can be harvested on the will of the peasant and he can market his product when there is a good pricing value in the market. Cabbage-brinjal mixed cropping could be further joined with the ally cropping of bathua or bethu. It is like a simple weed and grows reluctantly on the fertile soil of the kitchen garden. Locals believe that it is full of iron. They consume it and also sell in the market at an average price values of twenty rupees per kilogram. Cabbage is rather a long time product that could not be harvested on every week. Cabbage is the largest bud among the entire flora. Rajbanshis are more likely cultivate this using organic manure to increase its food value, whereas many others are targeting towards hybrid quality. Bay leaves could be grown in sandy soil near the embankments of the Balason River. Potato, radish and tomato are other important winter crops here in Lachka. In many homesteads often shim, bean and lau are cultivated on lattice. Similarly, *kumra* and *chalkumra* or *panikumra* also propagated in this region. Palm, plum, banana, mango and jackfruit are common plants here besides the bamboo groove. *Dhenki* or edible fern is collected from moist shadowed places. Arum bulbs are planted in rows and land in prepared by using spade. Bulbs are sowed maintaining half to one hand distance. Distance is maintained on the expected size. In-between two rows, there is a canal. The land is prepared in the first two weeks of autumn and harvesting could be done in monsoons. It depends on peasants' will. Women and children in off-time participate in this arum land preparation. Traditionally, they simply burn the grasses to prepare the land and destroy the germs in the soil. Soil treatment is necessary, as the cultivation ground so far selected is generally lowland, marshland or even seasonal water flow getting water in winter.

Jute is cultivated in nearby Rupsing jote; there at a time a huge water body was there that was used for both softening of jute fibers and fishing in traditional ways. Jute is yielded about seven maund from one bigha. *Torsa* or *tita* variety with shorter fibers is more common here. Its seeds could be preserved well in respect to proper manuring. Sona variety of jute is with longer fiber length and it is costly and expected more. Now, jute cultivation is suffering from land encroachment. Further south in Rajajhar-Saibhita area bordered with Turibari-Tarbandha region of Phansidewa block of the same Siliguri subdivision is better known for vegetable cultivation besides paddy and jute throughout the year. Here, many new things have been incorporated in the agrarian social structure. In these areas, the river is not Lachka but Buri Balasan initiated from the Panthabari forest. Quantity of vegetable yield is much higher here with moderate livestock. Cabbage, mustered, different types of gourds, tomato, pea, beans, shim, potato, cauliflower, brinjal, pumpkin, mustard, lafa, bathua, bitter gourd, bottle gourd, toria, lady finger, arum, fern, methi, different amaranths, luffa, dhundhul, peas, yam and elephant foot are generally propagated in this zone. Maize is also planted along with traditional pulses like thakurlakai and common gram. Local variety of *kaon* is grown on its own. This is one type of millet and the grains could be consumed in the form of hotchpotch. Winter paddy and wheat are usually avoided. Chilli pepper is also grown at local stage. Land preparation for jute also begins in the autumn. Tea plantations are more prevalent in pockets of Rangapani-Siabhita. Organic manure preparation and areca nut propagation are more common in this Turibari-Tarbandha region. Rangapani-Saibhita is famous for vegetables and Rupsingh for paddy and jute. Vegetable diversity is rather more than Lachka-Baunibhita region where the actual mode of crop cultivation by the Rajbanshi peasants could be better noticed.

Informal Experiment on Tulaipanji Paddy Propagation in Mechi-Bataria river system

Tulaipanji is a local rice variety with great flavour and good taste. This paddy is indigenous to the Raiganj sub-division of Uttar Dinajpur district of North Bengal (administrative zone at northern portion of the state West Bengal). So, it is mostly

propagated in fertile landscape on Mahananda-Tangan basin incorporating Kulik and Gamor tributaries also.

This river system of Raiganj sub-division is lower to the Bengal-Bihar borderland formed by Mahananda-Nagar basin. Of this basin, the Islampur sub-division has fallen into Uttar Dinajpur district and had a borderline with Bangladesh. The other side of Mahananda-Nagor basin has been fallen into Bihar and formed the Kishanganj district. This district and the Islampur sub-division together were parts of greater Purnea at pre-British times. Purnea still exists in as a district in Bihar. In this Mahananda-Nagor basin also Tulaipanji is used to be propagated, but it is also famous for other indigenous paddy variety namely the Bhogdhan along with banana, jute, winter and monsoon vegetables, maize and wheat.

Upper to the Mahananda-Nagor is another basin area namely Mechi-Mahananda. This is shared by Jhapa district of Nepal Terai, Thakurganj district of Bihar and Siliguri sub-division. This foothill subdivision along with other three hilly subdivisions (so far included from Himalayan system like Sikkim and Bhutan) constitute Darjeeling district.

This entire system of Mahananda is separated from Teesta-Torsa river system by a ridge.

Teesta-Torsa water bodies include Tibet plateau, Sikkim Himalayas and Kalimpong hills, Bhutan Himalayas, Bhutan foothills or Duars, Jalpaiguri and Cooch Behar of North Bengal, and eastern portion of Rangpur division of Bangladesh.

The ridge is constituted by Rajganj block of Jalpaiguri sub-division of Jalpaiguri district of North India (India), Haldibari block of Mekhliganj sub-division of Cooch Behar district of North India (India), western portion of Rangpur Division (Panchagarh, Nilphamari and Thakurgaon districts of Bangladesh), Chopra block and Goalpokhar block of Islampur sub-division of Uttar Dinajpur district (India). This entire region was commonly known as Varendrabhoom or Barindland. This ridge is further followed by Dinajpur highland that contains Dinajpur district of Rajshahi division (Bangladesh), and few pockets of ancient Gaurvanga (collectively Uttar Dinajpur, Dakshin Dinajpur and Malda Dinajpur districts on Indian side). The rest portion of Gaurvanga-Rajshahi basically represents the marshland area.

So, to the east of this ridge of Barindland-Dinajpur, there are regions like above mentioned Teesta-Torsa and to the further east there are Assam, Meghalaya plateau,

Brahmaputra valley, Brahmaputra-Jamuna mouth, entire Barak-Surma-Meghna river system and Indo-Bangladesh-Myanmar territories or Arakan hills. Tulaipanji is not propagated in these eastern and further eastern regions. It is exclusive to the Mahananda-Tangon and Mahananda-Nagor basins west to the Barindland-Dinajpur ridge. These basins are not so much flood prone in comparison to the marshland river-and-canal webbing at Malda (the Mahananda-Ganges basin). Atrai-Purnabhaba river system of Dakshin Dinajpur is not connected to Mahananda River and Tulaipanji is not a crop of that place. Tulaipanji is neither cultivated in marshland areas of Rajshahi nor the Gangetic delta further south. It is not any upland variety to be cultivated in Barindland or Dinajpur uplands. Nunia, Paijam and so many other varieties could rather be propagated there.

Now the question is whether Tulaipanji paddy of Mahananda mid section could be yielded in Mechi-Mahananda region of Indo-Nepal portion! Krishna Roy belonging to the Rajbanshi community there in Mechi river area experimentally tries to cultivate this paddy variety. He is of 65 years old and stays in Kutia jote. This area belongs to Mechi River that is the natural boundary of India and Nepal. It is within the Dhakna jote of Naxalbari block area of Siliguri sub-division under Darjeeling district and watered by Bataria tributary of Mechi River. Other side of Mechi River is the Jhapa district of Nepal. Siliguri sub-division and Jhapa district at a time belonged to ancient Morang. Tharu and Dhimal were traditional residents of this land alongwith the agrarian Rajbanshis. Krishna told me that this region was less propagative in comparison to the lower Kharibari block where Mechi River meets with many more local streams like this Bataria. There the river expands and then enters into Thakurganj district of Bihar where it meets with the Mahananda from the other side. In Siliguri sub-division, Mechi and Mahananda are separated by an upland region which is mostly covered with forest and acts like the origin all the rivulets either falling into Mechi or Mahananda-Balasan. Important rivulets are Bataria and Khemchi (Naxalbari proper), Manjha (Hatighisha), Chenga (Atal), Tepu (Hetmuri-Singijhora), Hulia and Buri Balasan (Bagdogra) and Lachka (Gossainpur). Dumaria, Dul Dul and Mone are some other rivers so far originated. Bataria is originated from Suraj Bar forest and flows into Maniram and Dhakna jote. The small irrigation program on this river have caused higher yield of crop in the region. This is the actual

foothill territory of Mirik area of Darjeeling-Kurseong hills of Darjeeling district. And at this region, Krishna Roy is trying to yield the Tulaipanji which is obviously an informal experiment and subject of trial and error. He has intimate understanding of nature and natural resources of the region. Once the place was densely covered up with bamboo bushes and agriculture was not profoundly practiced. Tribal groups raised their cattle and used the local grassland as pasture land. The landscape in tilt and therefore the water catching capability is too poor here. Still bamboo grooves are segmentarily scattered here and there. Betel nut and sugar cane can also be propagated in this area. Various leafy vegetables like lafa and spinach are reluctantly yielded in winter-autumn season. Pluses like kala dal or thakur kalai could be cultivated in this area but it would take a longer time and yield is not so good all the time. Basically, monsoon paddy variety or amon was yielded yearly and harvested in late-spring with a winter stalk raising. Now, besides the amon the winter boro variety is grown up in a good amount on the basis of small scale irrigation projects. Maniram-Dhakna jote was once a corridor of elephant passage from India to Nepal by crossing the Mechi River. Now, such incidents no more take place. But, peasants here cultivate rapeseeds in winter and these are mustard, local mustard and rai. Jute is also cultivated where it is possible. About thirty years earlier, jute was cultivated in autumn-summer, but now alternative vegetables are more emphasized. Monsoon and winter rice varieties are namely swarna and china respectively. Pressure on land is increasing and local people are moving towards alternative jobs. Share cropping and day labour are two different aspects of peasantry. People are also associated with livestock like cattle and gottery. Small scale social forestry or “banashrijan” is also a character of this area and neighbourhood. In this situation, propagation of tulaipanji is a good experiment. Tulaipanji seeds are brought in from Raiganj. Along with swarna and bhigdhan, its seedbed is prepared and sowed in the same landscape into patches. Paddy rows are prepared by transplanting the paddy saplings with two to three plants in each point. Monsoon rains are good for this and no excess water stands on the soil. Within spring, side growth in form of ears comes out and ensures extra yield. Cow dung and NPK are the common manure here. Weeding is necessary here. No other special management is taken over here without pest control or seed treatment as usual. So, it is clear that Bataria-Mechi foothill is capable of yielding Tulaipanji. Krishna Roy is an

agriculturist and he has no other business to do. He and his wife have in their family one daughter and a son-in-law and four grandsons- one going to the college, another three in class IX, XI and VII. He has spent around Rs. 65,000/- in Gayaganga Hospital. Tulaipanji has a good demand in outside market. It is of export quality. This could add some new impetus in local agrarian economy and provide the local people some more expanding capability. I would like to mention the situation of some other agriculturists. Sharat Roy and his wife have only two cows, marginal crop land where they yield monsoon paddy and winter vegetables, go for share cropping and even day labour, catch local fishes occasionally, store paddy straw and raise the stalk. In such a situation this couple grow up their two children- younger daughter is in class X and elder son at college I year. Bhobesh Singh and his wife Phulmani have four daughters and the youngest son. They educate their children, despite of the fact that they have no such landholding. They are marginal peasants and lease their small paddy land where they could pay their labour on share cropper besides day labour. Cattle is raised in share. Marshland, lowland, canal side regions and river side areas are good for any type of paddy. From ten katha land, about four to five mounds of swarna paddy could be yielded. Those who have moderate amount of land has less than ten Bighas and on average possesses four to five Bighas. These people could sell their excess amount of paddy and go for mixed and sequential vegetable cultivation with ally cropping. Cow dung is the main manure here. In one Bigha, it is expected that the yield of swarna would be ten to twelve mound. But natural calamities, untimely raining, pest attack and other reasons can result into crop failure with a lower yield of six maunds. Similarly, Parashuram Roy and his wife have a joint family with their son and daughter-in-law and two granddaughters and one grandson. This family has also turned into marginal farming. They besides other agricultural activities yield ginger and turmeric that has a good market. They rather use this for homely use. This family is also favouring alternative economic earning sources. Dobulal Singh is an aged person and has four sons. Krishna Prasad Singh is a mechanic and deal with various types of batteries. Sushil Singh is a driver of police jeep. Biswajeet Singh is now working in Nepal’s capital Katmandu. Purna Singh rather takes care of his father Dobulal Singh and respects him so much. Purna Singh is an agriculturist and has four children. Of these four, the elder daughter has given married and the younger one is in class XII; whereas

younger son is again in class XII and elder son has a shop with other additional works. Dobulal in this way has a grand granddaughter who is just in primary school. It is a myth that Rajbanshis are in a general sense trusty and truthful. They do not usually cheat others and this is one of the reason to feel proud in countryside area with traditional values intact. But they now understand the necessity of trade and commerce. Monsoon paddy of swarna type and winter paddy in irrigated land could be simultaneously yielded along with indigenous paddy varieties like Bhogdhan and the foremost Tulaipanji.

This upland region between Mechi and Mahananda is shared by the four developmental blocks of the Siliguri subdivision. This is a good destination of establishing tea estate and silk cultivation. Besides Suraj bar, there are other forests like Panthabari and Dalkajhar forests under Naxalbari forestry and Tukriajhar forest within Phansidewa. Taipu or Tepu River is initiated from Dalkajhar forest which then directly enters into the Sanyasithan-Mahideb as a part of Phansidewa block. This is a tea garden area and known for certain monk agitation about more than two hundred years ago. It then enters into Kestopur and Choupukuria where some vegetable and rice is yielded in a tea garden surrounding situation. This is close to Singijhora and Tepu tea garden areas as well as Panaulla-Halal hamlet. Next is Gangaram which is continuous with Hetmuri and falling under tea belt region. In Madhabbhita and Farabari area there this Tepu River comes out from jungle and tea gardens to meet into Chenga River where Rajbanshi and non-Rajbanshis are found again in doing agriculture. This Chenga River moves then into Haribhita which shows a bit wavy landscape and maize could be grown up there. In Haribhita region, Chenga again meets with Manjha River.

Manjha River is again famous for another reason and that is the betel leaves. Manjha is originated from Huchai Mallick, Pataram and Chhoto Ganj. This is just lower to Mir Jungle areas. Traditional Dhimals used to stay in this region, graze their cattle, conduct slash-and-burn cultivation and collect forest produce. Dhimals use Mallick as their surname. Singha Rajbanshis in this region cultivate paddy using traditional bullock-plough and traditional implements. Non-Rajbanshis and Bihari milkmen are concentrated in this region. High quality of cow dung compost is produced here that have the use in betel cultivation. Here, Manjha River is spread throughout the Fakna, Sebdala and Budhkaran on one hand as well as Bir Singh, Maha Singh and Maghal Singh on the other.

Tea gardens are also there with Adivasi and Nepali populations. Hatighisha is the next place where these cow dung compost is used in betel leaf production. Many Bengali people also involved in this betel production and actually they have taken this industry under their control. After crossing the tea gardens, bamboo bushes, local crop fields and betel propagation units; this Manjha enters into Tharubhita that belongs to Kharibari block. In Hatighisha-Tharubhita area, still few Tharus are living. Thereafter the river again breaks down producing an inland like area and enters into Phansidewa block. This inland formed by Manjha proper and Choeati distributary falls under Fakirdwip-Kuchia areas further expanding into Tentulguri-Haribhita and Dandarjhar-Kadubhita respectively. Manjha proper at this Haribhita region falls into Changa River which is from Madhabbhita-Farabari where it has already met with Taipu River. This joint flow of Manjha proper, Changa and Taipu rivers from Haribhita spreads lower into Faudigachh, Ambari, Dhambhita, Bhattagachh and Dhaknagachh. Choeati as the other distributary from Manjha River from Dandarjhar-Kadubhita flows similarly into Bhattagachh and Dhaknagachh and meets there with Manjha-Chenga-Taipu common flow. In this way, the inland formed in Fakirdwip completes into way and eventually enters into Bihar state. This Bengal-Bihar checkpoint is less famous and known as the Ambari border.

Here, in this inland area we could found Bihari speaking people, many Adivasi communities, few Bengalis and Nepalis among the non-Rajbanshis. Bananas are grown here in reluctantly. Land becomes suddenly flat here after the Haribhita region. This is a real paddy field and pond side region. Ponds are used for fishing and agriculture is the economic backbone here. Dry banana fruit flakes were once used as substitute of salt. Temperature is suddenly increased and sun beams are direct here; this could be felt easily. This is in a true sense the Mechi-Mahananda basin. Otherwise, the upper portion of this inland of Manjha-Chenga-Taipu and Choeati is also known for arum, other yams, potato, tomato, brinjal, leafy vegetables, spinach, cabbage, cauliflower, rapeseeds, chilli, onion, beet, carrot, pumpkin, ginger, turmeric, garlic, beans, gourd, bottle gourd, bitter gourd, snake gourd, toria, lady’s finger, potol, common fruits, papaya, areca, lemon and even pulses. Slope areas are good for maize or bhutta or makoi and in winter if cultivated properly wheat could also be grown here. This entire set of rivers from Dalkajhar forest and Mir Jungle-Huchai Mallick area is again separated with Bataria River from Suraj bar

forest. They are separated by the Tukria Jhar forest which is a small hillock and a common vegetation of shorea plants. Forest department supplies various types of saplings from there. It is again associated with a silk cultivation centre. It is watered by locally originated Dumria, Dul Dul and Khemchi rivers. Budaganj is situated on this upland and get into there from Naxalbari proper, one has to cross all the three rivers. From Burajanj, one could also reach into Uttam Chander Hat (Naxalbari block), Tharubhita (Naxalbari block), Haribhita (Phansidewa block), Kharibari (Kharibari block) and Phulbari (Kharibari block). Kharibari, Phulbari and Buraganj again form a fertile triangle aside of tea estates and small scale tea gardens. All types of vegetables, gourds, pumpkin, cabbage and cauliflower, berry fruits, paddy, mustard and to some amount jute, pulses, maize, cane, yam, fruit plants, bananas, ginger-turmeric and beans are grown here. A side branch out of Khemchi serves water here. Bagha is the most fertile place of this region that however once also known for bamboo grooves, cane plantation, grasses, indigenous millets, livestock and khari stick. Bagha is therefore situated within two branches of Khemchi River surrounding Kharibari proper. A place named as Sonachandi or Sonachalani is also there. It is also a border with Bihar. It is believed that like Balasan-Mahananda, this Khemchi mouth once brought fine gold with its sand. But this is now only a myth and nothing more than that. In this way, Tukrijhar forest and Khemchi river isolates Bataria with Chenga and its tributaries. Bataria-Mechi, Khemchi and Chenga all give rise to fertile landscape in Kharibari block. Bataria-Mechi in Kharibari block is definitely more fertile than that in the Maniram-Dhakna jote area of Naxalbari block directly at the foothills. The successful experimentation of Tulaipanji rice propagation there by Krishna Roy along with Bhogdhan and Swarna is a definite proof that the entire region is cultivable for this new variety.

Notably, this Naxalbari-Kharibari area along the Jhapa district of Nepal was commonly treated as the eastern Morang at a time. Increase in banana plantation for commercial purpose is a growing tendency among the peasants in Bataria-Mechi system in the Kharibari block as it approaches towards Debiganj border with Bihar. Soil at upside is sandy-loamy and at this lower portion clayey and black. In Bihar, it is has rather a grayish texture and dry in nature. Banana plantation is common in Bihar similar to the Litchi at sub-Himalayan Bihar, mangoes in Malda and dwarf guava varieties at vegetable grounds

in Uttar Pradesh. However, Rajbanshis along with Mech, Tharu and Dhimal once have a larger concentration in Jhapa. Rajbanshis of Jhapa are commonly known as the Jhapali Rajbanshis. Now, they are dominated by Nepalis coming down from the high latitudes of Nepal Himalayas. Two different gateways are there to enter into the Jhapa district from Kharibari block and these are Panitanki-Kakarbhitta and Birtamore-Bhadrapur. Like Siliguri Municipal Corporation and Bagdorga airport at Siliguri sub-division, there are Chandraguri district town in Jhapa and a airport at Bhadrapur. About twenty Kg goods can be carried out by a person in the flight to Katmandu. Nepal domestic airlines provide this service. Jhapa people generally treat Bhadrapur as being too Indian. Electricity problem is a major issue there. In joint venture, a garment factory was established in Bhadrapur few years back by a South Indian, but this plant providing jobs to many has now been shut down. Bhadrapur is a calm and quiet place. Nepal has now been converted from a Hindu Kingdom to democratic country. Identity is a major issue there. A few years ago ultra-left movement was a serious issue there. Indian goods are expensive than any Chinese good. It happens because of taxation. Rajbanshis there in Jhapa do cultivate chilli, areca, gram, other pulses and turmeric. Power cut is a serious problem there and therefore no major industry could develop in the region. Rice mills and grinding factories are however spread over there. This is quite common with the situation of Dakshin Dinajpur district of North Bengal. Marwaris and Biharis are staying there as business communities. Maithilis are also spread over there as they cultivate and raise livestock. Rajbiraj is another important town over there. Besides Jhapa, there are Biratnagar and Morang districts where Mech and Tharu have higher concentration in respect to Jhapa. In Nepal also, the Rajbanshis are aware of their identity as they have established there an organization of “Rajbanshi Bhasha Prachar Samiti”. Rajbanshi films are also being made. Poonam Rajbanshi is a Rajbanshi actress over there and her father Purna Singha Rajbanshi is the president of the Rajbanshi organization. A few Bengalis are also living there. Most of them are with surnames like Ghosh, Pal, Mondal and Das. People of Jhapa comes to Siliguri to avail Indian goods, modern medical facilities and for going into different parts of Indian territories. Ghosh is amongst the earliest Bengali Hindu caste reaching Morang of either side of the border. They are basically vaishnavas and raise their cattle which is similar to many of the Rajbanshis, Dhimals and even Tharus. Tharus

might have any link to the Subbas or Limbus of the Himalayas specialist of Cinchona plantation used to cure malaria. This region was a malaria prone zone and crows and other birds died out of epidemic. Nitai Rajbanshi of Maheshpur is a ethno-medicine practitioner which is commonly known as Hathkuta. It is his indigenous knowledge traits of hidden type that he would only transfer to his eldest son. Females used to make traditional clothes from jute fibers. Jute ropes prepared by the local Rajbanshis have a great demand in entire Jhapa and their areca nuts are also supplied in India. Jhapali Rajbanshi males paint their homestead with natural dyes. Creepers, climbers, leaf and flower, peacock and goose are various figurines. They keep their homestead very neat and clean. They time to time plaster their earthen houses with cow dung emulsion. They believe in establishing “meet” or close friend between two boys or two girls who could share all the information between them. They serve tea, betel and areca to their invitees. Restaurants and pubs are available everywhere in Nepal and their number is more than fast food stations. Nepal is surrounded by lands from all the sides without any direct inland railway facility and there is no possibility of having a sea port. Therefore, this country on transnational trade route has to depend on other countries like India and China. Poor transportation is another problem. People pray to cow, but to meet energy requirements could eat meat of goat, ship, fowl, duck, goru (gaur or mithun) and pork. Chicken items and meat are mostly favored there in Nepal. Rajbanshis however traditionally foothill dwellers and they in non-vegetable items eat fish, duck, ship and goat. In that they often show reciprocity. They believe in traditional political system on village level by the elders and self-sufficiency of the villages. They have now got citizenship of Nepal and could access various government facilities. Rich persons also keen to keep their culture however intact. At a time, these people in joint extended families possessed immense wealth and eat and drink in silver utensils. They domesticated elephants and behave like horse riders. The situation has been changed, but these able bodied people are trying hard to get alternative and step into the present politico-economic situation. Women seldom go into the field for cultivation purpose. They never do any job like servant or housemaid to outside people. They go to the grinding mills for vakka or paddy dust, pulse dust and turmeric dust. They eat food with home made turmeric and never buy it from outside market. In every kitchen garden, they

cultivate this turmeric and ginger. Like card and beaten rice favoured in North Bengal, Rajbanshis of Jhapa rather are fond of pulses and ghugni made of steamed pulses and turmeric powder. Ghugni is served with puri- a kind of pancake made of wheat. Here, the Rajbanshis rather cremated their dead and take vegetable diet for thirteen days and within this time period; they could not participate in any other socio-religious ceremonies of whatever be the type. Rajbanshis in Jhapa are best known for their honesty, bravery and labourous work. To many people however Rajbanshis are too lazy. In Naxalbari-Kharibari areas, the Rajbanshis fought against Sikkim, Bhutan and Nepal who invaded into the Morang or tried to do so. They provided their waste and fallow lands to other people who were basically immigrants or emigrants from East Bengal, East Pakistan, and Bangladesh. Those in-migrants by virtue of advanced agricultural techniques, have introduced crop diversity to this region rather depending only on some raddish, potato, rice, pulses, jute and few vegetables. Elephant foot yam, elephant foot potato, air potato, sweet potato and such other things also grow in Naxalbari. Floriculture of Gerbera is reported here in Naxalbari. Many raise various nurseries. Many Rajbanshis have become landless and they have to choose alternative jobs. Naxalbari movement has also altered their traditional mode of production on joint-extended families and jote system. Polygene was a character of wealthy Rajbanshis. Rajbanshis are merciful and friendly in nature. At a time they do not much believe in formal education. Students from big farmers' families learn upto the primary section. Students belonging to Jotdar families stay at hostel in Naxalbari Nandprasad High School established on a land given by Bihari person of this name. Primary school was at the Murgihati near the chicken market. They are fond of sweet items especially made from the cane and date juice cakes. These are supplied from other parts of Bengal. Local mode of transportation was bullock cart and small boats. This region has been connected with Purnea and Katihar since Darjeeling-Katihar Himalayan rain service. Connection with Kolkata was kept intact through Siliguri, Jalpaiguri, Barindland, Dinajpur, Harding bridge and railways in the South Bengal delta. Many Adivasis from tea garden areas were also introduced by the Rajbanshis. Many Rajbanshis have found alternative jobs and some of them are rather too prestigious. Land selling and construction business are emerging economy in Naxalbari. It is a mixed society and that could be clearly seen in every weekly market at Naxalbari proper. There

was a flood in 1968 that was highly devastative. Rill then embarkments and canals have been developed in Naxalbari areas. Emphases have been put on agriculture. Land reformation programme attracted the prople in 1970s and ‘80s. A rural hospital is there in Naxalbari proper and it is the main center for malarial treatment and controlling other epidemics. Many people are still associated with social organizations. Such persons are Nathuram Biswas whose grandfather came from Chuadanga of then Nadia district. Panighatta tea estate was often the shelter of Englishmen and their native collaborators who conducted big and small game hunting in forests. Dipak Roy Choudhury at his age of thirty has established tea garden, maintains agrarian land, does business, is a pharmacist and also a director of Rajbanshi songs and cinemas. He belongs to the former jotdar family of Hatidoba-Buraganj. His other relatives are in police, intelligence, banking, railways and teaching. Still local people admire this family. They have relatives in Haidarpara area in Siliguri town. It is after the name of Haidar who was also of his community. Rajbanshis belong to the Scheduled Caste by Indian constitution. There are demands of special protection to these indigenous peoples and establishment of small scale industries and social forestry more in Naxalbari block for alternative job opportunities. In such a case, Tulaipanji is a good approach in this part of Morang.

Untimely Tobacco Cultivation- an example of informal experiment by the farmer

Tobacco is cultivated in Dinhata and Mathabhanga blocks of Cooch Behar district. Four types of tobacco varieties are there and these are Tongua, Motihari, Velengi, Godhra and Virgin. Latter is used in cigarette. Godhra is also known as Bihari leaf. It is used in making native form of chewing tobacco and this is known as khaini. Motihari is known as the best quality. Many new varieties are there developed by the tobacco research institute in the district. Tobacco is generally propagated by Rajbanshi and non-Rajbanshi people there in Cooch Behar. What is under experiment is that the vegetable oil could be extracted from this tobacco. Tobacco is basically planted in late spring. Excess fog can harm this plant and therefore in Duars or nearby region in direct sub-Himalayan region this is now experimentally planted and propagated in autumn. Seed bed in prepared in the last month of winter. That could be the first week of the last month of the winter. Within

fifteen days, the seedlings are ready to be planted in the mainland. In two bigha land, a total of 8000-10000 plants could be planted. To have this number of seedlings, one need about one decimal land where one could sow the seeds. In seedbed, plants are propagated in a dense condition. Adequate organic manure is to be added in the seedbed that could be vermicimpost or cow dung manure. Seed treatment is necessary. It is basically done with Trichoderma viridii that is available in granular form in the market. Black granules of one to two grams in one to 1.5 liter water are adequate to treat these seeds. The seedbed in not to be shaded; as this is not monsoon. But often banana leaves are used to cover the seedbed. Seedbed would be devoid of any weed. Margosa oil could be sprayed in this to save the seedbed from pest attack. Pest free, weed free and fungus free conditions are to be maintained here with accuracy. The mainland soil is to made up with one truck of cow dung that equals to 10 vans for two bighas. 250 Kg organic manure is also to be added that equals to five and a half maunds. The soil is to be leveled. The soil should be very fine. Weeds are to be removed out of the mainland. With the manure, about four to six Kg of Trichoderma viridii (TV) is to be added in the soil. That would then resist all the growth of fungus. Margosa oil solution, sand and ash could be applied to resist the pests and weeds. Irrigation is necessary here. Three times in a day water is to be given into the land. Water should not stand on the land. In the meantime, organic manure with a mixture of margosa cake solution could be applied to each plant. Cakes could be alternatively of any rapeseeds or other plant even tobacco itself. These plants have patricidal quality (-ies). Basically, upland areas are chosen for this cultivation. Prabhat Debnath has brought in seeds from Mathabhanga of CoochBehar to the water ridge upland of Rajganj block of Jalpaiguri. He is a Bengali caste, basically from Rangpur (the other side of Koch Bihar state now fallen ion Bangladesh). He is a van puller here and of age 61. He could fluently talk in local Rajbanshi language. He sends a longer time in agricultural work. He is tough labourious person and gives his labour to the crop field for a longer time. He is the permanent resident of Jomidarpara in Belacoba that is situated on precious Talma River. He also propagates different vegetables throughout the year in addition to rapeseeds, yams and lowland paddy also. This is an experiment here on whether this tobacco plant could be propagated in post-winter fog-free late-season of the sub-Himalayan region. He hopes that the yield would be

moderately high, but could not say much about the profit margin. This is because of the reason that the leaves are ready within three months. And from these leaves, tobacco is prepared. When his plant is only 15 days old in the first month of autumn, in other places where cultivation is initiated in late-spring the leaves have been so far collected and processed to be marketed. So, when his product would be ready, there might be no market at all. He might on his own contact with the tobacco companies that again deploy contractual labours to make country cigar or biri. Once the broad leaves are collected, they are placed one after one in layers and stretched out. They are sun dried to little amount. Immediately, they are rolled in which is commonly known as ati bandha (verb). One roll or ati contains therefore many leaves. The moisture is still present in the leaves along with nutrients. Many rolls are in this way raised into a pile in dark. This is called the gadi. Before this ati and gadi, leaves are to be treated with available medicines in the market to set them free from insect attack. In this way, for two to three months this gadi is to be maintained in dark. In gadi, leaves get a brown texture. Dark condition is necessary because light can make the leaves fragile and deteriorative. Water or moisture could not be applied. So, off season processing can cause some alternative problems also like a moist condition of summer and wet situation during the monsoon days. 100 grams of Tongua tobacco costs for 10-12 rupees in local market, but in off-season this price margin could be further lower down. Maximum labour has to be put on weeding and timely irrigation. Tobacco producers are not aware of applying micronutrients that they call in as the “vitamin”.

This informal experiment is done in a potato farm and in a season when in Rajganj block people are involved in producing bean, shim, hilly shim, potato, sweet red potato (ranga alu), papaya, pumpkin, turmeric, cabbage, olkopi, cauliflower, broccoli, radish, carrot, beat, ginger, mankochu (big arum), elephant foot potato (matia alu), and so forth. Panikouri-Belakoba region of rajganjgunj block shows more crop diversity than Shikarpur and Mantadari. Shikarpur is by the Teesta River but on the right hand and good for tea gardens. This is close to the jungle area and by the side of Teesta water canal that has however increased the crop intensity in places like Mantadari and Shimurali there. Similarly, Kamarbhita of Binnaguri by Korotoa and Jugibhita by Panchanoi-Phuleshwari have a higher cropping intensity than other parts of Binnaguri a rururban extension of

Siliguri Township. Both the rivers from Binnaguri make Mahjiali very fertile like Badalgachh-Mahanbhita and Mehendigachh-Balaigachh. Other places of this block are along the Indo-Bangladesh border are beautiful side seeing with good number of paddy fields, dry uplands, tea gardens, lowland jute fields, vegetable and potato yielding pockets. Canal side and rivers are good for local fishing. Women-self help gtoups and colour fish projects are there in this region. Kukurjan is an indigenous paddy to this region. Ditches are filled up by verenda and uplands with woody shrub phutki. Both are good quality fuel and phuki is often raised into dried piles as an alternative source to the firl wood and cow dung dry cakes. Bamboo bushes and palm trees are present here. Many social forestry and fruit plants are there. Some are also involved in floriculture. Some have taken initiative steps of farming instead of peasantry. Jute is also propagated in large amount in Teesta river areas. This block is also a destination place for the migratory birds from Eastern Europe, Russia, Siberia, western China, Central Asia, Kashmir and the Himalayas. Varieties of kingfishers, water birds, parrot, woodpeckers and dove are common to this place. Farmers are also aware of cane cultivation as well as aware of using of modern machinery such as pump set, tractor, power tillage, zero tillage machine, drum seeder, paddy ripper, coneweeder, etc. In the monsoons, chilli and potol could be yielded; but main crops here are as usual jhinga and dherosh. Jackal, fox, wild cats, water cats, bham, wild dogs, wolf, bear, leopard, elephant, bison, wild boar, rhino, water buffalo, wild buffalo, rabbit, grass land, porcupine, snakes and local beji were fauna there whose number have now been severely decreased. Besides cow and hen, there are cultivated ducks and goats. Goats are fed up with jackfruit leaves and dried-up pond base weeds. That increase the milk amount besides gandal leaves for all cattle. Goat dung and urine are strong manure. Sheep variety of Garol could be raised here. This place is also good in local rapeseeds and pulses, but not for winter rice, wheat, burly and maize. The reasons are low level in canal water and less knowledge about the micronutrients like boron, zinc, copper, magnesium, manganese and sulfurs here. Rajganj block could be an ideal place for citrus planted that could be expected for vegetative growth. This type of propagation is performed with proper cutting. On a stem potion of the shrub, a place is cut off partially and that cut mark is plastered with cow dung and tightly tied up with a jute piece and regularly watered. When roots come out of the cut vegetative mark; from

some lower portion less than one finger length, the twig is cut off and planted. Cutting would increase yielding of citrus fruit. However, citrus cancer is a disease of the plant where unusual shedding of fruits is common. Copper and chloride in the form of copper oxy chloride could be sprayed as an immediate cure. Tomato and Brinjal are other two important vegetables of winter. Cow dung manure, boron spray with margosa oil (agronim solution), NPK of 10:26 type, adhesive manuring, organic manure like vermicompost, water weeds, neem or mustard cakes could be applied especially in the case of tomato planted in the main land with a one by one hand distance. Fruit trap and light trap are often suggested to apply to naturally regulate the fruit boarders in cases of brinjal and tomato. Boron spray could give similar size five or more tomatoes from each cluster. Lime could also be applied as that could prevent cracks in the fruit in summertime. Dry pondside and pond bases are used in winter to planr arum bulbs. Floriculture is also interest of many. Margosa cake, boiled tea leaves, bone dust, mustard cake and tobacco cakes are essential in floriculture. Tobacco dust with kerosin is good for bitter gourd that should not be cultivated along with the other gourds. Flower plants yield well when tobacco is applied on this. Using cow dung and organic manure proportionate to land size, the main land (weed free) is prepared. Saplings are planted in a frame of one hand by one hand distance. Bone dust, ash and different cakes are then applied. In this, tobacco cake prepared from its leaves and stem water emulsion. Winter season is the time for rose and many such flowers. Moisture free condition with cold atmosphere between late spring and the autumn season with moderate temperature are good for this. Irrigation is needed in every week with proper system of drainage. Weeding and control of the pests are main challenges. Often hormones are sprayed along with micro nutrients for extra yield. Good yield could provide four times profit in comparison to the invested amount. Other yams are also common to the region. Fine bamboo, nol bamboo, makla bamboo, cane and sugar cane were once covered the place that again served as a common residence of snakes, rats and numerous small birds.

However, if this untimely tobacco propagation gets success in Rajganj, that would be added into the local agrarian economy and also provide some additional assistance through alternative ways.

Strawberry Cultivation

Strawberry cultivation is not common in plains of North Bengal. Some households are propagating this plant experimentally in garden pots. Such incident I have met with in an agricultural workshop during the Jalpesh autumn festival in Mainaguri block and the sample was from Pantapara Seshbati. Obviously, that was an informal experiment by trial and error method. The plant bore blue and white flowers with very small strawberry fruits. I have also met with such fruits yielded in bushes of Siliguri suburb in foothill region of Darjeeling region. Strawberry is not too tasty here but sour in taste. It is generally grown in upland areas where water could not stand for long. It definitely needs irrigation and water drainage system. It definitely needs further manuring. This may be application of vermicompost, cow dung and margosa cake. Organic control of diseases during seed treatment and manure application are important. In Hamiltonganj area of Kalchini block in Duars region of Jalpaiguri district, there I have also met with frequent cultivation of this strawberry during October-December that is going to be continued till March. Many people from Jalpaiguri, especially Duars region go for job in Maharashtra state of Deccan Indiawhich is the core area for strawberry (besides Himalayan pockets). Strawberry should be grown in rows with equal plant-to-plant distance maintaining some height. Therefore, in-between two rows, there is a canal used for irrigation and drainage purpose. In each point, maximum three plants could be planted. Besides organic manure, chemical fertilizers could also be applied in controlled way. Regular ploughing, irrigations and manuring are done. Weeding in essential and for that ploughing is usually done as much as ten times. First irrigation is to be done within 10 days of sowing. Vermicompost as organic manure is to be applied after 15 days and again after one month. From the second month, it is to be applied in every week. Multiple harvesting is possible here. Gradually, the yields decrease in quantity and give lower market value. There is lot to do for strawberry cultivation in North Bengal. How much fertilizer, how many times irrigation, and what amount of yield are different questions related to this strawberry cultivation. These are to be sorted out. Rajbanshis could also take it experimentally. But one thing is definite that without proper care, fruit quality and size are not going to be increased. Recently, from a local newspaper, I have come to know

that strawberry in small pots are being cultivated in the homestead by Animesh Mitra of Sirishtala at Jalpaiguri Town where the seeds have been brought in from Kalyani (Nadia district of southern West Bengal) in 2009 and mosquito net is used to prevent attacks of termites and other pests (*Uttar Bbanga Sambad*, a local news daily, dated 19-03-2013). In this way, I can guess that probably, in various pockets of southern West Bengal, strawberry is being grown up by peasants. It has good demand in Hotels and Restaurants. North Bengal, especially Terai and Duars are two other tourists' destinations besides the hill stations. So, Tourism and Hotel industry have a role to play in local economy. Strawberry can be a subsidiary to this. Rajbanshis can also take this opportunity.

Banana cultivation in Bengal-Bihar foothill pocket, India: Banana cultivation in Binnabari Village Panchayet of Kharibari block, Siliguri sub-division, Darjeeling district

Land preparation- application of lime
Manure: Cow dung manure, Organic manure and *Tricoderma veridi*
Drainage system: channels of Old Mechi River those remain dry in winter-summer season
Micro-nutrient: Borax
Allied crop: Ginger
Variety: *Singapuri*
Chinichampa
Bichiakla

Nature of cultivation: plants are propagated in post-harvest rice field similar to maize, wheat, mustard, sunflower, and sugar cane….plant to plant distance maximum two hands, not of more than one person height, maximum propagation in 15 *bigha* land
Locations: Debi Ganja, Bhajanpur, Dubba jote, Khopalasi, etc. continuous in Bhatgaon village area of Thakurganj*prakhand* under Kishanganj district Bihar.

Traditional use of banana: fruit, inflorescence (both fruit and leaf) as vegetable, rhizome as source of natural soda used in washing clothes, seeds in banana fruit of *bichiakela* with some medicinal use, fruit coat used as toothbrush. Pieces of green leaves are served as plates to eat foods.

Main diseases: Spot on banana, rotting of leaf, root rotting

Preventive cure: Acephate insecticide 1gm in 1 liter water solution for spots in banana fruit and leaf (this disease is caused by leaf and fruit scarring beetle)... Endosulphan (0.04%) or Carbaryl WP (0.1 %) also can control the pest population

Preventive cure: Hexaconazole 5% SC or Malathion 0.1% at 10-15 days interval in water solution (with sticker) for rotting leaf (this is banana aphid or panama disease caused by yellowish-green nymph and adult of the vector that rapidly grow up in lower surface of the leaf in high humidity and are followed by viral infection)

Nematode attack: Ginger and onion/garlic like cropping in banana plantation prevent fungal infection and nematodes in the root. Otherwise, Carbofuran 3G 10 gram with 400 gram neem cake (margosa) has to be applied in each pit during planting the crop. Otherwise, nematode and fungi free corms are to be selected and planted in fallow land that is well ploughed/tilled and sundried.

Regular weeding, burning of old leaf, hand ploughing of soil, any cutting but with fresh knife, application of 10,000 ppm (1%) margosa oil 50 ml in 16 liter water tank

Pseudo-stem and rhizome borers could also affect the plant. affected pseudo-stem is to slashed and burnt off. Pieces of old pseudo-stems along with paddy straw are placed on the ground to prevent attack of he grubs in the growing plants. grubs are killed by hand or burnt off with the pieces.

Tomato cultivation in North Haldibari

Entire Haldibari block under Mekhliganj subdivision of Cooch Behar district is famous for tomato propagation. Tomato is now growing throughout the whole year. Tomato is basically a upland crop. It has grown reluctantly by the roadside of Haldibari-Boalmari extended upto Teesta river bank. After paddy harvesting and other post-harvesting processes of Spring-Late Spring; along with many Late Spring and Winter vegetables and mustard, tomato is grown reluctantly throughout the season of Autumn and Summer. It needs timely irrigation, but not heavy rains causing rotten fruits. Peasants here use organic manure and micro-nutrients, which yields four to six tomatoes in each bunch. At a time, a plant can bear thirty or more tomatoes. Besides cowdung manure and vermiconpost, peasants here apply NPK (10:26:26) and spray boron directly or agroneem (margosa solution) in recommended

dose. Regular weeding is necessary. Plant to plant distance is about one hand and they are propagated in rows. Rows are at some height than the drains in-between. Drains serve for both irrigation and drainage. Fruit borers causes lot of hern to the fruits. Flowers often shed off untimely and as the summer comes, they started to breaking down. These are the main problems of tomato cultivation. Otherwise, there are no such problems in this cropping. Hybrid varieties, proper land preparation by ploughing and tilling, timely irrigation, and regular manuring with boron, planofix and agronim are essential in this. Saplings could be produced in nursery or seeds could be directly planted in the main crop land. Plants are tied up with a bamboo stick for an extra support when fruits are coming into. Often the entire row is tied up with ropes together.

Some modern techniques that have been absorbed by the agricultural knowledge system regarding mode of production of vegetables: lime application to reduce the acidity in soil; application of carbendazim fungicide and *trichoderma viride* for seed treatment against fungal infection; land preparation by ploughing followed by tilling and levelling with ladder; application of manure with *trichoderma viride* along with other organic substances like Pseudomonas and other fluorescence micro-organisms; cultivation in rows, drains for both irrigation and drainage; application of mancogeb for chemical weeding, application of planofix (NAA) (15 ml in a 15 litre water tank) to reduce uneven shedding off of flowers, application of boron or zinc one gram and half gram respectively in one litre warm water applied after cooling down for the same purpose; application of fungicides like bavistin, captan, carbendazim and rogor; application of ash and agronim to prevent fruit borers; application fruit trap and pheromone trap to resist flies that would hatch their eggs on the fruits and maggot from there boring into the ripening fruits (otherwise usage of various recommended pesticides for helicoverpa and spodoptera and their eggs, which is costly); removal and subsequent burning of the ripen crop and its part; application urea and murate of potash along with agronim to sort out the problems due to nitrogen and potash deficiency that cause browning and yellowing of the leaves respectively; regular irrigation; if necessary, timely pruning; hand weeding and additional hand ploughing along the rows, and multiple harvesting.

Sacred Bathing in Autumn - A Short Note

I was at Patharghata Gram Panchyate GP (village governing body) under Matigara Police Station in Siliguri sub-division of Darjeeling district (08-04-2013). The entire region is located in Terai region (Himalaya foothill) and close to Sukna forest. It is well communicated with Dagapur-Sukna national Highway NH 55 through Baroghoria; NH 31 from Matigara; and Himul-Pamkhabari-Kurseong road by Khopalasi-Khaprail. The region has three important locations namely, Patharghata, Rajpura, Dhukuria commonly known as Gaucharan. Throughout the entire winter-summer season, there is no *boro* or *aush* cultivation; only a few *amon* is cultivated in monsoon. Vegetables like *Panikumra*, pumpkin, bottle guard, some leafy vegetables and cabbage/cauliflower are cultivated along with some monsoon vegetables in kitchen-garden. People are using these connectivities for alternative jobs. major water stream is Chamta with its tributaries that remain dry in winter season. However, Chamta bears water for whole of the year and flows south-east in direction. In Mota jote area, very much i proximity to Baroghoria bridge, it for a while changes its direction northwards. Local Rajbanshis in late autumn go there and worship the stream for about two days and perform bathing that they call Baruni Sinan This is frequently practiced in villages of Jalpaiguri-CoochBehar, but only the single case for Siliguri subdivision. Whatever the other religious causes, this worship is connected with hope of early showers in April happening in North east India and North Bengal. Peasants there cultivate their crops in monsoon and fallow the land in rest part of the year. This practice is an indicator that this time for early raining and monsoon would soon come after the humid summer. People here rare cattle, duck and even hens. Nichintipur TE is also there causing settlement of Adivasis, a few Nepalis and others. Bengali speaking people are also here. Animal husbandry is an alternative economy to the place. People often depend on ponds, though facilities like drinking water, rural electrification, schooling, rural roadways and health centers have reached to the place. Another interesting feature here is the brick industry here which is singular in the entire Siliguri sub-division. Six chimneys I have found there. Of these, one is still functioning and trucks carrying them to other places. People still are attached to their

traditional beliefs like praying at thans, worship of Kali Mother cult, stones, trees, and Shiva. The latter is commonly prayed and the praying ground is generally fenced. Cult of Shiva, Baruni Sinan, cattle, brick industry and tea garden are feature of this Patharghata GP. New establishments like Buddhist Gompha, Buddhist colonies, reserve force battalion, residential schools and hostels besides dairy, food processing unit, automobile showrooms, real estate, construction business, law institute, *Gyanjyoti* college, engineering and management college could be noticed. In smaller number over there, off-shops of local liquor piggery, local fishing, weekly markets, sub-ways fast food centers, church, and bamboo bushes are other alternative features. Bamboo bushes in each village location are like bird sanctuaries. Small water bodies are the places of water spouts. No extra curative measures are taken for the animal husbandry however. Female based self-help group are there also but for food processing mostly. Local ice cream factory is there nearby. Brick factory is similarly important as compared to stone crushing in Balason bed and pottery at Palpara (potter hamlet). Haphazard and systematic urbanizations are both rapidly spreading there in this Siliguri suburb.

Some homestead could be still found with mud walls. In such a situation, consistency over winter land fallowing and monsoon-spring cultivation is still remarkable.....women could be seen in fast food center and this is a good expose for them. You could also see women more involved in raring their cattle and cleaning up of the small sized local fishes from the mud that the male and boys catch in the day time in local Chamta. In that context, Baruni Sinan is a good instance with larger participation of the womenfolk along with children and male members of the families. These people are living in village hamlets and some of these pockets have become rururbanized often looking like the slums physically, but mentally they hold in traditional values with them intact. Vaishnava sect is also predominant in this area and many of the Rajbanshis belong to this.

Remarkable, this sacred bathing is not performed in winter- the winter bathing is called as Maghali Sinan.....The Baruni Sinan is sacred, but the bathing place is not away from river pollution and post-winter dust. Baruni means "of the *Varuna*" and *Varuna* is definitely an Aryan deity of rains. This is also a symbol of Aryan impact upon the local people most of which belong to the indigenous agrarian cum pastoral Rajbanshis. This

ceremony has been being organized regularly since 1986 including a small rural fair at every last week of the last month of autumn according to the local calender (April of English calender). Folk people do not want to shed off their indigenous knowledge and notion of weather forecast deeply penetrated within their way of living. Early raining in the last month of autumn (local calender) is a special feature absent in other parts of West Bengal. this moisture once helped the bio-degradable and organic manure and ash mound of the shed trees and bushes being absorbed in the local fields. This raining also helps the vegetation to survive as well as resulting various pests attacking the plants. Tea gardens apply pesticides there to control them. However, heavy monsoon rains later destroy these pests into the wet soil. Baruni Sinan is also compared to bathing in Ganges performed by the Hindu pilgrims in special occasions for themselves as well as their departed ancestors (*Ganga Tarpan*). I have also heard that the organizing committee arrange health camps during this period. This year in late Autumn, it rains. But such raining has become quite untimely and irregular- a sure indication of changing weather. In close observation, I have noticed that the weather there in West Bengal along with humidity and monsoon rains have just altered by a month and fifteen days. rain might be a month early or a month and 15-days back!!!!

Method: RRA with In-depth Observation

SILKWORM CULTIVATION IN MAINAGURI REGION OF JALPAIGURI DISTRICT IN SUB-HIMALAYAN INDIA- some local perspectives

Silkworm cultivation is an important aspect in all the regions falling on ancient silk routes that also included Himalayan and sub-Himalayan regions. North Bengal that is constituted by North Western Bangladesh and northern districts of West Bengal state of India was renowned for Silk Production and Trading. Till now silkworms are cultivated in these districts and this specific cultivation extends further to Mid Bengal and greater Midnapore (Medinipur) in West Bengal. Neighbouring districts like Assam, Andhra Pradesh, Uttar Pradesh, Bihar and Jharkhand are renowned for handloom industry and traditional textile cottage industry. To some extent, silk has its contribution to a great extent.

Silkworm involves mulberry plantation. Silk is the fibrous protein of animal origin. It is produced by larva of silkworm to create the cocoon. These larvae eat only the mulberry leaves to produce the cocoons. These leaves are full of chlorophyll and protein content. So, pure silk production needs regular supply of fresh mulberry leaves. About 20 Kg leaves are required for production of one Kg cocoon. Mulberry (*Morus indica*) plant cultivation is therefore another side of silk production. Land preparation is essential and organic manure is advised to apply in adequate amount (eight ton per acre) along with nitrogen and chemical fertilizers (NPK) based on soil report. Nitrogen compound like urea has to be again added before the monsoon rains. This is called *chapan* manure. Rich organic manure makes the soil colour black. Growers are advised to stay constantly in contact with the agronomists and silk board office. Plants are subjected for vegetative propagation by cuttings from disease free mulberry plants preferably of 10 months old. Each cutting of 10 mm diameter and 15-20 cm length is a twig of woody shrub containing three to four buds. It could be reared in a bed and then transplanted into the mainland. Irrigation, regular weeding and pre-agricultural practices like ploughing-cum-tilling are necessary. This plant can be also reared in an earthen pot. Leaves are broad, green and heart-like in shape. Leaves are basically affected by powdery mildew of winter season and rotting of leaves in the monsoons. Both are caused by fungi attack. Diseased plants or plant parts are to be removed from the plantation area, buried down or burnt off. There are chemical pesticides and bio-pesticides available in the market. Farmyard manure preparation, mulberry plantation, vegetative propagation and supply of twigs, and collection of mulberry leaves are additional domains related to silkworm cultivation. Sub-Himalayan temperature, and rainfall precipitation are good for this type of yield. Nitrogen and farm yard manure are to be applied in higher quantities if the land receives water through irrigation and as a result of this some portion is drained off.

Silkworm larvae or *polu* are fully domestic in nature. For their domestication, a well built room (*polu-ghar*) with trays to keep in larvae and pupae has to be constructed and for that silk board is giving monetary assistance. In that home, larvae of *Bombyx mori* are reared and fed with mulberry leaves. In a frame, there are four to five racks built up of bamboo strips where six instars of silkworms are placed and fed with green leaves.

The frames are kept clean and stools of silkworms are to be cleared regularly. Bleaching powder and lime are used to keep the room and its surrounding germ free. These silkworms like cool places and therefore, if needed, exhaust fan can be used in *polu-ghar*. The fifth and sixth stages are much bigger than the first stage and this last stage turns into the cocoon or *guti*. These cocoons are collected and kept in the bamboo strip coil on a bamboo tray. This type of structure (rotary mountage) with variable size is treated as *chandraki*. The latter and rack are made up of bamboo and therefore could be prepared locally as a source of some additional income.

Silkworm is here of both local and Japanese varieties. Their cocoon colour is in either case in white. The cocoon of local variety is known as the *nistari* type and it is multi-voltine. Japanese variety is bivoltine in nature. Both cocoons look like white capsule and the Japanese type has a very good texture. Cocoons are sold to the regional silk board offices who then extract silk fibers from these cocoons and spindle them. Local people do not have adequate infrastructure to extract fibers.

Actually, muga, tasar and endi (or eri) are three indigenous varieties of silkworms here in Jalpaiguri district and these are cultivated in Mainaguri and Alipurduar regions. There, in Tekatuli a silk grower unit is there of the Mainaguri block similar to Matigara block and Nakshalbari block of Siliguri subdivision of Darjeeling district. Hill people of Darjeeling district are also involved in cultivating silkworm, especially the pure silk of Japanese variety. The cocoon of tasar (*Artheraea mylitta* and *A. proylei*) is brown, fine and capsular; this is basically a wild variety. Cocoon of endi (*Philosamea recini*) looks red in colour and like a valve or balloon. It is also wild, but could produce semi-domestic strain. This semi-domestic endi is preferred in Jalpaiguri and its cocoon is whitish and like a ruptured capsule. It also needs the rearing home with adequate measures.

The wild varieties are directly reared in plants are there is no need of rearing house. Eggs are to be collected from the office in packet and these packets are to be clipped in healthy plants. From one packet, two to three hundred larvae come out and start eating young leaves and twigs. These larvae eat leaves for the whole day and stage by stage increase in size. They could be thoroughly observed and should be transferred from one to another plant along with the bearing branch. Often these wild silkworms are attacked by microorganisms in their first, second and third stages. Bleaching powder is to

be applied in the soil before clipping of envelop. Pruning is necessary and trees should be within three to four feet in height. Pruning helps in growth of new twigs and foliage. These rearing plants are supplied from the office and perennial. Net system is necessary so that during the rains, wild variety larvae do not fall out from the tree into the ground and waste. Pupae are collected from the trees and supplied to the office.

Mainstream peasants (Rajbanshis and non-Rajbanshis) are not much interested in these silkworms and only consider as a subsidiary occupation. However, there are scopes and some peasants are now taking interest and attend various workshops. Tribal and other forest dwelling people are more interested and at a time they were involved in silkworm cultivation, silk fiber extraction and making of silk clothing. Such clothing are still being produced by indigenous and ethnic communities in Assam and they mostly prefer tasar and muga besides mulberry and endi. During my song stay in North Bengal, I often see the endi and tasar flies in common gardens and parks. Sub-Himalayan biodiversity here in North Bengal includes so many types of moths and butterflies and any observer could find out different types of cocoons on the branches of various plants.

Micro-nutrients are added to the soil or could be sprayed on the foliage. After the third mould, entire branch with young leaves are supplied to the larvae. In later stages, the nutritious upper portion is supplied for uniform feeding. Auxiliary buds are preferred more so as to allow more and more availability of leafy branches. There are other diseases also affecting the leaves, stem and root; but those are not so common in comparison to powdery mildew, blight and spots in leaves during the rains. Maintenance of leaf quality, regular feeding, cleanliness of the rearing house and germ-free conditions are essential in silkworm propagation. Exotic plant varieties with better quality leaves could be grown up by the grafting method on the local plant variety.

Endi half domesticated cultivation along with mulberry pure silk is the part of silk related IKS of the Mainaguri block of Jalpaiguri district. Monsoon raining, local vegetation, rivers, climate and everything are good for cultivation of these in upland areas there. However, it needs more awareness in favour of this propagation. Endi or eri favours leaves of *erenda* that is castor plant (*Ricinni communis*). Tasar needs plants like Arjuna or Ajan. Both these plants are available in Mainaguri block. Mal, Matiali and Mainaguri have the common vegetation of castor. Seed from *erenda* plant is important

source of lubricant and there is planning to grow up an *erenda* plantation in Mainaguri area. Improved varieties and hybrids can increase the yield of half domesticated variety twice. Three feeds are necessary on daily basis and soiled or mature leaves are to be avoided. Powdery medicines are there to keep these larvae disease-free. Wastes are not to put on the floor of rearing home. Hands and feet are to be washed before and after working in that home. Air should be in and out in the room and for that exhaust fan could be used. Special care is to taken during each moulding. When the larvae in final stage stop feeding leaves and twigs, they are to be transferred into the coils of the*chandraki* so that they could form cocoons. Greenish blue zebra and yellowish zebra strains of eri silkworm are more common than greenish blue spotted and yellowish spotted varieties. There are various hybrids of silkworms and good quality of raring plants. Scientist are involved in their experiments to improve this silkworm cultivation which is a type of insect-plant cultivation. There are however some additional scopes for the local people and government assistance for every stage with a fixed market. Market value of eri is however less than pure silk. People should be encouraged to cultivate this eri or endi type of silk, its half-domesticated hybrid and the *erenda* plant.

Traditional Agricultural Implements used by Rajbanshi community of North Bengal - A Short Note

Traditionally the Rajbanshis are using various types of agricultural implements and these are *nangol, joal, moi, beda, hachkiri, pitua, kholai, dali, chala, kula, faura, khurpi, kaichi, cham-gayen* and so on.

Nangol is the ploughing machine that is basically made up of wood. It is a first type of lever. Now-a-days, *dunkel* plough is increasingly preferred. Power tiller and tractors are also burrowed. Some families possess these instruments and often lend them to others. But, from the beginning of settled cultivation, Rajbanshis used to apply the wooden plough manufactured by their own. At a time, plough making was a cottage industry and they use shorea tree trunk as raw material. Informally, some Rajbanshis in interior region make wooden plough for their own use or on contract given to them. I have seen such incident at Sandhya village of Pathirajpur region of Itahar block of Raiganj sub-division in Uttar Dinajpur district. There were shorea forest in sub-Himalayan Terai foothills and

Varindland-Dinajpur ridge separating Teesta-Brahmaputra and Mahananda-Ganges river systems from each other. The ridge is an Indo-Bangladesh transnational region, whereas Terai is Himalayan foothill covering Indo-Nepal borderland. Matigara weekly market in Gocharan area in Siliguri Terai foothill was renowned for this instrument. The place was set in-between Mahananda and Balasan rivers and affiliated with a railway platform connecting Bengal-Bihar areas. In Duars and several pockets of Jalpaiguri-CoochBehar region, plough was being made and such authentic information I have hard from peoples there. This plough is made up completely of wood. It has three portions. A long stout handle is attached with the bent blade which is here also wooden. This ploughshare is known locally as the *haal*. This is made up with special care. They polish it and make the end tip very sharp. This sharpening causes the bent nature of this *haal*. The latter is meant for furrowing and turn up the land. By this up-and-down process, the soil is let to sun treatment. Post-ploughing irrigation is too much important here and the soil is ready to absorb the water. Sun treatment is otherwise helpful in destroying the harmful pests and their eggs/nymphs under the soil. One can pull the handle and the acute end would create furrow in the soil. Here, human energy of the plougher is being used.

Some more advancement could be brought in the plough machine. A ridge is created at the blunt end of ploughshare blade and there a wooden hinge is attached with and this is the third part of the plough. This hinge is fixed up with a pair of bullock. The animal energy pulls the plough and the acute end creates furrow in the ploughland. From behind by holding the handle the ploughman directs this a bit more complex animal machine system and by pushing it into the soil cultivates the land. So, both push and pull activities are found here.

Wedge or cleat or a conical wooden piece with sharp end is used to tighten the handle that is pierced into the ploughshare. This piece is known as keel.

The wooden log used to attach bullock pair with the hinge of the plough is known as *joal*. It is actually a wooden log that is fixed on their shoulders. The log has two curves each on its one end. These curves are placed on the shoulders of the bollocks. At the mid portion, hinge part of the plough is attached with. So, when the bullocks are running over the ploughland, both of them are pulling the plough with equal force and the *fola* (i.e., ploughshare) is furrowing the land more easily. Plougher at that time holds the handle

and pushes the blade into the soil. So, *joal* is balancing equipment. Plouger by holding the handle of the plough pushes the blade into the soil and at the same time gives the forwarding bullocks a definite direction. Bullocks run to that direction with equal force and by doing so they are actually pulling the plough to that particular direction. As this log or *joal* is fixed to their shoulder, they are actually pulling or dragging it with equal and balanced force. In their pulling, there is always a balance. Both the bullocks are moving in forward direction and at the same time working against the gravitational force of the earth. So, their resultant force equally falls upon the blade that makes furrow in the soil and turns up the land so to make it cultivable.

Moi or ladder is used by the farmers for leveling the soil. The ladder is made up of bamboo. It is not so big and actually used on agricultural purpose. It is tied up with the middle portion of *joal* or balancing machine. The pair of bullocks drags this ladder with equal and balancing force and the farmer from behind guides the bullock pair towards a forward direction and at the same time stands upon the ladder. All his body weight puts a pressure on the ladder and that loaded ladder the pair of bullock has to drag to the definite direction. In this way, the soil is leveled. Obviously, the direction of movement of bullock pair and the position of loaded ladder over the ground were at ninety degrees angle. By this technique, the ploughed land is then leveled and soil becomes soft, fine and beautifully leveled. In this type of ladder, the steppings are much closer to one another. The steps are made up of bamboo pieces. Each of these pieces has an outer and an inner side. In a closer watch, the steps look outer and inner alternatively arranged.

Beda is another agricultural instrument and it is a kind of first type of lever. Here, several bamboo pieces are prepared and each of them is shaped with an acute end. These are all of same size and shape. These bamboo pieces are then entered into a wooden log to provide it a comb-like shape. At the mid portion of this comb-like log, another log is tightly attached with. This log is tied up with the balancing instrument *joal* and pulled by a pair of bullocks who drags the *beda* over the leveled soil and creates rows. A handle is also associated with this tool and the cultivator holds it from behind. In this way, he directs the bullock pair and at the same time pushes the bamboo strips into the soil. So, push-and-pull technique here creates rows into the soil where seeds, seedlings and/or saplings are to be sowed with equal distance. This is also helpful in controlling the weeds

in between the rows and in order to create drainage system for irrigation. This is actually served as furrow.

Khurpi and *kodal* are the local names of dibble and spade. These are meant for digging up the soil, uprooting of weeds, softening of soil, remove gravels from the land and carrying manure to the plant base. Spade is used to bring up soil to the upland, lining, making irrigation canals, raised up the soil level and others. The blade portion is sharpened by the peasant by rubbing it continuously on the hone. These iron instruments with wooden handle portions are sold in weekly markets and also in festivals such as during the worship of Jalpesh in autumn. Jalpesh is a major cult for the Rajbanshis and His temple is situated at an upland region within Mainaguri block of Jalpaiguri district. The place is considered sacred surrounded by bamboo groove, Jarda stream locally developed, a pond side, a market area, weekly market area and so forth. The region is famous for both cereal and vegetable cultivation. Tobacco, arum, jute, strawberry, bananas, silkworm, fodder, different types of citrus, watermelon, sugarcane, potato and maize are also incorporated in this region. The Churabhandar region is the rice pocket and situated in-between the Jaldhaka river valley and Jalpesh-Jatileshwar-Raninagar upland areas. I was surprised to see the variations in the patterns of dibble sold there. Those were very sharp and sellers were mostly non-Rajbanshi localities. Such winter-autumn festivals when there are piles of processed paddy items and also different types of vegetables in the ground possess some extra importance. Processed paddy items are sold here at low price during these festival; dates and all the people come to the place. Pilgrims bathe in the pond water; worship the cult(s) and give the processed items to the beggars the latter people are not in any torn clothing. They seem to be neat and clean and beggary here is just a custom. After end of the day they even collect a bag full of processed food items.

There is another type of spade called *faura* that is composed of a wooden base and a tiny but stout bamboo pole like handle. This is however not used in the field, but at the courtyard to spread the stored paddy grains for daily sun treatment throughout the winter. That is a daily event for whole season of winter. Women around 8 o'clock in the morning spread the paddy grains at courtyard and generally the aged person in the home who does not go into the field use this *faura* in order to spread the gains homogeneously on the

floor to dry. However, this is not directly related to cultivation but post-harvesting activities.

Hachkiri is another important post-harvest instrument. Here, many bamboo pieces accurately sharpened at their tips are pierced into and by doing this fixed into a short and flat wooden log that has a handle also. This looks like a brush with hard and acute teeth. This is used for piling of the grains during stock raising and again bringing out the stock from the granary. It is definitely a sort of first type of lever.

Two additional instruments that were once used during the cultivation process were *pitua* and *kholai*. Both are made up of bamboo flakes. *Pitua* is looking like a boat with inner concave side and outer convex side. Ploughman fixes it at his back and it protects his body and head from lashing rain while ploughing the land throughout the day. On a curved frame, this boat like object is built up. Plougher wears the frame as a coat and the concave surface covers head and body from the backside. Lashing rain falls on the convex outer surface and runs down. Overall, it is a type of raincoat. Kholai on the other side is a jar made up of bamboo strips where seeds are being carried out by the plougher. He spreads the good seeds from that jar into the crop field prepared for cropping.

Kaichi or sickle is used here to cut down the ripened crop. This harvesting process with help of sickle is done in case of any cereal and fibrous crop. These are first piled up in the ground and then brought into the thrashing floor.

Dali, chala and *kula* are different bamboo and cane instruments used by the housewife for storing and winnowing. *Chham-gayan* is the hand driven husking machine. Bamboo funnels were used for keeping salt and mustard oil for household purpose. Bamboo tripods are used to keep the earthen candle in dark night. Rajbanshi women with assistance of male family members worked hard in night to prepare the rice dust that they used to manufacture *vakka* rice cakes sold in the market. These instruments in Chopra-Bidhannagar areas I saw to be manufactured locally by non-Rajbanshi folks much of whom belong to the Dom community.

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Background of the Study1

Rajbanshis are indigenous community of northern districts of West Bengal state of India and at the same time bear a caste identity. This identity is going to be diagnosed in the light of mode of production, social

issues, politico-economic aspects and religious matters. Gender perspective is also to be highlighted. Hindu Rajbanshis are traditionally agrarian and believe in social mobility and behave like a huge social fold with some sort of historicity. They also belong to Scheduled Caste category. This paper is a little try to see whether the caste institution can do in favour of social inclusion (or exclusion) in Indian context.

West Bengal state of India and the Rajbanshis

Like so many states of India, West Bengal is situated at the eastern region of the country and this was the western part of ancient Nation State Bengal that now no more exists. Eastern part of this Bengal region has now become an independent country of Bangladesh. Bengali as a nation in undivided Bengal was a Muslim majority (approximately 28 million Muslim as against 22 million Hindus just before partition of Bengal in 1947 AD when India and Pakistan got independence from colonial British Raj). Hindu dominated western portion was included as West Bengal state into the federal structure of India. Eastern portion, known so far as East Bengal with Muslim majority; became a part of Pakistanand was named as East Pakistan. After war for independence in 1971 with active support from Indian side, this region got independence as present form of Bangladesh. Bengalis are the majority of West Bengal population who speak in Bengali language along with several ethnic minorities talking in their own dialects and languages. Rajbanshi is an important out of them.

North Bengal

In pre-colonial times, the regions which are now designated as North West Bangladesh and northern West Bengal were then collectively known as North Bengal. North West Bangladesh contains sixteen districts under two Divisions (namely, Rangpur and Rajshahi). On the other hand, northern portion of West Bengal state in India contains a sum total of six districts. These six districts out of total nineteen districts of West Bengal state are still known as North Bengal which is an administrative zone. Its head-quarter is located at Jalpaiguri town. These six districts are known as Malda (also Maldah), South Dinajpur (or Dakshin Dinajpur), North Dinajpur (or Uttar Dinajpur), Darjeeling, Jalpaiguri and Cooch Behar. North Dinajpur and South Dinajpur districts have been divided in 1990s for administrative purpose. Before that they together were known as West Dinajpur district. Eastern portion of Dinajpur falls into Rajshahi Division of North West Bangladesh. Similarly, Malda was also a part of Rajshahi. The rest three districts of this northern West Bengaland Rangpur Division of North West Bangladesh should have some interrelationship. According to Census 2001, Hindu Rajbansis are 129,904 in Darjeeling of total individual 1,609,172; in Jalpaiguri 811,567 out of 3,401,173; in Koch Bihar 972,803 out of 2,479,155; in Malda 144,158 out of

3,290,468; in North Dinajpur 405,140 out of 2,441,794 and in South Dinajpur, 224,988 out of 1,503,178 and there of total 14,724,940 of North Bengal, Rajbansis have a population of 2,688,560 (18%).

(Source: Office of the Registrar General, India, page 1 of 4)

Rajbanshis and their Indigenous Statehood of Koch Bihar

Time to time, indigenous statehoods emerged out into the region and Koch Bihar was such a Kingdom. That had probably emerged out in sixteenth century AD during the Mughal period of Indian history and continued as a princely state throughout the British period. Koch Bihar means the Kingdom of the Koch. Koch is a tribal community. This tribal community combined with the agrarian caste Rajbanshis to form the Koch-Rajbanshi identity. Koch Bihar had its center in present day Cooch Bihar district town of Cooch Behar district of North Bengal. The Royal Kingdom was sub-Himalayan in nature. Two Himalayan states namely Bhutan and Sikkim were its closest neighbours beneath the Tibetplateau that now belongs to China. Himalayan Kingdom of Bhutan is still in its existence whereas Sikkim in 1971 has been incorporated into the Federal structure of India. Inclusion of Sikkim and independence of Bangladesh were both in the year of 1971. Jalpaiguri and Darjeeling districts were formed during the rule of British East India Company in Bengal and British Raj in South Asia (1757-1857 AD and 1857-1947 AD respectively). These two are frontier districts of North Bengal. Koch Bihar was definitely contributed in their occurrences. Included foothill and lower hill areas of Eastern Himalayan track from Bhutan and Sikkim into British India gave rise to these two districts. Branches of Koch Bihar dynasty had their strongholds in different pockets of Greater Koch Bihar. The most important of them was of Rajganj-Jalpaiguri that also spread over Panchagarh, Thakurgaon and Nilphamari. These latter three have now been incorporated in North West Bangladesh. They have been fallen under the Rangpur Division. Jalpaiguri as a district in colonial British India received a major portion of Bhutan foothills. Jalpaiguri branch was very keen about maintaining this Rajganj area that actually connects Jalpaiguri with Siliguri foothills. Akin to Chumbi valley of Tibet; the lower portion of Sikkim-Kalimpong Himalayas (now known as Darjeeling Hills containing of three hilly subdivisions) was added to this Siliguri foothills and in this way, present-day Darjeeling district got its shape. This included territory of Sikkim-Kalimpong Himalayas is known as Darjeeling hills containing of three hilly subdivisions. Koch Bihar dynasty was always with the British helping them into creation of Jalpaiguri and Darjeeling districts. British set up Darjeeling municipality on theDarjeeling hills that is now the district town. Koch Bihar dynasty and also other native collaborators established their establishment in this town. British established tea gardens and forest department in Siliguri foothills (Terai), Darjeelinghills and included Bhutan foothills (Duars). In this land of Duars-Terai-Hill, many townships with rururban features have been so far developed as a consequence of establishment of tea estates by the British and other native collaborators. Many mainland

people from different parts of South Asia and Bengal Presidency came to the Siliguri town and other townships. Adivasi people mostly from Chhotonagpur plateau of Jharkhand-Odisha region and Central Indian plateau were brought into the sub-Himalayan tea estates to work as tea garden labourers. Hill people from Central Himalayan country of Nepal under the Gorkha Shahi were also introduced to the tea estates mostly situated at the Darjeeling hills and some other remote sub-Himalayan pockets. These people are locally known as Nepali. Foothill people of Indo-Nepal borderland also invaded into this place. Rail connectivity and road construction were some other instances through which other peoples came into this included territory. Many Bengali castes and agrarian Rajbanshis also invaded the area in search of agricultural land. Agrarian tribes (like Santal and Oraon) as well as different caste groups from Adivasi dominated regions of Central India-Jharkhand were further attracted by job and business opportunities as well as fertile land patches by so many river valleys coming down from the Himalayas in both Mechi-Mahananda basin of Siliguri Terai and Teesta-Torsa plus Kaljani-Raidak-Sankosh river plains of Jalpaiguri district. Similarly, many Nepalese people entered into these territories and became Indian nationals. Many Nepalese hill people from Nepal and Nepali folks of Darjeeling Hills and other Diasporas joined into Gorkha regiment of British Indian Army and British Royal Army. Gorkha regiment still exists in Indian Army. These diverse peoples belonging to so many Nepali ethnic groups (primarily Hindu, Buddhist and animist), Adivasi communities like Santal (also Santhal) and Oraon (also Kurkhu), Rajbanshis, Bengali and other caste groups from formerly Bengal Presidency have had one thing in common and that is their settled mode of agriculture. These groups severely marginalized the indigenous communities in this Bengal Frontier. Among them were Mech, Bodo, Rabha, Toto, Koch, Garo, Tamang (Subba) and Lepcha. These communities were mostly shifting cultivators and producing different goods from forest resources. In the colonial period, they gradually accepted settled agriculture and other alternative ways of living. However, Totos and Dukpas tried a lot to keep them distinct on the basis of their orange orchards in Jalpaiguri Duars. In Totopara and Bauxaduar of this Bhutan foothill, Toto and Dukpas have been successful to keep their cultural identity intact, however in other politico-economic and social issues they are highly influenced by Nepali and Bengali people. Lepcha, Subba, Tibetan and Bhutia of Darjeeling Himalayas and Sikkim have been included into the Gorkha-Nepali fold. Dhimals of Siliguri Terai are similarly included within Rajbanshi fold as they were the probable wooden plough suppliers to the Rajbanshi agriculturists. In 1911 AD, when Bihar (along with present day Jharkhand) and Odisha (along with several princely states there) as well as North East India (along with tribal pockets and princely states there) were excluded from jurisdiction of Bengal Presidency; the Gorkhas also demanded for a *Pranta Parishad* (marginal state or excluded area or autonomy). Later, in the light of Gorkha nationhood, they again and again demanded for separate statehood of “Gorkhasthan” or Gorkhaland- a separate homeland for the Gorkha people in India. Adivasis in Terai and Duars have relationship with both Nepalis and Bengalis. They know very well about tribal nature of the foothill. Majority of them however do not demand for any separate statehood, but they have also time to time asked for Sixth Schedule under Indian Constitution. Earlier indigenous communities also demand for separate council. From 1980s onwards, Darjeeling Hill area was enjoying regional

autonomy by means of Darjeeling Gorkha Hill Council that has now been converted into the Gorkhaland Territorial Administration. These communities, especially Nepalis used to remind Indian government, state government of West Bengal and localites of North Bengal, that how important they are for the sustained inclusion of this land into India and their dedication to this country. They become emotional and too sensitive to address the demand of Gorkhaland. Their proposed area of Gorkhaland includes not only Darjeeling hills and Diasporas in foothills; but whole of the included territory and hence creating communal tension and causing ethnic clashes. These people of borderland often behave like human shields against Sino-Tibetan activities. Kingdom of Koch Bihar was too crucial to be a strategic location. It is also the gateway to North East India falling within Himalayan-Arakan enclave or Tibeto-Burmese fold. From this North East India, rivers like Brahmaputra, Barak and Feni enter into Bangladesh after crossing local hills and plateaus and form there various mouths, marshlands and firth on Gangetic Delta. For Bangladesh being a separate country, direct connection from mainland India to North East India through Bengal Delta and other criss-cross riverways would be much costly and problematic. Hence, this Siliguri Terai, Jalpaiguri Duars and plains, and lastly, districts of Cooch Behar together serve as the only connectivity between Indian mainland and its North East pocket. North Bengal is also treated as the chicken neck of India. It is also the only way to get into Sikkim and Bhutan.

Koch Bihar state was built up after the collapse of Kamtapur Kingdom centering on Gossanimari archaeological site of Sitai-Dinhata region of Cooch Behar district. Ruins of Gossanimari and present-day CoochBehar district town are located by different distributaries of Torsa River. Koch Bihar and Kamtapur were represented by the Female Deities namely Baro Devi and Kamteshwari (Greatest Devine Goddess and the Empress of Kamtapur Kingdom respectively). Kamtapur state was ruled by Khens who have now some concentrations in neighbouring Assam. Karup, Kamaru and Cuchhur (also Cucchur or Kachhar) were some sorts of indigenous state and statelet in North East India. Kamakhya was the Supreme Goddess for the state of Assam (then Kamrup). In Indo-Bangladesh pockets, there are local dialects like Boro-Kamta and Kok-Borok on Barak-Surma basin. On Feni entering into Bangladesh from North East India, there was a state called Comilla. All these Bangladeshi pockets along with the Chittagong coastline represent the Chittagong Division where one and only one sea port of Bangladesh Cox Bazar exists. In remote past, that region was known as*Harikel*. Chittagong coastline was a part of Arakan coastal province now falling into Myanmar. This has another name as Rakhine. People of Rakhine were mostly Buddhists and skilled for trade in seas and riverways. The three major Buddhist centers around India are Tibeto-Burmese belt, Arakan coast (Rakhine) and Sri Lanka. Arakan was also treated as way to invade in South East Asia. Arab traders built up colonies there. Portuguese also established stronghold there along with the local associates like the Mog pirates. Portuguese or “Harmad” groups were constant threat to Indian interest in Bengal for quite a long time and Mughals had to fight back against them throughout the seventeenth century AD followed by Anglo-French wars and British occupancy over Bengal and Andhra coast- the first step of British Imperialism. Actually, East Bengal in most of the time in history remained independent or Nation State doing business with Arabs, Orient, magical world, Iran and the Christians. Till now this region is

independent in the form of Bangladesh. Rohingya Muslims are Islamic elements in Rakhine and due to communal tension in 2012 there, these minorities are fleeing into Bangladesh and other South East Asian countries. Inclusion of Rajbanshis into the mainstream of Indian society is too much important in the context of South Asia.

Agrarian Rajbanshis and Development of Caste System

Caste, any of the ranked, hereditary, endogamous social groups, often linked with occupation, that together constitute traditional societies in South Asia, particularly among Hindus in India. Although sometimes used to designate similar groups in other societies, the "caste system" is uniquely developed in Hindu societies (Encyclopedia Britannica, retrieved 12 January 2013).

Strange to see that despite of all the trade opportunities with present-day North East India, Bhutan, Sikkim, parts of Bangladesh and the farthest Myanmar and Tibet; Rajbanshis are still attached to agriculture. Rajbanshis are also present in North East India, especially the Bodoland Autonomous Territory of Assam state there. They are also there in eastern pockets of Bihar and Jhapa district of Nepal, which depicts the Indo-Nepal border. Eastern pockets of Bihar are Thakurganj, Kishanganj and Purnea districts of formerly greater Purnia region of Bihar. Actually, the Mahananda river valley from Darjeeling Himalayas has its basin in Siliguri Terai, greater Purnea, Malda district and Rajshahi Division of Bangladesh, besides the Jhapa district of Nepal Terai. These Rajbanshis within this Bengal-Bihar borderland were outside the direct influence of Koch Bihar Kingdom. So, it is quite clear that Rajbanshis have their distribution along the river flows of Mahananda and Teesta-Torsa towards Ganges and Brahmaputra respectively. I have found that the Rajbanshis of Mechi-Mahananda region does not hesitate to maintain a piggery, but that is lacking in Teesta-Torsha. Mechi-Mahananda basin was a prime location for supply of good quality of wooden plough throughout undivided North Bengal and Matigara weekly market was famous for that. Liquor is a common beverage for Rajbanshi folks, but that was reached to the level of an industry in Matigara area. Mechi-Mahananda region outside Koch Bihar Kingdom in pre-colonial time was ruled by Purnea estate. Many Muslim, Vaishnavid and Bihari pockets were developed there in this region centering Matigara. Vaishnavid herdsmen Ghosh also have a Diaspora here. Siliguri Terai was a forestland rather than an agrarian belt. Dhimals there have Mallick surname, and the Rajbanshis are commonly known as Sinha rather than being addressed by Roy (mostly used in Jalpaiguri) and Barman (in CoochBehar). Rumours are there that the rivers in Mechi-Mahananda basin brought in gold sand with them. Communities like Hari, Dom and Chandal now belonging to the Scheduled Caste category also lived in the place. Kaivartha people were also staying there. They served as both agriculturists and boatmen. Namasudra community has a better understanding with the Rajbanshis. Rajbanshis and Namasudras are the biggest Scheduled Caste groups in West Bengal. Majority of them in West Bengalbelong to Hindu religion. Namasudras were once treated as shoemakers and marshlanders alongside the Rajbanshi (or pro-Rajbanshi) forest dwellers. Now,

both of these are the backbone of agricultural activities of North Bengal within Hindu fold. They have many things in common. Many Namasudras along with different Hindu caste groups have entered in North Bengal from Bangladesh in order to defend themselves from Muslim dominance there. Economic opportunities also attracted many Bangladeshi people in India and they are legally and illegally entering into India. Major points of such trespassing were the unprotected river banks at Indo-Bangladesh borderlands. Border Security Forces have been deployed in these borderlands and other disputed Indo-Bangladesh enclaves along CoochBehar-Rangpur border areas. Tobacco, wheat, maize, pulses, vegetables, potato, and even small-scale tea gardens have been provided alternative agro-economy values that might resist the local people there previously cultivating paddy and jute only from getting indulged into any anti-national activity. Mechi River is said to be related to the ontology of Mech community. It also demarks the international boundary between Siliguri Terai and Nepal Terai. These rivers are now sites for boulder and sand collection used in various construction purposes. These are the backbone of real estate business. Many of the rivers in Jalpaiguri Duars are used for the similar purpose. Dolomite and poor quality coal are also found in lower hill tracks of Darjeeling and Bhutan. This entire territory of sub-Himalayan region was often treated as the Kirat land. Kirats were certainly pre-agricultural people depending on forest resources. Rajbanshis of Jalpaiguri districts might contain some Kirat features and hence treated as *Deshi* or *Desia* (meaning indigenous). They mostly have Roy as their common surname. Koch-Rajbanshi combination in Cooch Behar district is using Barman as their surname. Barman is the common title for addressing royal designations in North East India and several pockets of pre-Islamic Bangladesh territories. Barman title was common among Royal Dynasties in North India, Indian Peninsula, Extreme South, Sri Lanka and South East Asia.

In the river beds of Cooch Behar, watermelon is being grown in large amount as never before. Areca and betel nut are identity of Rajbanshis. They also nurture bamboo bush at highlands, cane and sugar cane in marshes, grazing land of so many known and unknown species in sandy river beds as well as fern vegetation in slopes. Small rivers full of local fishes and crabs and shrimps could also be noticed. Silk cotton, wood yielding shorea and teak, catechu, and mulberry plants with silk worms, taro and yam in pond side, water hyacinth and water lilies in pool areas, mushroom and lichens in damp jungles, wild potato and radish as well as ginger-turmeric in wastelands and vegetation of different gourds including *potol* signify the commonness between Koch Bihar state and Assam both falling on the Indo-Malayan flora. Rajbanshis also pray to some sorts of dummy Gods that they call *Mashan* who protect them from diseases, death of child and mother or any pregnant women, epidemics and natural calamities. Women could perform rail dance. They could wish rain through marriage ceremony of frog prince and princes. This belief in *Mashan* prevails from Tibeto-Himalayas regions to distant Indonesia. Rajbanshis might possess homestead deity at home or such a deity for the entire village. They in these cases have no such figurine or idol instead. However, they could pray to different forms of Kali and Snake Goddess *Bishahari* or *Manasha*. They could establish eleven *thans* or sacred places together without any such idols and that they call *amti*. They also pray to *jiga* tree and trees of so many types. They offer blood

sacrifice to different forms of Kali the mother Goddess. Females could rain dance or pray for good harvest. They might give marriage of frog prince with the princess for quick raining. Rajbanshis are fond of drama, music, religious ceremonies, river worship, forest worship, worship of fertility cults like *Bhandani*, songs, fairs and social gatherings.

Again there are impacts of North Indian Gangetic valley and Indo-Nepal sub-Himalayas also. An associated caste group Chunia prepares lime from the shells of mollusk. Mango is a common in both the places. Tobacco, wheat, cowpea and maize are some other instances. Various woody shrubs used for fuel purpose, sunflower, rapeseeds, lentils, pulses, dryland medicinal herbs, date, plum, jute seed propagation, silk, and tobacco are characteristic features of Deccan Plateau. Actually, we could see that Teesta-Torsa and Mahananda are two distinct river courses separated from each other by a ridge or watershed known as Barindland or Varendrabhum. This is a highland with hard soil texture mainly covered with forest. This upland contains so many varieties of bamboo and ferns and mushrooms. This is a right place for wheat, mulberry, teak, and other plantations. Indigenous Rajbanshis here know carpentry very well. This upland is also a Diaspora of Varendri Brahmans of Hindu social fold. They often address themselves as early as Kashmiri Brahmanism or establishment of Aryan occupancy at distant Brahmaputra valley in the shape of *Pragyotishpur*. They prefer to pray to female deities and other fertility cults. They in Tibeto-Himalayas and sub-Himalayan belts are as ancient as the assemblage of republic confederacies there. We could exemplify by pointing out ancient Mithila, Koshal, Malla, and Panchala. These pockets of even pre-Vedic Aryans later have closed connectivity with Vedic culture ofNorth India (*Aryavarta*). So many social developments and alternatives like Buddhism were developed in due course. Various post-Vedic elements have entered into South Asia from time to time like Indo-Greeks, Indo-Scythians, Kushans, Tocharians, Gujjars, Hapthelites, Satraps, Avars, Rajputs, Turk-Afghans and Mughals. They brought the concepts of Shahanoshahi and Padshahi that influenced Buddhist, Hindu and Muslim rulers of mainland Indo-Pakistan region and even at the Gorkha Shahi of Nepal. Other Nation States, statelets and pre-state elements have been directly or indirectly influenced by these Shahi traditions. Villages however thrived on agriculture and caste institution on the basis of *Jajmani* service exchange system between family heads generation after generation. But the Vedic culture has become localized and through *Puranas* interacted with folk traditions and other pre-Vedic values. Rajbanshis are not the exception. This Rajbanshi name was mentioned in *Kalikapuran* and *Yoginitantra* also. Rajbanshis in their own traditional society have no such Brahman, but *Adhikari* performing various religious ceremonies. This type of socio-religious rank is also addressed by Namasudra and Kaivartha people of rural Bengal. These people were the ancient rulers of these lands. Rajbanshi literally means ‘of the Royal Origin’. From the myth of Parasurama, we have come to know that these *Kshattriyas* or ruling categories of non-Brahminical type were excluded from the mainstream and therefore expelled (*Vratya* or *Bratya*). These groups are spread throughout Bengal in the names of *Pundra Kshattriya*,*Bratya Kshattriya*, *Ugra Kshattriya*, Borgo *Kshattriya*, etc. They are mostly agriculturists. They generally bear the*Kashyapa* clan that symbolizes their link up with pre-Vedic Aryans and Kashmiri or such other type of Brahmanism as the probable alternative from the Vedic attacks. Varendri Brahmans were

probably the earliest Aryan settlers of North Bengal more concentrated in the ridge or watershed areas. Rajbanshis of these highlands prefer to use Sarkar as their surname. Sarkar literally means 'the Government'. This title is common among Rajbanshi Hindus, non-Rajbanshi Hindus and even non-Hindus like the local Muslims. These Rajbanshis were locally known as Dhokras still lacking from Census of India. Dhokras are good with making jute mats and carpets from jute fibers collected from neighbouring lowland areas. So many rain-fed rivers have been originated from this watershed and meet into either of Mahananda and Teesta. This highland is distributed into Indo-Bangladesh and therefore attaining a transnational nature. This geographical distribution is composed of catchment and marshland areas. Marshlands yield local paddy varieties, jute, and cane. From cane varieties like *gour* and *pundra*, these places were once known as *Gourvanga* (Gour Bengal) or*Pundrabardhan* (also *Pundravardhana*). *Tulaipanji* is the best rice variety of local type of entire North Bengal that grows in this marshland. These rivers and streams are also known for small fishes of *nadiali* type. Marshland areas again have various fishing ponds with pond fish varieties. Big rivers and lowland paddy fields held for fish-cum-paddy cultivation in the monsoons have other fish combinations. Various grasses often with medicinal importance grow in this area. If Barindland is the catchment area, then Rajshahi would be marshland. Dinajpur after the name of King Danujamardan Deva was emerged out for a very short time during the Muslim rule in Bengal at this Barindland. Therefore, Barindland is now treated as Dinajpur. However, its interior portions in Bangladesh are now in Rangpur Division as well as Indian parts are sporadically spread over Mechi-Mahananda basin of Siliguri Terai, Rajganj block of Jalpaiguri district, Mekhliganj subdivision on Teesta River at Cooch Behar district. Panchagarh and Thakurgaon districts of Rangpur excluded from Jalpaiguri during partition are entirely extension of Rajganj block. "The Inner-fort" or Bhitargarh fort of this area has fallen into Panchagarh which is an important archeological site. Rajganj-Panchagarh-Thakurgaon upland is the origin of three important rain fed rivers namely Karatoa, Purnabhaba and Atrai. These rivers are considered sacred and symbol of Aryanization of this region. These rivers nourish the entire Dinajpur and then create marshland *Chhalan beel* in the Rajshahi.

This Dinajpur-Rajshahi continuity at North Bengal was primarily represented by West Dinajpur and Malda. Portion of West Dinajpur where Purnabhaba-Atrai is passing by has been reconstructed as South Dinajpur district containing uplands, forests, rain fed rivers, canals and big water bodies. Remaining portion of West Dinajpur is known so far asNorth Dinajpur district. This district is the actual Bengal-Bihar borderline. While the Atrai-Purnabhaba-Karatoa flows towards Teesta, Brahmaputra mouth and Gangetic delta; North Dinajpur district is watered by another set of rivers like Nagor, Kulik, Gamor and Tangan that flows into Mahananda and therefore part of Gangetic plain. Local people say that the Mahananda water way was once regulated by Tibeto-Sikkim, Mech community, Kaivarthas and Varendri groups. Mechi-Mahananda basin, Mahananda-Nagor basin and Mahananda-Ganges floodland have now equally shared by Bengal and Bihar

considering North Bengal and greater Purnea. Indigenous communities here are distributed among Suryapuria, Pulia Rajbanshis, Kaivarthas, Hari and local Muslim settlements.

North Dinajpur is famous for its brinjals. This region was once famous for Tangan horse breed that no more exist. Jute carpets and handicrafts of bamboo and wooden pieces are characteristic feature to this region. These are mostly performed by Rajbanshi womenfolk. *Vapa* rice cake is such identity of Rajbanshi womenfolk of Rajganj block next to sacred Baikunthapur forest. Areca, piggery, jute mattress, cattle herds, poultry, fern collection, horticulture and alcoholic beverages from rice ball are distinct features of Rajbanshi womenfolk of Siliguri Terai. Dhokra mattresses, duckery, fishing, betel, areca, *kasai* fragrance, use of medicinal weeds and wetland grasses, date liquor as well as preparation of pickles are features of Rajbanshi women of South Dinajpur. Gottary, Sheep, floriculture, ornamental fish propagation, and vegetables are features of Rajbanshi women activities of Jalpaiguri highlands. Mekhla handloom, tobacco, natural dyes and silk worms were once distinct features of Mekhliganj subdivision highland of Cooch Behar. Chopra block of North Dinajpur, Siliguri subdivision, Rajganj block of Jalpaiguri and Mekhliganj subdivision of Cooch Behar are also characterized by pineapple and small scale tea garden. South Dinajpur is characterized by its chili and sunflower. Rajganj-Jalpaiguri area is featured by *futki* bushes used in fuel and local pulses like *Thakurkalai*. TheseNorth Bengal pockets of the watershed along with its heartland in North West Bangladesh (Rangpur and Rajshahi Divisions) were attacked from time to time. *Dhokra* also signifies a prickle shrub that was used for making barricades. Malda has relatively lower number of Hindu Rajbanshis. It was once a part of Rajshahi marshland. Mahananda-Ganges creates a floodland here which is good for paddy and jute. It has some highland also which is famous for mangos and silk as against the potato, yam and so many vegetables of Barindland-Dinajpur. Further, Rajbanshi women of Jalpaiguri and Cooch Behar used to make fish balls, utilize taro and banana in various ways, propagate arum in kitchen garden, prepare delicate foods from leafy vegetables like *dhenki, dhemsi, oshni, lafa, bathua, khuria kanta* and so many others.

Theses are some proofs that how Rajbanshi people are not together any single community, but a huge social fold containing different ethnic communities with so many tribal and non-tribal affiliations. They could even possess different modes of production depending on local ecosystem a bit different in Mahananda plains and Teesta-Torsa areas. That would even generate different lines of polity, economy and even religious values however intensively overlapped.

Again going back to the indigenous state of Koch Bihar, we could mark this for a dynasty continued for four hundred years (mid 16^{th} to mid 20^{th} century AD). Its wish to establish control over buffer regions like foothills and lower hills of Sikkim and Bhutan through mutual negotiation, emphasis on settled cultivation, incorporation of other shifting cultivators and pre-agrarian communities into the agrarian Rajbanshi fold,

friendly ties with Indian government in form of Mughals and British Raj, communicating between mainland and North East India, control over river trade routes from Tibeto-Himalayan region to mouths-firths-delta of present-day Bangladesh have made this statehood so much exclusive to South Asia's regional interest. This princely state after independence wished to be incorporated into Indian federal structure, did not oppose partition of Jalpaiguri district into India and North West Bangladesh of present day, accepted Hindu minorities immigrating from Rangpur and Rajshahi and even further lower floodlands as an immediate consequence of partition of Bengal, and decided to become a part of West Bengal state. However, there were also demands of remaining a separate state or merging into Assam state of North East India. Koch Bihar dynasty has marital relationship with Royal Rajput family of Jaipur Rajasthan and also Brahmo Society centering on Kolkata (Calcutta). Brahmo Society was a major cluster of Bengali intellectuals as a direct impact of westernization due to the British and other European merchants. Many members of big landholders, landlords, native bankers, tradesmen, and strangers from older cities moved to Calcutta in search of good hope and felt the need of socio-religious reformations in order to avail economic comfort and political opportunities. Some bourgeoisie and middle class groups emerged in Calcutta with new thoughts. Brahmo Society was one of those who trusted on Hindu *Vedanta* and decided to reveal inner qualities of Hindu religion to the Western people who thought this religion being highly superstitious, caste oriented, closed and unpractical. Brahmos claimed that inner doctrine of this religion lies in every religion of the world. It permits pre-Vedic, Vedic, and post-Vedic values ranging from animism to Vaishnavism-Islam-Christianity. There are so many fertility cults and caste institution as a division of labour for the agrarian folks. There are ancient magico-religious practices symbolizing our fear, faith and belief. And at the same time there is provision of thinking beyond the caste, loving all the creatures, every human being sons and daughters of the Supreme God who is the eternal truth, always there, present everywhere, actually without any symbol or figure, and the only one entity. People have their good choice to configure and become polytheist. As people could also divide the society into so many divisions of labour on the basis of ethnicity, class, estate, race, slavery, power and so many things and even making this division hierarchical putting immense pressure on the womenfolk (the lesser gender?) and vulnerable segments of the society. But, if the society is provided with alternatives to a situation only depending on agriculture and immense natural resources with a provision of preservation (feedback and natural resource management); then discriminations in the society would be automatically be reduced. Again, education and especially female education were timely demand. Widow Remarriage, abolition of burning alive of the Sati (Suttee), restriction on child marriage, protest against dowry, legal provision for property descendence to the female members were also issues raised by Brahmo Society. These things could not be the solution to the curse of black widow, witchcraft, black magic, immoral relationship, and means for preventing invasion of the outsider elements into a society who could hamper the social system.

Sri Sri Thakur Panchanan Barma of Khalisamari village of Mathabhanga I block of Mathabhanga subdivision of Coochbehar district was an eminent personality of the entire Rajbanshi society who tried his best for status mobilization of the Rajbanshi society. He was in contact with the Hindu pilgrim center Kashi or Bananas (Varanasi) at the bank ofGanges River in North India. Due to his immense efforts, Rajbanshis have been included within the Varna system with*Kshattriya* status. They are no longer *Bratya* or excluded in nature. They are influenced highly by Vaishnavid and Sufi Islam. They have also been influenced by Ramkrishna Mission, Bharat Sevashram Sangha, Satsang Vihar, Iskon and Anandamargi organizations. At home they still practice worship of Mother Goddesses. Tribal groups closer to this Rajbanshis behave like dominant communities in pockets. They do not shed off ritual of blood sacrifice, magico-religious performances, ethno-medicinal practices, indigenous weather forecasting techniques, and the non-Brahminical *Adhikari* sect. They still maintain their Kashyapa clan name and good terms with Varendri Brahmans. However, with time the Brahmo Samaj influence has considerably reduced. Yearly Bhandani festival in spring could be linked up with monsoon paddy harvest. They still admire to Kamakhya, Kamteshwari and Baro Devi and in this way they express their historicity also. The marital relationship with Rajput Royal dynasty of Jaipur, their mention in the Puranas and sacred rivers in Vedic texts are also reasons for self-resilience. Being Vaishnava, they could behave like Dominant Caste. Vaishnava monks are however not cremated, but buried in underground chambers in special posture. Some found lost traces of mummification. But such a guess is too imaginary to conclude anything. They have also Kirat affiliation. By means of Koch, they might have Bodo influence. Their village system was on the basis of joint extended families with a bulk of labourforce and cattle herds that used to cultivate a huge land called *jote*. Village was regulated by elders and the head. They should have influence of Mon people. Some Rajbanshis have Mondal title. Some have Das title like many of the Namasudras and Kaivarthas. Rivers from Bhutan into Jalpaiguri-CoochBehar and even in Siliguri Terai have specific locations by the names like Bhotbari, Bhotpatti and Bhutnir Ghat. These indicate once existence of ancient alternative parts of Silk Route from Tibeto-Bhutanese territory into Frontier North Bengal that finally riches to Bengal, Arakan and Bay of Bengal. Such routes should be there throughout Himalayan passes from Kashmir to North East India as well as South East Asia opening into Bay of Bengal, Andaman Sea and Arabian Sea. Rajbanshis, Bengalis and Varendri Brahmins might have this Bhati influence in-depth. Majority of Rajbanshis are agriculturists with some additional works like carpentry, handicraft making, dye yielding, clothe making and livestock management. During India's independence movement they were influenced by Mahatma Gandhi, Netaji Subhash Chandra Bose and armed rebellion as well. A major section of them support land reformation and power decentralization at village level. They are always in favour of rural banking, nationalized bank, self-help groups and micro-credit. Rajbanshis, Koch-Rajbanshis and Pulias are included within Scheduled Caste category. Caste here is nothing but sort of division of labour by means of which Rajbanshis interact with other service groups like Jugi (related to clothing industry), Chinia (lime producer), Teli (oil extractor), Goswami (Vaishnava priest), Adhikari (non-Brahminical priest), Sarkar (ruling category), Bhattacharjee/ Sanyal/ Bagchi (Brahman priest), Ghosh (cattle breeders and sweet

makets), Majumdar (ruling category), Mondal (agriculturists), Mahato (agriculturists), Mallick (agriculturists), Modak (sweet maker), Pramanik (hair dresser), Tanti (making clothes with jute fiber), Hari (thatchers), Chamar (butcher and shoe maker), Jele (fishermen), Sutradhar (carpenter), Kumor (pottar like Pal), Kamar (iron smith), Kolita (Assamese caste), Khen (oil extractor), Mali (agriculturist cum labourer), Badia (snake healer and ethno-toxicants) and so forth. These castes basically belonging to Bengali or Assamese, but could avail a dual identity shared with Rajbanshis and speak in local dialects. Rajbanshis of North Bengal have several dialects and they say that these are originated from their own language Kamtapuri or Rajbanshi language so much closer to Bengali, Assamese and even Maithili-Nepali speech. Panchanan Barma was opinion of that Rajbanshi and Koch were two different groups. Rajbanshis were excluded ruling category and agrarian castes. Koch is a tribal community with Mongoloid origin. However, both of them overlapped in such a way that now it is nearly impossible to separate them. In earlier census, efforts were made to separate them, but culturally they are so close.

We could explain this in following manner. Mythical kingdom of Pundrabardhana was situated on Pundranagara[1] city that had immense influence on Pundra (North Bengal), Vanga (Bengal Delta or East Bengal along with Sundarban and far flung Harikel), Sumbhra (heartland of West Bengal), Anga (Rajmahal area of Chhotonagpur plateau or Jharkhand) and Kalinga (Odisha, especially its coastal region and Chilika lake mangrove). Historically, the pre-Vedic urbanite and rulers of Pundrabardhana (namely, the *Pundra-Kshattriyas*) have been highly marginalized to interior regions and lower status quo of excluded type (*Bratya Kshattriya*). One such important pocket has been Jalpaiguri-CoochBehar. There they probably mixed up with Kirat, Koch, Mech, Kaivarthas, Pal-Kaivarthas, Kamboja-Palas, Puliyas, and other tribal groups, but praised for their technology of settled cultivation. Pundras were probably Austro Dravidians like Andhra, Savara and Pulinda. Again, Kirats were Mongoloid in racial features. But, both pre-vedic stalks worshipped Lord Shiva in various forms. We can also see that this Jalpaiguri area was related to Jalpesh temple, Indo-Greek symbol of olive ("Jalpai"), pro-Kushan king Jalpa[2], Jalpaiguri town, and Jelep-la mountain pass connecting Sikkim, Bhutan and Chumbi valley of Tibet. Actually, this Jalpesh is a stone symbol of Lord Shiva. Some say more to this that the stone was highly precious, symbol of Pundrabardhana civilization, and a falling star; and brought into this place from the city of Pundranagara when those pre-Vedic rulers were uprooted by Vedic Brahmans (symbolizing Parasurama), took shelter into this Kirata or Koch land, and accepted alternative Brahmanism, Kashyapa clan and pre-Vedic Aryan descent of sub-Himalayan track beneath Tibeto-Himalayan belt. Many such subterranean megaliths as the symbol of Lord Shiva are accompanied with this cult of Jalpesh. These are Jatileshwar at Hushlurdanga ("land of Hultsch") under Churabhandar village area of the same Mainaguri block and Jateshwar into Falakata block. Whatever it might be, Jalpesh temple is the symbol of unity in diversity of Jalpaiguri district. Many people regarded this district as a miniature of India. Koch people mark the Sankosh River bordering North Bengal and Assam as their probable origin. Sankosh is another name of Lord Shiva.

Both Bengali and Rajbanshi are primarily Hindus with some portion belonging to religious minority. Rajbanshis converted into Islam are known as *Nashya Saikh* or North Bengal Muslim. A few portions are again Christianized. Rajbanshis are primarily settled cultivators and have developed the caste system. Rajbanshis are talking into various local dialects in North Bengal. Bengali speaking people are also the majority in Muslim dominated country ofBangladesh. They along with other ethnic and religious minorities are together treated as Bangladeshi. A few Hindu Rajbanshis also exist in Rangpur region of Bangladesh. May there be population who belong to the Muslim majority of Rangpur and but are talking locally into Rangpuria dialect that also these Rajbanshis use. Other Hindu caste minority there also use the same dialect. These Nashya Saikhs also behaved like a caste. However, Islam does not approve the caste system and both Islam and Vaishnavism following the era of Buddhism are always against religious sanction to the caste. Caste is however present there in some form in order to facilitate the division of labour. Islam, Buddhism, Christianity and Vaishnavism always stand in favour of alternative options to agriculture. As a result of this, they focus much on trade or estate. Trade and estate are alternatively directed towards slavery, serf, employment, and class system. Agrarian mode of production of the Rajbanshis compelled them to become a caste. They are not shifting cultivators or estate holders or business personalities in a wider form. But now in this era of globalization, they are increasingly attracted towards urban life. Some Rajbanshis even set up small scale tea plantations that they never did before. They are further attracted towards organic cultivation, alternative crops, crop rotation, mixed cropping, fallowing in some cases, nitrogen fixation, seed production, nursery, complex agriculture and cash crops. They are demanding for easy transportation, cold storage, and wider accessibility, food processing industry, subsidy, information and right rice list evaluated on regular basis.

Impact of Caste System on Rajbanshis

Bureaucracy, class formation and caste-class-power nexus definitely exist among these Rajbanshis; some sections of this society are feeling deprived as many ethnic and religious minorities are feeling today. Many of them are demanding for separate statehood from a sense of deprivation in post-Soviet era. They are not free from the increasing economic discrimination and rat race happening in India. People are fleeing into the urban, per-urban, sub-urban and rururban areas. They are talking in favour of sustainable development and inclusive growth. They are simple people and want a peoples' friendly government. They are now putting the highest emphasis on their culture, identity, self-reliance, and education. Caste system is still the primmest feature of this heterogeneous social fold with its diverse history. Caste system is definitely a kind of social inclusion for them. But that does not happen in all the cases. Caste system often serves for social exclusion.

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[1] Pundranagara was developed by the bank of then joint flow of Teesta-Karatoa as a tributary of Brahmaputra mouth. That basin included Tibet, Sikkim, Bhutan, Duars, Jalpaiguri, Cooch Behar, Rangpur, Barindland watershed and also influenced over Dinajpur-Rajshahi through Purnabhaba-Atrai alternative water ways.

Pundranagara is now the Bogra district town of Bogra district of Rajshahi Division of North East Bangladesh. During the Ghurid Sultanate in India, Prince Bogra Shah reestablished this city. Rajshahi is often named along with Deccan Hindu Shahi, Rajput Shahi, Lucknow Shahi, Gorkha Shahi, Turk-Afghan Shahi, Mughal Shahi, Kushan Shahi and Sassanid Iran. Malda-South Dinajpur region is the historical place with sites like Gaur-Pandua, Gangarampur-Debkore, Ramavati-Lakhnauti.

Before this Islamic rule, all the mainstream political powers of India like the Guptas and the Mauryas set up direct control to this region.

In post-Gupta period and pre-Islamic regime, Palas from Eastern India ruled over entire Eastern India, Bangladesh and North East India interruptedly for four hundred years (750-1165 AD). Palas had trade relation with China and the wealth they got through such business was utilized in setting up of a welfare state and competing with other Indian powers in order to occupy North Indian heartland of Kannauj. They failed in doing so and those Buddhist-Vaishnavid ruling sect were defeated again and again by powers from extreme south, Deccan, Central Indian Rajput states, Gujjars, North Indian forces, Kamojas of Pak-Afghan territory near Kashmir and as a result, lost their control over Bay of Bengal to Arabs and Cholas of extreme south of Indian peninsula. Palas faced local protests in Mechi-Mahananda basin, Barindland, Brahmaputra valley, East Bengal and Indo-Nepal borderland.

Agitation at Mechi-Mahananda basin was famous by the name of Kaivartha agitation or Varendri rebellion. The protest got support from various local rulers allover Bengal. Palas actively backed Nalanda-Vikramshila Buddhist centers at Bihar as well as Paharpur-Mahasthangarh at Pundrabardhana (present day Bogra at Dinajpur-Rajshahi). Kaivartha agitation demoralized the Pala dynasty; however they were successful to resist the same.

After fall of the Palas at Pundrabardhana, that place went into the hands of Monk Jitari who kept good ties with Varendri Brahmans, local rulers of Cooch Behar-Rangpur, autonomous feudal lords of East Bengal,

Himalayan states, Tibet and Sen dynasty of West Bengal. Soon Turk-Afghan elements at the beginning of 13th Century AD under the banner of Islam reached into Indus valley, Kashmir, North India, West Bengal and finally, Pundrabardhana. They also tried several times to move into the Himalayan states and Tibet, but failed. These elements had established stronghold in Pundrabardhana converting it into an Islamic and Sufi center of Bogra. Sufi saint *Maheshwar* from Balkh area of Afghanistan visited to the place. Balkh had been the heartland of Indo-Greeks, Kushan Shahi and Kidar Kushans. They gradually took over the Gour, Gangetic Delta, Brahmaputra mouth, Surma-Barak valley, Feni river basin, Chittagong, pockets in North East India as well as Mahananda basin, Purnea, Bihar and its Indo-Nepal pockets, West Bengal, Chhotonagpur, Rajmahal, and coastal Odisha. They also interacted with Nepal, Kamtapur, Bodos, Kamrup, Cuchhur and Chetias. Turk-Afghans at Bengal-Bihar and feudal lords at East Bengal were replaced by Mughals and Rajputs; Kamtapur at Teesta-Torsa by Koch-Rajbanshis; and finally, Bodos at Brahmaputra and Chetias at inner Brahmaputraby Ahoms in 16th Century AD. Purnea and Mahananda were under Mughal Bengal. Kamtapuri and Koch interest at Malda, Dinajpur-Rajshahi, Bogra and Rangpur proper were totally lost to the Mughals. Cooch Behar had become a subsidiary alliance of the Mughals and British India against Himalayan and Tibetan interference in Bengal. They also behaved as intermediates betweenAssam and Mughal Bengal. Cooch Behar established its branch at Jalpaiguri that incorporated Jalpaiguri plains, Rajganj, Baikunthapur forest, Barindland, Bhitargarh fort, Panchagarh, Thakurgaon, Nilphamari and wider portion of Bhutan foothills including Alipurduar. It had also influence over Kurigram and Lalmonirhat areas of Rangpur, Kaljani-Raidak river system at Tufanganj and various parts of Assam.

[2] People also say that pro-Kushan king Jalpa ruled this place Jalpaiguri. Kushans were originally Tocharians from Central Asia. Tocharians were not directly Indo-Aryans or Indo-Iranians, but distinct Eurasian group who also belonged to the nomadic Rong people moving here and there along the western and the northern borders of agrarian Chinese civilization and urban pockets. Most of the Rong people were included in Chinese society and some have even been distributed in Japan, Korea and Manchuria. Mogols pushed out many Tocharians into Central Asian and Russian Steppes. Most of them have accepted Islam, such as Tatars of Tatarstan of Russia and Uighurs of Chinese Turkistan. Tocharians have spread over Europe, Turan, Irano-Afghanistan and also treated as Turk elements. They in first century BC definitely occupied Balkh and Badakhshan from the hands of Indo-Greeks. Kushan Emperors worshipped Nyishi, Buddha, Vishnu, Buddha, Greek deities, fertility cults, and again, Lord Shiva. They probably had closer ties with Kashmir and Tibet. Indo-Greeks, Kushans and Kambojas probably innovated in sub-Himalayan region and reached upto this sub-Himalayan North Bengal. Rajbanshis sing a typical song known as the Kushan song. Myth of pro-Kushan king Jalpa, the notion of preserving pond biodiversity and even worshipping them, Greek links with North Bengal sub-Himalayas, yearly arrival of migratory birds and coming down of high altitude people with woolen dresses and spices and orange in every winter, business with Tibet, pastoralism, and existence of Silk Routes indicated to possible intrusion of pre-Vedic Aryans, Tibetan, Bhotia, Buddhists, Indo-Greeks and Tocharian Kushans throughout the sub-Himalayan

Kirat land. Kambojas are one of the indigenous stalks of Afghanistan. They also arrived into North Bengal in pre-Islamic time. We could imagine continuity of Kambojas from Central Asia-Afghanistan to Cambodia in South East Asia. We can also imagine Kirat, Koch, Boro-Kamta, Kok-Borok and such others as various regional variations. These groups might have spread into Kashmir, Indus valley, India, Gujarat, peninsular India, Bengal and coastal Andhra. They might have even a wider distribution throughout the world. Might they have some links with Pharaohs of ancient Egyptian civilization that the Egyptologists believed the womb of all civilizations! Turk-Afghans also inspired later in order to invade into this place under the banner of Islam. This cult of Shiva is named in Buddhism as Mahakal. Jewish also confirmed the cult as Jehovah. Proto-Shiva was cognate of Indus valley civilization. Mother Goddesses like Kali and Manasha are directly liked up with this Shiva. Shiva temple is there at the center of Darjeeling district town. Nepal as the Central Himalayan country is also symbolized by Lord Pashupatinath at the capital Katmandu. Pashupatinath is also another form of Lord Shiva. Entire Austro-Dravidian belt of India worships Lord Shiva in different names. Shiva has been widely accepted by Aryan stalks as well. During the foundation of Koch Bihar dynasty and Koch-Rajbanshi kingdom, the king prayed to Jalpesh for wellbeing of the state. Therefore, this union of Rajbanshi and Koch is quite impossible to break down and it has become entirely cognitive.

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Background of the Study 2

The term “Ethnobotany” was coined by J. W. Harshberger in 1895 to indicate plants used by the aboriginals: From “ethno”-study of people and “botany”- study of plants. According to Schultes (1962), ethnobotany is “the study of the relationship which exists between people of primitive societies and their plant environment”. Ethnobotany is considered as a branch of ethnobiology. It deals with the study and evaluation of plant-human relations in all phases and the effect of plant environment on human society. It has two definite parts: botany that discusses about identity of the specimen and how plants being used; and anthropology emphasizing on cultural/religious role of a plant and how it fits into people’s lives. Ethnobotany under indigenous local perspectives within a rural set up could be classified broadly into two overlapping domains: ethnomedicinal practices and alternative agriculture. The former might be viewed from the perspective of Medical Anthropology that does not undermine magico-religious and socio-cultural embalms. When the facts from such a study are applied in favor of human life, the entire process is treated as Anthropological Medicine parallel to Modern Medicine and other Ethno-Medicines. Three areas of anthropologically-oriented ethnobotanical have flourished so far: paleoethnobotany (recovery, identification and interpretation of archaeological plant remains); ethno science (the study of indigenous taxonomic nomenclature with a goal toward elucidation of the cognitive principles of classification); and ecological anthropology (including ethnographic studies which explored the relationships among human populations and their exploitation of the natural environment). There are several methods of ethnobotanical research: archaeological search, review of literature, Herbaria and the field studies. The last one is most

relevant here and if this field is investigated thoroughly and systematically, it will yield results of great value to the ethnologists, archaeologists, anthropologists, plant-geographers and pharmacologists etc. Basic quantitative and experimental ethnobotany includes basic documentation, quantitative evaluation of use and management and experimental assessment.

North Bengal forms a unique biogeographic province encompassing major biomes recognized in the world. North Bengal, the northern 6 districts out of total 19 of West Bengal, is composed of Gangetic and Brahmaputra water systems that are separated by Dinajpur highland in-between. Most of this highland has been fallen not in India but into north western extension of Bangladesh.

North Bengal is characterized by multiculturalism, so many migrated communities and indigenous groups, tribal people, ethnic minorities, mainstream societies stratified in several ways, religious groups, hill people, plain inhabitants, folk, rural, semi-urban and urban categories. This is a geo strategically important place and subjected to geo-politics. But for that there might be so many reasons on local, national and international grounds as the place is no longer remains isolated and traditionally said to be a trans-national trade route. Of these there is a community called the Rajbansi that according to 2001 Census of India comprises of 18% of the total population of North Bengal. Rajbansis are not tribal people, belong to Hindu mainstream population, have caste stratification, hold traces of quasi-egalitarianism, maintain a rich cultural heritage, live with own folk traditions, accept material cultural input from modern civilized sectors, progress towards development in a sustainable way, aware of identity, and establish as integral part of the agrarian rural structure of North Bengal plains. These people have internal cultural variations basically on regional grounds. They say that they are the aboriginals, but progressive section and henceforth modified with time. They are settled cultivators and rural peasants. They have their indigenous knowledge system.

North Bengal along with North East India as the part of both Himalaya and Indo-Myanmar biodiversity hotspots has the richest reservoir of plant diversity in India. Nort East is one of the ‘biodiversity hotspots’ of the world supporting about 50% of India’s biodiversity. All types from grassland, meadows, marshes and swamps, scrub forests, mixed deciduous forests, humid evergreen forests, temperate and alpine vegetation are found here. The varied forests types found in the region are home to numerous plants and animals. Specially, the region exhibits the richest diversity in orchids, zingibers, yams, rhododendrons, bamboos, canes and wild relatives of cultivated plants. It is also considered as cradle of ‘angiosperms’ as primitive plant families such as Magnoliaceae, Lauraceae, Hamamelidaceae, Degeneriaceae, Tetracentraceae and Lardizabalaceae are well represented here. AQbout 50% of the total 17500 flowering plants hail from the region, and 40% of them are endemic. Wild relatives of economically important species, some important and notable including citrus, banana, rice, sugarcane, and pulses, are originated here. The estimated diversity of some major crops includes- rice (9650+), maize (15 varieties and 3 sub-varieties), banana (14 species), citrus (17species + 52 var), sugaecane and its wild relatives (15 species), bamboo (60 species). Hence, the region is the place of origin of progenitor of many cultivated crops. A rich variety of germplasm exists under various crops that include upland rice (298), brinjal (37), ginger (60), chilies (68), maize (674), tumeric (60), grain legumes (200), sweet potato (5), cucurbits (76),

taros (250) and yams (242). Hill people still practice shifting as well as various step/bench/terrace cultivations. The people including Rajbansi agrarian community in plains celebrate numerous festivals and majority of them are associated with agriculture. They have developed rich Indigenous Knowledge System (IKS) on the uses of components of biodiversity for their daily sustenance like food, fodder, shelter and healthcare.

Biodiversity is a public policy as well as a scientific issue. Biodiversity, like food security, is a regional as well as global property, and it can be divided into a number of interdependent levels. Such levels include genetic diversity, species and subspecies diversity, diversity of functional traits, diversity between populations or communities of species, ecosystems or habitat diversity, diversity among large landscape zones, and global diversity. It maintains ecosystem stability. It provides major cost-free Global Public Services in terms of food, fiber, industrial compounds, fuel and drugs. Biodiversity could be protected by genetic conservation; IKS regarding agriculture of various kinds, horticulture and floriculture, gardening, kitchen garden and fencing, animal husbandry, agro forestry, sacred grooves and fisheries; forest, wildlife and wetland management. Biodiversity in the agro-ecosystem can be decreased further when traditional, diverse, locally adapted crop varieties with resistance to native diseases and pests are abandoned, genetic resources of wild verities are continuously neglected, and intercropping is halted in favor of high-yield monocultures followed by genetically modified food cultivation. Pesticides and various non-biodegradable chemicals through food chains and food webs can harm the whole ecosystem. Organic food has high demand in developed countries. Organic manure, alternative pest control measures, use of byproducts, water and soil management, propagation of ethno-medicines, food preservation, barter system and reciprocity, magico-religious interpretation and folk perspectives, quality control and food ways are various other aspects of agriculture-oriented IKS. Alternative agriculture used on small and family farms has great potential for productivity; it is less chemically and mechanically intensive and more ecosystem friendly (inverse relationship between farm size and output). Reasons behind this are as follows: (1) multiple cropping; (2) more efficient use of irrigation; (3) joint-extended family system: relatively higher labor quality and supervision (likely due to the use of family labor with a greater stake in farm success rather than alienated outside workers), and (4) non-purchased inputs as opposed to the agrochemicals of large-scale intensive agriculture. Agriculture, occupying approximately 40% of the world's land surface (excluding Antarctica), represents perhaps the biggest challenge to biodiversity, directly in terms of the conversion/destruction of natural habitat for agriculture as well as the environmental effects of intensification, such as environmental toxification from pesticides and fertilizers and generation of greenhouse gases from fossil fuel followed by direct overexploitation of organisms and climate change. Indigenous Knowledge Systems of farmers may again be classified into the following categories: (1) ecological: innovations that result due to interaction among crops, soil, and climate; (2) historical: a major happening such as crop failure or year of glut or scarcity; (3) serendipity: a practice discovered by farmers accidentally; (4) economical: farmers innovate new practices taking advantage of government subsidies for flood and drought relief activities. Emphasis has to be given on (1) cropping systems, (2) seeds and sowing,

(3) seed processing, (4) soil health care management, (5) planting techniques, (6) crop nutrient management systems, (7) weed management techniques, (8) plant protection strategies, and (9) post-harvesting procedures.

Large scale of (a) biasness, (b) huge distance between the folk and the information gatherers/ the trainers, (c) special status of the monitoring and evaluation (M&E) officials and (d) extra-emphasis on crop yield are certain methodological obstacles in doing such studies on agro ecosystem, biodiversity and IKS. Formal to informal farmer-to-farmer communication and agricultural extension systems are the major sources of technology/information dissemination in the same village and neighboring villages where technologies/information/knowledge are developed through informal/unintentional experimentations on practical ground via trial and error methods as a continuous process. Knowledge about the indigenous ways of communication in market days, on village temple days, within a village-level women's society as well as cooperative marketing points are very much essential to understand properly. Advocacy, Rapport Establishment and Impression Management, Training and Visit system (T &V), Observation, RRA and even PRA (if necessary) fit well in such study to make it more objective and less biased.

Knowledge is a part of culture that is of two basic types: modern and traditional. Cultural studies are done in various ways: holistic study of mankind (anthropology), psychic unity of mankind, unilinear evolutionism, multilinear evolutionism, diffusion of cultural traits and cultural change, cultural ecology, culture areas and acculturation, transformation, cultural traditions, cultural lag, structural functionalism, societal structure, social structure, social organizations, personality, mind structure, binary opposition, communication, numerous variations of a given relationship, World View, cognitive anthropology, linguistic anthropology, phenomenological anthropology, culture as a complex whole (civilization), culture as just the result of psychobiological need and never leading to civilization, cultures and cultural relativism, Rapid Rural Appraisal and Participatory Rural Appraisal, Post-Modernism, New Ethnography, humanity studies, human-nature-supernature relationship, magic and religion, ethno-science, folk life, peoples' knowledge as the oral traditions deeply embedded inside the values and norms and thus acting like traditional knowledge system, symbolic anthropology, traditional knowledge system, ecological knowledge system, indigenous knowledge system. Traditional knowledge traits are generated as a result of informal folk experimentation through trial and error method and these are basically oral, undocumented, subjective, non-rational, losing with time and therefore pierced into cultural and religious values of the folk life in the shape of a traditional knowledge system. So many traditional knowledge systems scattered in uneven manner are to be identified into 'religious laboratory of survival', encoded from cultures and documented in a proper way so as to generate an Indigenous Knowledge System (IKS). IKS is a multidisciplinary subject and incorporates the following dimensions: physical sciences and related technologies, social sciences and humanities. On the community basis, IKS could be divided into various domains like Agriculture and Post-Agricultural Practices; Animal Husbandry and Poultry; Ethno-Fishery; Hunting and Gathering; Artisan; Disease Treatment, Ethno-Medicine and Folk Remedy; Traditional Economic and Political System. Simply saying, all of IK providers are well informed about their own situations and their

resources; what works and doesn't work and how one change impacts other parts of their system. This IKS could play a great role in managing the highest challenges of Global warming, Rapid loss of bio-diversity, Crisis-prone financial market, Growing international inequality, Emergence of new-drug resistant disease strains & Genetic engineering. Further, developmental works in a rapid unidirectional way could cause problems for world humanity as well as nature. And that issue related from human rights to bio-piracy is often politicized to grab human attention on local, national and international basis. From long experience gathered by local people about nature as well as utility of natural resources with feed back and traditional management systems in the form of IKS; these problems could be hoped to be resolved. Proper concept on IKS is not enough to make a developmental program nearly all acceptable and more nature-friendly (sustainable); but interpretation of folk perspective revealed during ethnographic in-depth studies is also needed. The Global Knowledge System is composed of Scientific and Indigenous Knowledge System. The latter is fully capable of filling the gaps that the former could not mitigate. Global Public Services from the latter is often necessary to tackle the problems generated by the former.

Dinajpur highland seems to be the missing link of plateaus of ChhotoNagpur and Meghalaya of North East India. North East India is in a three layer situation. Here Brahmaputra valley is surrounded by Eastern Himalayas plus Indo-Myanmar hilly tracks along the Tibeto-Myanmar belt. On the other side of the valley lies the third layer formed by Meghalaya plateau and neighboring hills. This three layer system of North East India enfolds the fertile plains ofBangladesh. Brahmaputra water system of North East India and Teesta-Torsha river valleys of North Bengal are continuous and they jointly enter into Bangladesh plains. This major water channel traverses Meghalaya plateau from Dinajpur highland. While most of the Meghalaya plateau falls in North East Indian territory, Dinajpur highland belongs to north western part of Bangladesh and certain parts of North Bengal. Dinajpur highland in North Bengal is accompanied by Mahananda river system to its west. This river Mahananda lies out of Brahmaputra valley and is integral part of Gangetic plain. Mahananda river valley flowing along North Bengal-Bihar state boundary represents the Gangetic part of North Bengal. Rain-fed rivers from Dinajpur highland fall both into Mahananda-Ganges as well as Teesta-Brahmaputra river systems. This Gangetic part of North Bengal together with Dinajpur highland are again discontinued from Gangetic part of South Bengal (southern West Bengal consisting of 13 out of total 19 districts of West Bengal state) as well as ChhotoNagpur plateau and Rajmahal hills of Jharkhand state (continuous with Central India) by River Ganges before it enters into Bangladesh. So, the famous fertile plains of Bangladesh are basically part of River Ganges where it produces the largest river delta (Bengal Delta) and the richest mangrove forest Sundarban at its mouth on Bay of Bengal. Teesta, Brahmaputra and many more rivers from North East India join into this water system of Ganges in Bangladeshi territory. However, the famous Bengal Delta covers a huge portion of Bangladesh and a part of South Bengal.

Several buffer states were developed in these mountains, hills and plateau of which Bhutan in Eastern Himalayas still exists. The Gangetic part of North Bengal is associated with Siliguri Terai and Kurseong-Darjeeling hills that are again attached with Nepal / Central Himalayas.

The Brahmaputra part of North Bengal is composed of Teesta-Torsha valley which is again associated with Bengal Duars (Our of 6 districts of North Bengal; Maldah, North Dinajpur (Uttar Dinajpur) and South Dinajpur (Dakshin Dinajpur) are on Gangetic part. Cooch Bihar (Koch Bihar) and Jalpaiguri lay on Brahmaputra river system. Darjeelingdistrict is the juncture of these two: Kalimpong hill belongs to Teesta-Torsha region of Brahmaputra river system, whereas Darjeeling-Kurseong hill plus Siliguri Terai on Gangetic side.

Out of 6 districts, Jalpaiguri and Cooch Bihar are nourished by Teesta-Torsha river valley coming down from Sikkimand Bhutan that then meets River Brahmaputra in Bangladesh. Brahmaputra valley is the lifeline of North East India and Teesta-Torsha valley is the westernmost part of it. Both flow into Bangladesh and meet there.

Darjeeling district (west to Jalpaiguri - Cooch Bihar) set up is composed of three hilly subdivisions and a foothill one. The three hilly subdivisions were historically parts of Sikkim and Bhutan centuries ago that are geo-strategically very important for their connectivity with Chumbi valley of Tibetan Autonomous Territory of China. Darjeeling district is important for another reason also: it is the marginal place between Nepal or Central Himalayas and Eastern Himalayas composed of Sikkim, Bhutan and Arunachal Pradesh.

The foothill region between Eastern Himalayas and Brahmaputra valley as a whole is regarded as Duars/ Doors region. Such foothills from Bhutan were included in India: Bhutan Duars is now segregated into Assam Duars and Bengal Duars. The latter is included into district of Jalpaiguri. On the other hand, the foothill subdivision of Darjeeling district (Siliguri) is placed outside of Duars and Brahmaputra valley. Rather it is the easternmost extension of the Central Himalayan foothills (Terai). Simple to say, rivers from Central Himalayas and Terai are part of Gangetic plain and that from Eastern Himalayas and Duars into Brahmaputra valley. These two major water channels of Ganges and Brahmaputra meet together and flow jointly into Bay of Bengal creating the world's largest river delta. Some minor rivers from North East India also unite with this water system. On this water system, independent country Bangladeshhas been developed with its own historicity and political background. Part of the delta region has fallen into South Bengal (southern West Bengal). But here the emphasis is on North Bengal or northern West Bengal.

Rest three districts of North Bengal are North Dinajpur (Uttar Dinajpur), South Dinajpur (Dakshin Dinajpur) and Maldah. These are not at all parts of Brahmaputra valley but included into Gangetic plains. Dinajpur is a highland area that segregates Brahmaputra valley and Gangetic plains. Eastern part of Dinajpur highland is incorporated intoBangladesh. North-western region of Bangladesh is composed of this Dinajpur region; place where Teesta-Torsha water flow along with several rain-fed rivulets from Dinajpur highlands meets major distributary of River Brahmaputra; and thirdly, place where the latter unites with major distributary of River Ganges. The western part of Dinajpur was included into North Bengal as West

Dinajpur which has been now re-divided into north and south creating North Dinajpur and South Dinajpur districts. This Dinajpur region of North Bengal is adjacent to Purnia district of neighboring state Bihar westwards. The Islampur subdivisions of North Dinajpur and even at a time, Siliguri Terai were included within Purnia. A rain-fed river Mahananda from Darjeeling hills enters into Siliguri Terai and Islampur subdivisions constructing Mahananda-Mechi basin. So far this river Mahananda enters into Purnia flowing parallel to the Dinajpur-Bihar state boundary southwards and then in Maldah district of North Bengal again enters into West Bengal. For a long period of time Dinajpur was a power house as it still have settlements like Bogra (near remnants of ancient Pundravardhana) and Rajshahi in Bangladesh, Cooch Bihar/ Koch Bihar and Jalpaiguri in India and Siliguri as a growing urban center. Indian part of Dinajpur has several historical sites. Dinajpur has also extensions in Cooch Bihar, Jalpaiguri, Siliguri, Islampur and in Maldah. However, Maldah is also a historical place and very fertile land as many rivers from Dinajpur highlands flow down here. All these water channels along with River Mahananda ultimately release into river Ganges. The latter disassociates North Bengal from South Bengal. This region of North Bengal outside Brahmaputra valley is much closer to mainland India as it is on the Gangetic plain. The region has been designated by a separate name Gour Banga or Gour Bengal which might have certain historical background. Maldah is also closely attached to Mid Bengal with no definite geographical designation. Murshidabad district of South Bengal is the bridge between Maldah and rest of South Bengal. In Murshidabad River Ganges distributes and hence Bengal delta initiates. The main distributary along the Maldah-Murshidabad boundary moves into Bangladesh to meet directly the main distributary of River Brahmaputra. Maldah with all its waterways is a flood prone zone that breaks the continuity of Rajmahal hills and Chhoto Nagpur plateau (offshoots from Central Indian Plateau and hills) of Jharkhand (formerly southern Bihar) from the Dinajpur highlands. On the other side, due to the flow of Brahmaputra and Teesta-Torsha southwards in Bangladesh, Dinajpur highland gets separated from Meghalaya Plateau and local hill tracks of North East India. Otherwise, plateaus of Central India and Jharkhand, Dinajpur highlands of North West Bangladesh and adjoining North Bengal and Meghalaya hills are on an axis. They are cut off from one another by river channels.

"There is growing interest at national and international levels in the role that indigenous knowledge plays in participatory approaches to development. Research is generating more and more data showing the relevance of indigenous knowledge for sustainable development. These data, however, must be systematically shared with fellow researchers and with practitioners, and research efforts can be stepped up further. Active networking is needed if we are to make the most of this still largely untapped resource" (Slikkerveer, von Liebenstein, and Warren, 1993). Basically, in India, the emphasis has been given upon the ethno-medicines, but there is actually a lot to do with other things, especially when it is the issue of IKS including the various domains like education, anthropology, sociology, agricultural economics, soil science, agronomy, entomology, forestry, animal science, international development studies, journalism and mass communication, and agricultural engineering. "Interest in indigenous knowledge has been

expressed in a growing number of academic disciplines. Ten years ago most of the academics working in the area of indigenous knowledge represented anthropology, development sociology and geography. Today one finds important contributions to our understanding of indigenous knowledge and decision-making also being made in the fields of ecology, soil science, veterinary medicine, forestry, human health, aquatic resource management, botany, zoology, agronomy, agricultural economics, rural sociology, mathematics, management science, agricultural education and extension, fisheries, range management, information science, wildlife management, and water resource management" (Slikkerveer, von Liebenstein, and Warren, ibid).

Warren in 1992 on the vanue of World Resources Institute cited a very important quotation in this regard that is "The accelerating rates of loss of floral and faunal species and the projected negative impacts of this loss of germplasm on humankind have been eloquently described by a growing number of prominent biological scientists such as Solbrig, Wilson and Peter, Abelson, Ehrlich, Beattie, Bower, Brockelman, Bunting, Hoyt, and Loesch. Numerous international foundations, development agencies, and international agricultural research centers are also adding the power of their collective concern and resolve to deal with the circumstances leading to the loss of species. Among the influential documents now published are those by Abramovitz for the World Resources Institute, The Center for Our Common Future, the Consultative Group on International Agricultural Research, FAO, Hawkes for The World Bank, IUCN/UNEP/WWF, McNeely et al. for the International Union for Conservation of Nature and Natural Resources, the U.S. National Research Council, Britain's Overseas Development Administration, Sohmer and Knutsen for the U.S. Agency for International Development, and the Global Biodiversity Strategy: Policy-makers' Guide produced by the World Resources Institute, The World Conservation Union, and the United Nations Environment Program. ……(There are) immediate and long-term negative biological and economic consequences of the loss of biodiversity, several introduce the complementary importance of cultural diversity that is often reflected in the indigenous knowledge of natural resource management including that of plants and animals……."Cultural diversity is closely linked to biodiversity. Humanity's collective knowledge of biodiversity and its use and management rests in cultural diversity; conversely, conserving biodiversity often helps strengthen cultural integrity and values".

The region of North Bengal, rich in its biodiversity and multicultural attitude, is now going to be subjected to moderate to high level changes conducted under various governmental and non-governmental approaches; newly paced developmental measures causing loss of its rich bio-social heritage. The process would involve the local Rajbansi Social Fold in order to describe increasing country-town nexus; on-going policy to decentralize the developmental works from the urban sectors like Siliguri; increasing importance of trade and role of defense measurements to the whole region and so on; automatically converging to the issues of sustainable development, human rights, Indian Constitutional Safeguard, Indigenous Peoples plus Indigenous Rights as well as impact of market economy as well as globalization.

Interestingly, the Rajbansis show a typical nature of cultural lag as the intrinsic part of their culture still remained the same and continued to be expressed symbolically through their non-functional domains like religion, even when the adaptive domains like agriculture and other means of production have been changing rapidly since independence and implementation of 5-year plans. Here the change is proceeding from the traditional ways of utilizing the nature and the natural resources (in order to meet the requirements in their daily life by indigenous ways of technological applications) to the modern technological assessments in yielding huge quantity production of hybrid domestic varieties. But this has caused disappearance of bio-diversity, ecological and environmental hazards, environmental disasters, pollution, and fall in the quality and nutrition levels of the production as well as increased identity crisis and economic disparity on the socio-cultural ground (and hence up on the own attributes of Indian Civilization). The issue of identity crisis again goes in favor of cultural homogenization and at the same time increases ethnic violation. In respect to this, the Rajbansi Indigenous Knowledge System has still remained quite relevant. The concept of genetic erosion is discussed and evaluated in light of recent evidence of uneven change in areas of crop diversity. Farmers in many parts of the world are conserving traditional varieties even as they modernize and adopt improved varieties. This pattern is illustrated by reference to Asian rice agriculture. A new approach to conservation is needed that builds a collaborative program between farmers, crop scientists, ecologists, biogeographers, and social scientists. A first step is to analyze farming systems that already conserve traditional crop varieties. This thing is highly relevant in case of North Bengal among the Rajbansi community. There are about thousands of indigenous knowledge traits among the peoples of this community prevailing throughout the geography of North Bengal many of which are related with or helpful in biodiversity as well as disaster managements.

Truly, the Article 8(j) of the Convention of Biological Diversity (Rio, 1992) has indicated the importance the noble deed of: "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional life-styles relevant for the conservation and sustainable use of biological diversity".

- The Rajbansis have the concepts of dry and wet, cooked and uncooked, mixture, daily or special, regular or occasional, fry and non-fry, roasted and baked, veg and non-veg, solid, semi-solid, liquid, leafy, scaly, mucous, paste, fresh and old, preserved, nutritious, boiled, with salt or without, with mustard or without, with fiber or without, with onion or without, with turmeric or without, fermented, rotten, poisonous, small, big, medium, boney, bone-less, soft, hard, digestive, non-digestive, fatty, muscular; fish piece of the belly side or chest part or tail or head; birds of neck region, head, legs, wing or body; goat or ship with liver, leg, chest, heart and body; taste of sweet, sour, bitter, salty, sticky, chili, spicy; hot and cold, warm and fuming, smoky; bad smelling, sweet smelling, pungent, strong smell, smell of wet (wet soil, wet bark, wet paddy straw, wet manure and so on); and so on.

- They consider varieties of color like black, charcoal black, red, yellow, pink, orange, blue, white, ash, crop green, algae green, fern green, grass green, bamboo green, brown, gray, dry leaf, golden, mud, cow dung, light, deep, dark, bright, afternoon dark and so on.
- Rajbansis also classify the grasses like for grazing, on the aals or path side, in the field, with lemon flavor, grown up in water, under the water of a pond, under a stream, on the sand by a river with scattered boulders and conglomerate, long grasses, with seeds used as fodder, used in roofing, in religious purposes, fuel and such other things.
- Plants are simply classified into wild, domesticated, crop, food crop, cash crop, fiber yielding, fruit yielding, decorative, flowering, white flower, with colored flower, with colored leaf, sweet smelling, pungent smelling, medicinal, tree, deciduous, evergreen, shrub, underground, sub-terrenean, bamboo, grass, creeping, climbing, fodder, fuel, religious, on field, in forest, at garden, on pot, fenced in the kitchen garden, vegetables, betel, palm, coconut, plum, prickly, silk warm and butterfly raring plants, plants with bees, plants with nest, plants with snake, plant with ghost, wood yielding, oil yielding, and so on.
- Animals are also of various types like wild, domestic; herbivorous, insectivores, carnivores, omnivores; ferocious, poisonous; big, medium, small; on the basis of food intake [eating, swallowing, pecking]; insects, fish, reptiles, bird, mammals; on the basis of living site [living in water, on land, inside dense forest or light jungle or bush or on trees or outside jungle, living both inside and outside water, inside and outside jungle, both on the trees and on the ground; diurnal or nocturnal, meat-giving, egg providing and milk secreting.
- The names of places, at least within the Darjeeling Terai and neighboring places are important part of Rajbansi IKS study. Rajbansis used the term jote to designate the farmland of a prosperous family under which many work and even live with them and used to propagate crops through jhum cultivation. Rajbansis used various suffixes like tola, jote, mile, guri, bari, dangi, -i, ghata/ghatta, jhora, para, garh, pukur, and such other terms to denote the place names.
- At early days, Rajbansis did not cultivate paddy varieties throughout the whole year, but only in a specific season; so cultivation is seasonal and not yearly. They preferred cultivation in the monsoon season. Rajbansis of upper portion of North Bengal plains (condescended with forestry) considered ‘falling the ground for a season or a year or several years is good for increasing the productivity’. They did not cultivate at single fixed place overtime; time to time they altered their place of crop-cultivation. They called it jhum cultivation where the bush and trees of the selected area were cut off and let to be rotten or burnt and then they planted there the crops. Those concepts of falling the soil overtime and altering the location of cultivation ground were lacking in the lower plains of southern part of North Bengal where in generally both the population size and the expectation from the cultivation ground have been being higher. However, ashes produced from burning of the cut vegetation in jhumming played the role of manure the soil. In the present day, jhum cultivation has become quite invalid, but still ash is used as both manure and pesticide; it was kept apart in store and then spread on the affected plant parts. Rajbansis have improved this jhum cultivation with introduction of wooden plough and sowing the saplings instead of using the seeds once

sowed with the help of digging stick. Later, Rajbansis have started preferring crop cultivation basically in the flood prone areas. (In the hill slopes, the soil has been cut to form step-like staircase where the rain water could be kept stored before the soil has been ploughed for monsoon paddy cultivation.) The amount of crop is supposed to be higher in rainy season, but due to flood or irregular or untimely rain fall, the quantity could not always reach to the margin. The costly irrigated cultivation process in the dry winter season with relatively low crop production often assures the Rajbansi cultivators a fixed amount of growth and helps to get the maximum level of profit.

- Rajbansis at a time did not cultivate in close rows. Now they prepare the land often with the help of bullock pulled plough or a ladder. They also use other hand led implements to cut the soil or mix it well up.The forest area selected for jhum cultivation was inflamed in winter and then the ash was kept open to the direct sun beam throughout the summer season; it helped in reduction of the insects and harmful paste. The soil was further nourished by the evening rains of summer followed by a hot clear starry sky before the monsoon comes. With the first monsoon rain drops, seeds or saplings are propagated. Dry time in autumn, hot day and thunderstorm at evening in summer and clear starry sky in night indicate incoming of a good rainy season. In case of Jhum cultivation, the fire was given to the deciduous leaves of winter in the first of autumn; the field was prepared within the later half of the autumn season. It was left with pest-killing ashes and mixed fertilizer of ash and rotten leaves; the system was then treated with sunbeam throughout the entire summer; and then with the first drops of monsoon, seeds or saplings were sowed with the help of a digging stick. The burning of the land also helped in destroying the pupae of pastes in the crop field. In settled cultivation, after collection of the crops of rainy and spring seasons and harvesting throughout the month of Hemanta, crops are again cultivated in winter. Rajbansis enjoy throughout the first part of winter season for this new stock raise. On the last date of first month of Bengali winter season, Poush, Rajbansis perform the religious festival of *Poush Sankranti* and binds a bundle of crop on the bamboo pillar of the cow shade. Rajbansis go their supreme deity, Jalpesh, once at the autumn with the aim of good production of the winter crops, and then again in rainy season when crops of the rainy season are going to be sown into the crop field. In spring, breezing wind comes from the south and in winter, cold wind from north and north-west affect the common men. Black cloud in north east indicates heavy storm with lashing rain. Rain started in Saturday continues for seven days, whereas in Tuesday lasts for three days. For paddy and jute cultivation, bright sunshine in day time and rain in night are highly required. Rain in the spring causes damage to the ripening crop grains in the field and if there is lashing, the effect is more serious and deadly. Raining in late autumn and early summer with lashing is also harmful to the mango inflorescence and proportion of mango in the next summer. Aged Rajbansi peoples could tell the time by watching the heat, movement and position of the Sun in day time. The stars and moon in the sky and the environmental conditions are helpful in determining the seasons, months, weeks and day. Rajbansis have the concept of six seasons like summer (Greeshma), rain (Varsha), spring (Sarat), foggy (Hemanta), clod winter (Sheet) and autumn (Basanta); each with two months out of total twelve. The plants in rainy season grow up by themselves. In winter irrigation facilities are required. Water is taken from well or the canals or numerous

small rivers that traverse the entire geography into many landscapes. In the time of ripening of crop, they have to take special cure so that cattle, birds, rat, bat or elephants could not eat it up. The ripened crop after cutting with the help of a sickle, they lay the crop down on the field in clusters. In this way, crop becomes sun-dried and gets prepared for taking to home. Remaining stalk of paddy straws left on the ground decompose to produce manure for the next cultivation. The remaining paddy grains on the field are eaten up by the birds and mouse bring them to their home underground and preserve in the dry soil. Even after such a long period of passing out from the tradition of jhum cultivation; spread of the old seeds in the ashes of a sterilized field burnt on fire and rinsing it with mild water spray so as to grow the saplings before the rain reaches there, somehow remind the once practiced shifting cultivation [even in this stage of modern technologies and improved machinery]. In home on the thrashing floor, the crop is thrashed by hand. A bullock running over these cereals could also be used so as to separate the grains from the straw. Then the straw and the grain are raised separately into the store.

- In present context, ash is not possible to be produced from burning of the dry forest in the winter season. It is generally produced from burning the paddy straw harvested along with the paddy grains through the season of Hemanta. This ash is applied in vegetable growth in the same winter season. Rest portion of the ash is kept separately in store for future use. Ash is important for prevention of paste attack on the brinjal and other vegetables now growing in the plains of North Bengal with a commercial point of view. Another simple way of controlling the paste is burning off the plant parts or the plants affected or cut them off and grave in the soil. In winter season, the large amount of deciduous leaves and small branches shed off from the trees in the mixed jungles of Darjeeling Terai. These are some good sources of fuel and act alternative to wood and cow dung. Hence, Rajbansis used them not only as manure, but also stored them as their fuel for the whole year. The forests were so prevailing that their amount of collection was negligible. They in various ways protected the forest and its bio-diversity. So, the winter collection of fuel was not too much adverse for protection of bio-diversity; there always retain some kind of feed back process. Still now, they often burn the leaves after piling them in a huge hip. The event is started from evening and continues to late night. This whole-night process ultimately increases the temperature of the neighborhood at a cold winter night and provides warm feeling both to the peoples and the cattle in animal husbandry and birds at poultry to some extent. In the morning, the ashes are found wet due to the dew drops. Dogs made this ash pile as their sleeping bed. The wet ashes are good for organic manure. Ash is also layered on the cow or they are rugged by jute blankets. Ash, jute blanket, sand and paddy straw are important non-conducting agents and prevent cattle and domestic birds from severe cold. Ash treatment is not always used in curing plant disease. The affected leaves are often collected along with pastes and their larvae and eggs and burnt off in a dig before covering them under the soil. Rajbansis could burn the crops in field affected by pastes. They keep the field under proper sunshine for a month or a fortnight after harvesting the crops to home; this sun treatment helps to kill the pupae in the field soil. In the due time, they participate in some post-harvest festivals. Rajbansis grow up neem tree; the young soft stems after removal of the skin they use as tooth brush. The antimicrobial value of neem is not unknown to them and therefore, they eat neem leaf, drink its

paste with water, use neem paste as a cream on burning and skin infection, use hot water boiled with neem leaf in bathing, and also dry neem leaf is used in preserving the uncooked and non-processed food items in the store. Rajbansis burn neem stem as mosquito repellant. Neem extract is also used in garden as a non-toxic natural pesticide. Guava fruit is thought to be curing cancer. *Leonurous*, Oxalis reluctantly grow inside the village bushes with certain medicinal importance. Alovera, Jaba (China rose) and Ganda (marigold) are some garden plants growing reluctantly in the garden also important for their medicinal values. Marigold flower is used in decoration, flower necklace and religious purpose; while leaf paste of its leaves is used in stop bleeding and quick removal of pause and other cut and rotten body parts. Kadam is another important tree grown reluctantly in the region of North Bengal. Kadam flower in paste condition is used in stomach clearing. The bark of Gamar is used for curing fever. Leaf of white Lajjabati/touch-me-not (*Mimosa pudica*) is used in curing cold, cough and fever. Amlaki/ amla protects against cold. Card regulates body temperature. Alovera sticky juice is good for skin. Honey increases the strength and stamina within a person as well as warm up the body. Durba grass leaf helps in clotting the blood. Kanda grass root is used in curing fever. Saw grass root is used in the same purpose. Haritaki/myrobalan is used for curing liver disorder. Thankuni leaf is used to control liver and stomach problems. Brahmi herb as a vegetable or liquid extract is taken for good memory. Kalmegh (*Andrographis paniculata*) leaves are taken as the bitter juice of its is useful in curing abdominal and liver problems, dysentery, mild temperature and teniasis. Nearly same service is provided by neem along with some extra measures like treatment of skin diseases and chicken pox for its anti-microbial activities and even in fertility control. Basal leaf taken with honey is useful in curing cold and bronchitis; abdominal problems and skin disease. Vasak leaves protect from cough and cold, regulate blood pressure, purify blood, cure jaundice, skin disease, abdominal problems, heart problems, nerve pains, and also help in memory restoration, act against acid action due to insect bite. Datura leaf paste is used in maintaining asthma.

- Cow dung, cow urine, bone dust, half rotten and full rotten leaf manure, ash, ash in water, lime, nitrogenous soil, fertile soil, peat soil, soil collected from the ground where the jungle was destroyed on fire, boiled tea leaves, rice emulsion, superfluity, rice dust, seed coat, egg shells, snail shells, remains of small fish-crab-prawn and even paste of rotten remains of mastered or other rapeseeds (after extracting the oil) are all good for cultivation. Rajbansis dug up the soil and put the leaves there and let them be rotten. Digs are not so big but medium in size. They apply both the half-rotten as well as completely rotten leaves for manure. The process of preparation such type of organic manure is known as *chapan*. Rajbansis do not remove all the paddy straws from field which then helped in increasing soil fertility. Rajbansis have now started to favor crop rotation, multiple and relay cropping, intercropping and mixed cropping. Rajbansis prefer mixed way of cultivation, especially in case of vegetables. They have the concept of enriching the soil with nitrogenous residues by panting leguminous plants like pea and other pulses. Rajbansis always opine that if once in a soil chemical fertilizers have been applied, the organic manure would then fail to revive the power of fertility and regain productivity of the soil. Similarly, the soil where once tea has been cultivated would never become capable to produce the other crops in required amount. Rajbansis always remain

aware of entrance of some harmful saprophytes (*Swarnalata*) or other kinds of harmful plants [with their long roots reaching deep into the soil and sucking all the nourishment]; these plants could cause serious herm to the vegetation of domesticated crops, especially those cultivated in the kitchen garden. Cow dung is used as fuel. In order to apply it as the fuel, the cow dung is mixed up with water, softened, pasted on the wall or tree trunk (in the form of hand made cakes) and left for sun-dry. It is also plastered on dried sticks and then sun dried. Such mixture of cow dung and water is also used weakly or once in fifteen days to plaster the soil of the courtyard and the ground. The lower portion of the wall (or the entire wall surface) of the earthen houses is also plastered with cow dung for further protection in this rain affected region. The collected cow dung from field is kept inside bamboo funnels and heated before applying as manure.

- Rajbansis preferred the earth warm, white ant and even ants as agriculture friendly organisms (obviously when under control). Earth warms do the same thing a plough does in order to prepare the land. White ants decompose the dead and other unnecessary organic compounds that help in sustenance of the bio-geo cycles. Ants also help in decomposition as well as allow air to enter within the soil through the channels they produce for their easy passage. They eat up the dead organisms, piece up the shed leaves, pollinate the flower, consume a decaying fruit, and cultivate fungi within their underground chambers. Ants through their activities could make a weather forecasting; such as, accumulation beneath the tree leaves or within the tree trunks denotes that the rain is coming. But now the ants are often found to fail from making a correct forecast. They have failed to adjust themselves with the rapid changes in weather and often denote wrong weather forecasting. Again, excess presence of ants, white ants and earth warm again reduces the fertility of the soil. The rice seed coat is used as both manure and fodder. Often the rice cotyledon (detached from the rice grain) has been used as an important type of fodder. As the fodder, Rajbansis also use rapeseed remains, paddy straw, rice emulsion, jungle leaves, various types of grass, old makoi (corn grain), bad smelling marua (wheat like substance) and if available gur (solid crystallized sweet sugar cake of cane) affected with fungi. *Gagal* leaf is collected from the creeping vegetation inside the jungle and fed the cow to increase the amount, quality and taste of the cow milk. The fear of leach and presence of excess jungle once resisted the Rajbansis to bring outside their cattle (cow, buffalo, bullock and ox); rather some peoples with some preventive measures like moistening the body with oil, salt and soil, used to innovate into the jungle and collect pungent smelling creeping herbs from there in huge number. The Rajbansis often own large-scale poultries of duck; probably that is the effect of Vaishnavism which prevents them from eating hen. Whether hen or duck, they generally make the poultry farm or the cage above some heights from the floor [so as to reduce the chances of adverse effects from water, cold, snake bite and attacks of other bird-and-blood easting animals. Stool of the duck is very important for feeding the fishes inside the pond. The stool and bone dust of the hen are used for manure the soil. They use paddy straw, especially for the chicks to protect them from cold. Domesticated hens are often helpful in controlling the beetles, other insects and excess amount of earth warms in the soil. Ducks control the excess amount of snails in the pond eco-system. Rajbansis consume bird meat in cooked manner with spices. They often consume the fresh egg yolk uncooked. Rajbansis also rare goose. Rajbansis are also fond of wild hens. Surprisingly, the vegetable

superfluity is not always applied as organic manure. Rajbansis often consume the raw materials of the vegetables left after cooking. They treat the remains with soda and then cook to eat. This kind of dish is very useful for clearing the stomach. Moreover, Rajbansis used to keep the superfluity of food substances for the small birds of the neighboring jungles or on the village trees or bamboo bushes spending their night there. These birds were very useful in pollination, seed germination as well as controlling the insects and pastes. Such superfluity is also applied in fishery for feeding the fishes. Some birds are there that collect insects and larvae from the ditches and thus helping in to maintain the eco-system of the ponds. Fish eating small birds and other migratory birds are also there that play important role in controlling the water ecosystem and many of them use the marshlands as their breeding places. Predator birds and owl help in controlling the number of mouse that could create a negative impact on the production of crops. Predator birds often play crucial roles in controlling the number of snakes and frogs that on the other side control the number of insects, mosquito, fly and larvae. Bird stool is one kind of natural manure. Ducks in pond help to control the number of snails that could create scarcity in the amount of fish food and on the other hand, duck stool is a good source of food for the fishes. Crow as a scavenger clears up the dead remains and also removes other kinds of superfluity. Bats and some evening and night hawk birds contribute in controlling the number of insects in night time. Scavenger birds are also there that eat the dead remains of domesticated animals and thus balancing the eco-system. Due to excess use of artificial fodder, medicines and injecting hormones in the cow, some non-degradable elements toxic to these scavengers cause their death and decrease in number. Again, birds often eat the ripening crops. Therefore, Rajbansis often set up human figures in the field with the help of sticks and pots. They sometimes constructed watch towers (lattice-on-bamboo) and made sound by wooden stick-clappers. Sometimes, they use nets to prevent their crops and fruits from the night birds and bats. Cattle horns are used as the simplest form of musical instrument where air from mouth has to be blown into the thin pore at the head of the polished hollowed and empty horn. Cattle horns are also used in preparation of comb. From bamboo, such type of musical instrument is again produced where again air from mouth has to be blown inside the polished hollow pipe and by regulating the coming out of air from various pores on the flint, the type of music could also be regulated. Rajnbansis manufacture various types of musical instruments. One such example is the gourd shell with a string fixed with bamboo stick. The string is often prepared from dried, processed and tanned digestive organ from the abdomen of a cattle or goat or a ship. Tannin is usually produced from the fruits of Haritaki, Amla, Bahera and Tamarind (also the tea leaf) and used in tanning the animal skin. So, Rajbansis once supply these raw materials to the shoe-makers to the exchange of tanned skin to be fixed in musical instruments. Tanned animal skins are used in various kinds of wooden and bamboo drums like khol, madal, dhol and dhak of various types. Of these, madal and dhol have both the ends made up of tanned animal skins. The metal workers produce bells, various types of clappers and metal floor beaten up with metal stick. Rajbansis also use the earthen figurine with dry seeds inside and the system therefore generating sound. Inside small balloons, often mustard seeds are put that create sound. Rajbansis prepare wooden clappers shaped like a disc or a stick. Rajbansis produce one kind of toy in the form of a wheeled drum;

when the toy is pushed forward, with movement of the wheels, the fixed sticks start automatically beating the drum. In old days, beating drums and bugle made up of bison or deer horn are used to call all the villagers in the common meeting place to know them the message of the concerned authority, especially the land lord, at a single time. Religious personalities, mentors, magico-religious practitioners and salesmen often use drumet (dugdugi) which is actually a miniature of drum with beating stones inside. Rajbansis often dance while singing with these musical instruments, clapping on hands and stepping forward and then again backward. But this dancing does not follow the circular manner with coming towards and then again moving outwards from the center unlike many of the folk peoples. The songs of the Rajbansi community are also of various types: Bahwaiya, Bishahari, Gambhira, Alkap, Kushana, Rampal geet, khon gan and so on. Rajbansis consider the lower plains of North Bengal (continuous with Bhati, the northern Bangladesh) with wider river paths and consider songs of the boatmen there as Bhatiali. Some other important musical instruments used by the Rajbansis are harmonium, whistle, sarenga (one kind of string instrument, better to say violin), drum with drumsticks, bamboo flute of various kinds, tabor/tabla, tanpura (another type of string instrument where strings are attached with the polished gourd shell and the long wooden handle).

- Insects (along with their larvae and pupae) like dragon fly, grass hopper, bee, honey bee, ant, white ant, beetle, gandhi poka, majra poka, stick insect, leaf insect, prawn, crab, earthworm, millipedes, scorpion, leach, spider, bug, saw bug, fly, mosquito, cockroach, moth, butterfly, tasar, and muga are important bio-diversity elements of North Bengal. Snails are of three types: apple snails (harmful for the gardening), small snail *Nautilus* (consumed by man) and mussel (which is actually not a snail). *Triton* shell (shankh) is used as a musical instrument and also ornaments (bangle) are produced of it. Besides Toad, there are golden frog and flying frog also in the region of North Bengal. Tadpoles are really hard to separate from *techokha* fish in the ponds and streams. Rajbansis have contained these creatures in their folk tales and acquire some knowledge of them in the specific situation of an ecosystem within the bio-diversity and ecology of North Bengal. Rajbansis are aware of rapid disappearance of forest, its connections with untimely rains, crop failure, modern ways of tackling the problems and seasonal changes; but they are also continuously being suffered from fuel wood requirements. Fox, wild dogs, tigers, deer, bison, wild pig, rhino and gharial [one type of fish-eating crocodile] are rapidly decreasing in number or have completely lost from the bio-diversity of the North Bengal. Rajbansis use torches burnt with oil and produce sound at night by beating drums and tin to protect their crops from elephants. Ages before; they used the hairs of Yak for fanning in religious ceremonies; this fact supports their ancient connections with Tibet and Himalayas [at least through trade]. Porcupine is also an important wild faunal object in the bio-diversity of North Bengal. In forest areas, animals like rabbit, squirrel, bat, *chamchika*, rat, mole, deer, macaque, bison, tiger, leopard, wild cat, wild boar, elephant, wild dog, fox, vam, water cat and black bear could be found. Chameleon (color changing *Girgity*), iguana (*Gosap*), Python, non-poisonous grass snakes (*Hele* sap), fish eating water snakes (*Jal* dhora), venomous snakes like Cobra (*Keutey*), King Cobra (*Sankhachur*) and most of all, *Gokhuro* are some important reptiles of North Bengal. Birds found here are of two types: migratory and non-migratory. Crow, wild crow/raven, cuckoo/blackbird/kokil, pigeon, dove,

drongo/ finge, crested lark/bulbul, parrot/tia, parakeet/tota, mynah, hornbill, peacock, fowl/grey hen, honey bird/moutusi, spine/kada khocha, wern/tuntuni, magpie/nilkantha, yellow bird, king fisher, penduline tit/baya weaver/babui, house sparrow/ charui, shalik, gray shalik, wag tail/khanjani, wood pecker, hoopoe, bee eater, sarus/saaras, wild goose, crane/bak, eagle, kite/chil, hawk/baz, vulture, various small colored birds, nocturnal black bird and so many are the examples of permanent birds to the localities and neighboring forests of North Bengal. Swan, pelican, stork (hargila), flamingo are some of the migratory birds found in the marshy land, Mechi river side and Fulbari canal. Rajbansis have good knowledge about what these birds eat, how they live, where hatch egg in wild and rare the chicks. Rajbansis have the traditional concept of presence of paradise birds: *Bangoma* and*Bangomi*. Moreover, they maintain certain beliefs like sole concept; existence of ghosts, gin and pari (the female angles coming down from heaven in jungles at night). Rajbansis generally avoid the consumption of tortoise or its egg [probably due to their origin in Kashyap clan; Kashyap was the name of a Wise Man, literally meaning 'The Tortoise' in Sanskrit. When fish bone gets struck inside the throat during the meal, the Rajbansis swallow handful of plain rice, and think that a cat is sitting in front of him putting its paw on his hand. They think that the noise produced by house lizards is one kind of positive indication. Black cat crossing your path [when you are preparing for a journey to somewhere] is considered to be a very bad indication. The oil produced from the Lizard fat is a good type of medicine in cure of pains. They once up on a time take dish of black-red ants by burning their nest in the wood and boiling their body in water. The acid of the ants and bees is used to regulate high blood pressure and heart disease. Ants are also important for reproduction in some vegetable crops they cultivate. Leach is also used for regulation for blood pressure. At a time, elephant bones and ivory were used for preparation of decorating items and the feet of the bed. Rajbansis have a ceremony of giving marriage of the frogs; they do so with a wish of good raining. Clustering of ants under the leaf or at the corner of the room or holes on the plant trunk and songs of frog are considered as the natural indicator of raining. The teeth of a dead dog, according to the Rajbansis, could be used in magico-religious purposes, especially in order to cause herm to somebody and destroy a girl's chastity. They use the technique of 'ban-mara' so as to harm somebody; this is one kind of voodoo practice where a symbol of the target is hart by an arrow. Rajbansis are not interested in hunting; but still they have bow, arrow, axe, sword, spear and gun. For hunting, they once prepared cadge or dig big holes in the soil that they again covered with some branches and leaves. To attract the target, they lay down some dead animals and waited at the lattice constructed on the tree branches. In order to catch hens, they used another type of system. There the food is placed under a basket [partially opened with the help of a stick]; as the hen goes inside, they pull the rope bound on the other end with the stick; so the basket falls down and the hen is captured. In a case, I have noticed that the mother hen was let free to eat the rubbish and insects in the kitchen garden, but her leg was bound with an inversely placed thatched basket under which the chicks were kept there. They often use rubber band on a Y-shaped forked wooden implement to through stone pieces to the targeted bird. Bow and arrow are used for the same purpose. Sleeping owl is captured in day time with free hands from their habitation inside the tree-holes. Birds are also caught with the help of net, especially used in crop

protection. They use wooden miniature of man [prepared with jute, paddy and earthen pot (as the face)] in field so as to protect their crops before everything would be eaten up by the birds.

- Rajbansis have already divided the soil type on the basis of fertility and nature, like
  - loamy soil (moderately found in the fertile plains),
  - river side conglomerate,
  - conglomerate with broad pieces or small pieces or of mixed size,
  - sandy soil at the old river beds and river islands
  - alluvial soil on river banks or at the river islands formed or developed during the rainy season,
  - open weathered conglomerate of the rain-affected slopping,
  - bod/ peat soil (with increased pH level) at the slopping and highlands covered by forest.
- They have generally classified the soil type into three: danga (highland), nichu (lowland) and jola (marshy land). Danga is preferred for vegetable cultivation, production of wheat and marua, habitation and kitchen garden, bamboo propagation and grazing. In winter, after completion of the harvesting process of the paddy crop; the Rajbansis cultivate several vegetables along with marua, makoi and wheat in the Danga region, whereas the lowland areas are used for production of pulses and mustered. Pulses are of several varieties: such as maskalai, thakurkalai, pea, gram, mug and masur. Rajbansis generally feed their child pea in day time while playing under the supervision of the aged and women in the villages. Pulses are useful in nitrogen fixation in the soil and therefore, they increase the soil fertility. Mustard and other rapeseeds like rai and tisi are also cultivated in nichu region. The Nichu land is considered appropriate for rice cultivation without irrigation in rain and with irrigation in winter and summer. But Danga zones require water irrigation. Traditional irrigation system by means of hand-made wooden water carriers actually looks like miniature of a narrow boat (with or without chambers).
- *Rai* is grown in the hills and foothill areas as another variety of mustard, small in size and with broad leaves. *Rai*leaves are consumed as important vegetable. In specific case of Darjeeling district, *tisi* is often more favored than mustard. Actually, *tisi* could grow in a more xerophytic condition than the irrigation-affiliated mustard. Broccoli is another type of plant now yielded for its edible buds and stem. Dried leaf and stem of mustard are used as fuel and mosquito repellant. In preparation of pickles, mustard grains as well as its oil are greatly used. Mustard oil is used for cooking. The oil is also used for body massage and relief from the pain. First the legs and then the hands and thereafter the body and chest, throat, neck portion and ultimately the face and head are to be massaged. Massage the whole body with mustard oil under sun light before bathing; and then, immediately after bathing, rubbing the body with dry towel very well are good two-step process of preventing the cold. Often, the mustard oil, maskalai pulse, and garlic cubes are rubbed on body so as to reduce the body pain. Mustard seed remains are used in increasing soil fertility. Mustard grains are also used in food preparation. The mixture of mustard seeds, *zira* and garlic is often consumed with onion during the meal and this procedure generates excess body heat in cold and also helps in vomit the undigested food from the stomach. The green soft plant part of mustered is used as vegetable. Mustard

oil is used in flaming the candle in the remote village areas at the night and torch to remove elephants from the crop land as well as the honey bees from their nest.

- Makoi (or corn) is cultivated reluctantly in winter. The sloppy landscape is important for makoi cultivation. The corn the Rajbansis produced is called makoi and instead of this agricultural practice diffusing down from the hills, it comes to them from North Bihar and Nepal Terai (Trihoot or Mithilanchala). Makoi is consumed roasted and its leaves are good source of fodder. Makoi grains are heated in dry soil to get puffed corn grains. Marua, makoi and wheat are all dusted to prepare hand-made pancakes. The pancakes made of marua are black in color, but thought to be no less healthy than wheat by the local Rajbansi folks and hill peoples. In case of makoi, the grains in the spike inflorescence and bracts are roasted on heated charcoal and then the grains are picked up and consumed often with salt to taste. From marua and makoi both, flour is produced and hand-made pancakes are prepared. Often, the corns of makoi are boiled and consumed as soup. Corns of makoi along with dried gram and pea are very good food for the poultry hens. Rajbansis mix the fried uncooked rice, pressed rice (chira), dried grams and peas, dried pulse grains, chili and the makoi popcorn [produced on heat openly]; and prepare a good meal to eat.
- In the sandy river bed areas just beneath the hill, spices like cardamom, ginger, garlic, *tejpata*, cardamom could grow well. The stony places are the hiding places of frogs and snakes. Rajbansis seldom eat fatty frog flesh from the leg side fried or cooked and in time of scarcity, have tasted prickles and snake. Lime grass is famous for its particular smell. The dried lime grass is burnt to reduce mosquitoes. The ash is spread in the ditch and pond water to reduce the mosquito. Wild grasses with medium or long height are used in preparation of brush to clear up the soil and the home yard. Rajbansis used to smoke tobacco in wooden hookah (native type of pipe) with water. This practice is still present among the elderly people among the Rajbansis community. The water and burnt substance in hookah are used as manure at small scale in gardening. They smoke the dried pieces of tobacco and even the hemp in the form of cigar into the dry leaf of *tejpata*/cassia. They used to burn the fibers of coconut and betel fruit and also the bark and leaves of sorea as mosquito repellant. *Tari* is produced from freshly taken juice of palm in the same process as the debt juice is collected. The fresh juice is kept freely to be fermented and the alcoholic substance of *Tari* is thus produced. Dry hemp leaves are also smoked through wooden pipes. Hemp leaves are pasted and fried in oil with besan, one type of wheat product. Paste of hemp leaves is mixed with milk and consumed; but this process is not prevalent among the Rajbansis (as they better prefer card than milk), apart from some festival purposes.
- The jola region is composed of numerous ditches (*khana-khando*) scattered here and there in the Terai region [which is absent in Duras area south to the Bhutan foothills]. In the Duars region, jungle is dense, covered with teak (instead of sorea) and ponds are there (continued to the plain region). They at a time grew aurum in huge quantity in the ditches and ponds and often the best variety like the *mukhi* type in their kitchen garden. Other varieties are *mann* and *dudh*. Rajbansis are well aware about the poisonous effect of some Aurum varieties and of these, *kalangi* variety is well known to them. They use this *kalangi* in various magico-religious purposes, basically in order to reduce the effects of ghosts and other harmful deities. The

sticky extract from long leaf base of aurum and spit (with saliva) from human mouth are applied on the cut body portion so as to check bleeding. In the marshy land, jute is being grown up excessively. Jute cultivation requires logged water on alluvial soil in low marshy land; therefore often surrounded by ferns and aurum vegetation. The marshy alluvial soil prevents the logged water to go immediately under the ground. This water storage is generally utilized in post rainy period affected by bright sunshine and heavy moisture so as to rote the jutes in that marshy land and to remove the fibers from the jute stick. Jute sticks are dried for several days under sunlight kept erect with the help of a balance of a tree trunk. Jute sticks are both used as fuel and for construction of roof and fence. Their very thin cylindrical hollow nature helps in storing the inside temperature of the room (as the chambers are filled up non-conducting air). Jute sticks could be used in paper making. Jute sticks are used as fuel. Jute sticks are also used in preparation of lattice in vegetable cultivation, and cattle shade. Young jute stem and leaves are used as vegetables with somewhat pungent taste containing medicinal values. Jute fibers of very thin quality are used for preparation of mosquito net. From the jute and such other less-quality fibers (flax), Rajbansis in their hand-led looms prepare handloom products like *Dhokra*: the seat to sit. Curtains and carpets are produced from jute. The age of the curtain is folded with bamboo rods. They also make *chat* from where bags are produced for the very purpose of storage and also carriage. To secure the storage material, they closed the mouth of the bags with ropes again made up of fibers. Ropes are generally produced from rolling the fibers continuously by the palms of both the hands; then again do the same with two thin ropes and repeating the same again and again. Ropes thus produced are of various types and categories- thin to thick. Some ropes are used for binding the wooden and wooden beams and pillars during house or shade construction; ropes are also used in hanging the pots containing the curd. The ropes put an impression on the neck of the pottery. Ropes are used for the same purpose during binding the pots in the debt trees for collection of the juice. Ropes are used in measurement. Ropes they also use on domestic cattle, collecting water from the well through bucket, playing as well as bullock cart in transportation and bullock-plough cultivation. For each and every aspect, ropes are of different types. The rope preparation is held by the entire season and that is why, fibers are also stored for the whole year. From the looms, cloths of fine jute fibers are even now sometimes produced. The Rajbansi women used to ware them folding on their body from the breast to thy portion, while men only lower garments in the summer time.

- Rajbansis colored the clothing items with indigenous paints they then produced from plant extracts. *Hibiscus* (*jaba*) petals and the teak leaves are used for red color, indigo for blue, *duranta* for violet, lime and gypsum for white, gray soil for gray, leaf extracts for green, water hyacinth for violet and so on. Rajbansis extract the juice from *khoir*/ catechu that is another natural source of brown color and adding lime with it red color is produced. With these natural extracts and dust of thin rice grains, paintings are often made up of natural objects and symbols on walls and floors as well as frame of window or door. Burnt wood, charcoal, coal and ash are also used in the purpose of painting. They prepare yellow color from turmeric, red from red oxide, and green from plant leaves. They collect the black from the lower portion under the handi (cooking utensil) used in food preparation on earthen stove with the help of dry

wood or dung cake; then they make it thicker by mixing it with warming emulsion of fried uncooked rice in water and therefore the black paint is produced. They use haritaki fruit rubbed on a stone to produce some kind of brown color. Ash is produced for preparation of ash color. Red is also prepared by mixing lime with powder of young turmeric rhizome. Wax is produced from Bel fruit. Rajbansis have the knowledge to prepare a kind of gum from pressing the fern between two stones. From banyan, jack fruit, papaya, chapa and some rigid stem white flower plants [all with glossy leaves]; a milk-like substance comes out that is used in medicinal purposes, especially on cut, burn, pause and other kind of damages. The bark of Sajina tree is also preferred for gum production. Rajbansis prepare the color brush from the tails of a cow or other animal fibers or hair. Once the Rajbansis collected sponge (*shola*) from the rivers of North Bengal and these light weight substances in dry condition were cut out to make various figurines. Carpenters produce burnish from teak extract. Rajbansis sell wooden horses from the market as they believe that the ghosts on the way at evening could then do no herm to them.

- For washing the clothes, Rajbansis use soda which they produce from the base of the banana tree (this base is the actual portion from where the leaf inflorescence comes out as "the tree" from the underground rhizome). They submerge this trunk base for long in water and when it started to be rotten out, the waxy extract they collected and used as soda. In burnt body part, immediately after the burning, the extract from the basal region of the banana leaf inflorescence (or the 'stem') has to be rubbed so no mark would appear there and complete remedy is possible.
- Shimul, Sajina and Babla are used in gum production. Soft branches of Sajina tree are consumed in curry and it is also important as its leaves are the prime source of food for the larvae of butterfly and local varieties of silk warm. Rangan and plum are other trees fond of these larvae. To remove the irritating fibers of larvae from the body, the affected body part is rubbed by broad fibrous leaves of Gourd or plants of Malvaceae Family with their lower surface in one direction. However, the fibers out of silk cocoon are used in silk cloth preparation.
- Cotton was once produced from the seeds of Shimul tree and a wide vegetation of Shimul was there in Terai region of Darjeeling district. With increase in population, that has been destroyed and only teak belts were kept in safety for the very supply of the raw material for plough the main instrument for agriculture and for the carpenters the prime source of collecting rice and other substances. That was a clear example of feed-back. On the other hand, the Sorea forest grown by side also provides various services (including some medicinal values). The wax out of Sorea trunk in dry condition is used as highly inflammable object and mosquito repellant. Sorea is a good source of very durable wood used in plough production. Wood is also needed as poles, beams and logs in various types of construction. It is a good quality fire wood. Dried broad leaves are used as plates. The charcoal is used in gold ornamentation. Essence is produced from Sorea extract. Sorea seed is used in haria preparation of the Oraons. Sorea bark is used in tanning. During the weather change when Sorea flowers and pollens are in the air; suffocation, pollen allergy and symptoms of asthma appear to affect the peoples. The Sorea fruit is used as soap in bathing. Males are usually found involved in preparation of wooden plough from highly non-degradable teak grown up reluctantly in the

forest areas of North Bengal. Teak plough was also an important item for collection of rice through barter in the weakly markets. In the cold days, Rajbansis use straw on the floor, blanket made up Shimul cotton. For pillow and blanket, they have to depend on the Muslim Dhunia community as well as for utensils on carpenters (*Sutradhar*), craft maker (*Malakar*) and potter (*Pala* or Rajbansi potter). An important Rajbansi craft is the formation of wooden structure (along with paintings) of the Mashan sculpture. The sculpture was actually dealt with the Folk Concept of harmful deities responsible for many problems of the Rajbansi Social Fold and beyond. Rajbansis are not directly involved in pottery, but some of them are attached with this occupation. They use a common pond to collect the soil for making the earthen elements. There are peoples for cutting and bringing the soil to the factory. Red ochre is used in pottery for the purpose of painting. They prepare both hand made as well as wheel made pottery. They do not let the women to touch the wheel. They use farness to burn these potteries before polishing, painting and designing them. The farness is of earthen type. It may contain two or more chambers separated by iron rods. Cooking utensils, earthen candles, pots for gardening, idols and terracotta are produced by these potters. So as to light the earthen candles; wax, mustard oil, tisi oil, and ghee are used as the fuel. The Rajbansi potters prepare earthen handi with 3-6 pores at the bottom; these are used in distillation of water. Adivasis use this type of pottery for distillation of Handia alcohol produced of rice cakes, salt and various medicinal plant extract. Pots are there to store metal coins and money. Earthen stoves are also famous. Rajbansis actually depend on many other occupational groups like metal workers, iron smith, tailors, gold smith, potter, honey collectors, women helping child delivery, butcher, blanket producers, money lenders, local traders, migratory communities, medicine men, forest dwellers, wood cutters, salesmen, foreign traders, lime producers, brick manufacturers, milk man, hair cutter, priest and so on. Rajbansis in their kitchen/rannagrar/annaghar, use various types of cooking related utensils like jar/ghot, pitcher/kalsi/kalas, jug/kunja, pot/hari, small bowl/bati, big bowl/tub/gamla, basket/tukri, bucket/balti, glass/gelas, cup/piala/pirich, dish/sarai/sara, thatched plate with edge/batai, plate/thala/thali, cooking bowl/karai/noya, large spoon/hata, large flat spoon/khunti/chilni, spoon/chamcha/chamche/chamuch, rolling machine (to paste pulses)/dalghata/phirki, nutcracker/janti, match box/shalai, kettle/ketli, tong/chimta/sharanshi, box/diba, lid/dhaka/dhakna/dhakni, spice presser and grinder /shil-pata, husk/chham, sieve/chalni, shaking plate (to separate two different types of granule mixed up with each other)/chalni, oven/unan, dry stick/lakri, cow dung/ ghuta/ghute, jute stick/pat kathi, paddy straw/ khor lamp/kupi, wick/sholta/polta, bottle/botol, phial/shishi, rope/dori/roshi, wooden seat/piri, jute seat/dhokra, thatched mat/chatai, bag/chat/bora, and so on. Some of these utensils are made up of steel, aluminum, local metal like kasan and pitol/ brass, earthen instruments; kasan/bell metal is made up of zink/dasta, gray copper/tama and tin/rang (Rajbansis are not generally involved in these metal works). The metal workers use the following objects in order to prepare products of copper, bell-metal or iron: anvil, farness, clamp, bellow, blow pipe, hammer, tooling plane, trying plane, jack plane, rasp, file and others. Rajbansis have used thatched semi-rounded baskets/jhuri in both household and outside work. Rajbansis at a time use both cart and boat for carriage and transportation to the nearest town or trade center; but now they are more dependent upon paddle vans,

cycles with carrier on back, tractor, auto (small automobile carriers), trucks, buses, motorcycle and even personal vehicles. Rajbansis have used various agricultural and soil cutting implements like spade/kodal, spade/belcha, sickle/kaichi/kaicha, dibble/khurpi/poshani, plough/langol, ladder/moi, rope/dor/dori, joal/a wooden log (that fixes the plough/ladder with the bullock pair) and fauri/fal that is the portion of langol entered into the soil and cultivating the ground. Rajbansis use hone, flat big stone piece with fine narrow cutting edges, so as to make sharp their metal/iron implements used either inside the house (knife/chaku/boti) or outside in construction of house, peasantry or other occupational works. Rajbansis have the technology to pour melted wax into an empty earthen doll (made up of clayey soil) and let it cool down, so that when they would break the sculpture, a solid wax doll (with a little retouch) they could get into their hands. Some Rajbansis have chosen the occupation of goldsmith and they deal with copper, bronze, silver and gold ornaments. Rajbansis have now been habituated with monetary economy and use of balance machine, but they often take the stone pieces for balancing (especially in case of measuring little weights). Tailors and shoe makers use the following objects like scissors, needle, and awl.

- Vegetables are generally grown in winter in the Danga with less water-supply. Among the vegetables of winter, Rajbansis like *Lafa* the most. This vegetable, according to their IKS, has the ability to fall down their body temperature. *Pelka*, the food preparation of *Lafa*, cause them easily caught by cold and therefore the dust of the dried winter so entering into their nose from the thrashing floor of paddy would came out subsequently. Sop sop is another kitchen garden product that they eat with pork. They also grow gourd and roof-gourd that they use in preparation of goat meat. Rajbansis are fond of edible fern varieties spread all over the slopes and edge portion of the marshy lowlands in rainy season. They prepare delicious dish of the new soft bamboo shoot tips mixed with the young fern leaves. Under ground and semi-terrestrial crop items are also crucial here: potato, yam, sweet potato, radish, carrot, beet, corn, ginger, turmeric, and *shalgom* (turpin) are good example with maximum yield. Potato is a good source of calories for the local people. Of various terrestrial vegetables; some grow in winter, whereas the rest in rainy season. Brinjal, pumpkin, hemp, tomato, chilly, cucumber, cabbage, cauliflower, mint, bean, spinach, coriander, lettuce reluctantly grow in winter-autumn; whereas bitter gourd, lady's finger, luffa, *potol* (*Tricosanthes dioica*) are exclusively products in the rainy season. The Rajbansis in their traditional society have least cases of diabetes, because they knew the importance of the juice of bitter gourd in water with extract of gulancha, a kind of herbaceous plant. The long sized red chilly produced in Dinajpur region is renowned in the name of *Siti* chilly. Rajbansis are actually very fond of chili; they think it helps them to warm up the body and prevent the cold. They preserve chilly by drying it in the sun, but that does not sustain for long. Preservation of chilly after heating it in warm water increases its longevity. There are several other types of vegetable yielded by the local communities of North Bengal: stem or/and leaves of *kheshari, rai*, mustard, spinach, lettuce, mint, cucumber, pumpkin, and *methi*are eaten in winter; whereas jute, flax, *brahmi, kalmi, bethu, puin, kankrol, notey* and red leaves are cultivated in summer-monsoon period of time. *Oshni, khuria, helencha* are some other types of vegetables traditionally eaten by the Rajbansi folk. Curry leaf is given to the food for taste and flavor. *Kankrol* is another important herb like gourd and bitter gourd cooked by the

Rajbansis. Hard fruit coat of gourd is used for storage of water and also as a pot. Water melons are grown in the sands of river side of Tista. Water chestnut is grown up in the pond side partially submerged. Lotus is grown in some places inside the pond water with floating leaves and flower. Leaves of lotus are used as plate, honey as medicine, plant and fruit as vegetable and flower in religious purpose.

- Rajbansis had the knowledge of protecting the by the natural fence of cactus or prickle plants during war. Rajbansis fence their homestead land and kitchen garden with the help of bamboo shoots; dried bamboo leaves and branches; jute sticks and flat broadened leaf base of betel nut; thatch produced from bamboo scales and betel nut leaves and other slender branches as usual; they also use certain bushy shrubs with rigid wooden stem and bitter taste leaves. They in this way prevent the cattle to enter into their kitchen garden of vegetable cultivation. The*Vasica* or *Vitex* leaves from the fence they used in disease cure. They also collect such types of medicinal plants grown up in non-cultivated uplands, jungles, home and even the humped soil barriers dividing the ground into many small agricultural plots. These humped soil barriers are also called as *aal* which are also used for walking into the field; going into the field without entering anybody's personal land, demarking one's personal cultivable land property as well as storing the rain water required for crop cultivation. The non-cultivated uplands filled up by the jungle or by the side of railway track or of the road side (covered with xerophytes having medicinal values) are actually sacred grooves of the Rajbansis. Rajbansis prevent any type of damage to jaba, neem, banyan, bel, jiga, basil, tamarind, chhatim and many other plants those have some medicinal properties and in order to do so, they connect them with some religious or mythical versions. There are other vegetations like *Sida, Cleome, Andrographis paniculata, Vitex nigundo, Croton bonplandinum, Lantana camara, Oldenlandia,* grasses, Leguminous plants,*Eclipta, Heliotropium,* and somewhat in the hill sides, *Chenopodium, Polygonum, Solanum* that grow up in so large numbers. *Amla* is always good for health, increasing resistance power and production of hair; it is also preserved as pickle. From the fruit extract of annual herbaceous poppy plant, drug was once produced; the soil of upland semi-arid dry areas in winter is good for poppy cultivation and growth of cactus. Irritation in the throat due to aurum consumption is generally treated with sour substances [especially card for their mild acidic activities]. Rajbansis also believe that the presence of an iron object is very essential to reduce the chances of being caught by a ghost or a*Mashan* or from experiencing a bad dream. They also believe in astrology. Treatment of jaundice they do by the practice of ethno-medicines, therapeutic measures and when the object (suppose a wooden necklace) falls down from the patient head to the ground, they think that the disease is over. Rajbansis know the process of curing dog bite by applying certain grass paste. They also believe in medicinal and spiritual importance of *Hartaki* fruit.
- Banana is one of the most important fruit. Banana as a fruit is very essential in religious ceremonies, but interestingly the banana local variety with seeds, namely *daya kela* or *bichia kela* (bichia= seed; kela=banana) is preferred more as the folk peoples believe in their medicinal importance. This local banana variety is consumed in green condition and it is full of seeds that perhaps germinate. Bananas with seeds are not so tasty and they though in not fully ripened condition, are consumed in purpose of curing the abdominal diseases and constipation. In festivals, Rajbansis use sweet bananas of *chinichampa* with small

and dark spots on their body. The banana fruit inflorescence in the good variety of *malvog* grows to the optimum level and therefore riches up to the soil. They cook the banana fruit inflorescence as well as the 'trunk' leaf inflorescence as food items. They use banana leaves as plates for serving food and also for packaging of various types. In order to ripen the banana in a natural way, the Rajbansis dig the soil up and create some alternate layers of banana wrapped in banana leaves stored within and dry paddy straw alternatively. Then the system is fired in after covering it with soil from above. It acts as a closed kiln chamber where the wind is blown inside by a hollow bamboo pipe pierced through the soil. From the heat, the bananas inside gradually ripen within approximate four hours duration; paddy straws kept within behave like burning substance as well as the non-conductor elements inside the soil chamber. Herdsmen often cook sweet potatoes in this manner; but the chambers they use are small and eat the potatoes hot. Rajbansis do not apply this procedure of ripening to other fruit varieties. Rajbansis are very fond of sour taste and eat the fruits before they ripen. They also like the taste of chilly, small in size but very hot to taste. They maintained the concept that a ripen fruit means a fruit with harmful microbes and insects. Custar apple, guava, lime, banana, papaya, pindali, peach/ black berry, carambola and mango were the two most important fruit items for the Rajbansis. The fruits they eat in ripen condition are jack-fruit, banana, papaya, and pindali. As a vegetable, they often cooked the composite type of jack-fruit before it attains the ripened condition. Actually they never eat the soft, pulpy, juicy and sweet mango, because they consider ripened mango rotten in nature. They are actually fond of the sour taste of lime, tamarind, carambola and green mango with salts. They first rub the mango at its tip on the rough bark of the tree to remove the bitterness, halve to remove the seed, and consume it with salt. They also piece these green mangos and dried them is sunlight of the summer with salt and edible mustered oil or oil seeds in order to preserve them as pickle. They also like the sticky taste of jack fruit, custar apple, guava, banana, peach/ black berry and betel-nut very well. Rajbansi folks often propagate different kinds of epiphytic orchids on the tree trunks in a shadow place; they collect the orchid from jungle with its green roots intact (or a propagating part) and tie it to the tree trunk with the help of a piece of cloth very tightly on the wet bark. Some fungi grow on rotten tree trunks in jungles and are used as decorative objects. The slopes of uplands are often covered with ferns of numerous types, some being highly edible and nutritious. Women are involved in collection of the newly grown leaves which they cook as their daily vegetable dishes. These Rajbansi womenfolk have the capability to use their fingers very swiftly with the very consideration that the leaves do not have sores. Such capabilities are highly required in tea gardens so as to collect the young tea leaves with buds. But still now, no one of Rajbansi womenfolk is interested in accepting the job of leaf collection in tea gardens; this shows their independent mode of behavior.

- Rajbansis cook the fern leaves with young bamboo shoots. When the bamboo is germinating from the ground, they place a pot inversely upon it. As the nutrients flow into the young plant from the mother body, it could grow up inside the darkness of the pot. When it occupies the whole space inside the pot and the pot could not be displaced, the pot is broken and the young shoots are cut off and served in meal. Bamboo bushes actually grow in huge quantity on the Danga region. Bamboo is used in construction, arts and craft,

making vas and glass, fencing, roofing, preparation of thatched utensils of bamboo scales, preservation (of something) inside the bamboo funnel, sainted burning sticks (religiously and economically important), pipes used in drainage, leaves as manure, leaves as fodder as well as in cooking through heating the food substances taken inside the bamboo funnel. Bamboo bush is regarded as natural habitat of birds, latrine place, and also sitting place of the Ghosts and Mashans by the rural peoples of North Bengal. Bamboo scales and betel nut leaves are used in preparation of big baskets by the process of thatching in a special manner. These baskets are used for storage. Bamboo sticks are used in fencing, beating and even balancing the body weight of an old people. To make the bamboo stick durable, treatment is given with oil, sun heat, as well as mud and water inside the stagnant pond throughout the year. Bamboo sticks are also used for balancing between two baskets/ pots on one's shoulder and the body weight of the carrier. Prepared bamboo sticks are used in balancing the boat in the river. A house could be completely made up of bamboo which is good for healthy environment and easy and cheap to construct. Bamboo pulps are supplied for preparation of paper. Soft bamboo shoots are used in preparation of soup. Bamboo sticks of nol variety are also used for preparation of umbrella. Flowering in bamboo vegetation is a threat to the peoples dependent on bamboo economy. Because, it would destroy the total bamboo variety at a time and a new variety with some altered genetic configurations would arise from the seeds of pollinated bamboo flower. Cultivators would be also threatened at that time due to rapid intrusion of rats into the dying bamboo bushes (as being allured by the nourished fruits and seeds) and their subsequent attack over agricultural sector causing a situation of starvation and rat made hazard situation. Sudden increased need of owl and snake is therefore felt to control the rat population. The benefit of cultivation of pruned mango plants is that most of the mangos produced in this way do not rote; whereas the scope of rotting is very much frequent in the mango trees produced of the seed. For pruning, first the soil has to be prepared by filling the dig with full-prepared cow dung. Other organic manure could be given if necessary. The pruned plant would not be deeply placed inside the soil and to make ensure that it would not be got affected by water, the soil at the sides has to be piled up. Herbs have to be controlled. Ash and lime could be applied so as to free the land from fungus and germs. Good dry (preferably sun-dried) fungus-free purified soil has to be mixed. But still the longevity of a prune again is lower than the original plant. The positive sides are again that firstly, pruning gives a lot more production, and uninfected more yield within a short period of time on a small sized tree. Rajbansis are actually well concerned about need of cuttings and pruning; to check the risks of spreading infection, they use cow-dung and lime at the cut tips of the branches of the shrub, mainly flowering plant. In case of flowering plants, they take special care about planting the prunes separately in earthen pots or in the ground with safe distance from one another. The distance maintenance is also applied in case of vegetable cultivation. In case of earthen pots, they often mix different kinds of soil strategraphically or completely mix them up. In order to maintain these different strata, they often put broken pieces of earthen pots in them. It may be due to check the unnecessary growth of the root within a limited area. They select the pot with a pore at the bottom, so that the excess water could run away. To check the release of the nutrients and control the soil fertility, they used the stones and broken blocks inside the pot. Often, they clear the place

where the pot has been kept or keep the pore at the bottom of the pot closed (except only the time of pouring water into the pot). The reason is simple; not to allow the ants to enter into the pot. Time to time soil has to be changed, make it soft and out of any harsh thing, allow the root growth unharmed, clean single piece of insects, fungi, their sporangia and other unwanted plants and their roots completely from the soil and also protect the leaves and stem from excess sunshine or over rain or even severe cold. These all are done to make the plants safe from natural hazards and other types of infections. For each variety, addition of stone free and germ free manure, pouring definite amount of water, application of bone dust, boiled tea leaves, egg shells, cow dung or rotten leaves have been noticed. Rajbansis believe that prune plants give good production, but have lower longevity than the plants from fertilized seeds. They store the seeds or bulbs of good varieties in dried condition for the next year growth. When available, they try to generate a new plant from a cut stem or rhizome or leaf or root or the bulb. In nursery, they generate seeds and develop saplings in refined, shrub free, dried, stone free, nourished and fine soil beneath a thatched shade or plastic. The saplings are separated from each other and each of them is placed at somewhat piled soil so that the side channels could drain off the excess water effectively. In vegetable cultivation, Rajbansis often apply an inversed funnel of the sticks for each creeper in the kitchen garden. They also use a common lattice. In pots, they sometimes grow more than one plant, maintain a balance between them and use wooden or bamboo stick to make them erect.

- Another important thing is that Rajbansis collect honey and wax from the bee nests from trees in villages or jungles on themselves or by appointing other honey collecting community. They use torch to save themselves while removing the bees and then with the help of a sickle, cut the bee nest into pieces and keep them in a bucket. In the bucket, the honey is collected and the rest part of the nest they sell as the raw material of wax. The sclerotic portion of the nest is burnt to get the wax which is stored after cooling. Wax is used in sealing a hole, painting a cloth and even polishing the wood. Wax is also used in beatification. Honey is one type of anti-microbial element. As a preservative, it could be used in pickle. Honey is also preventive of cold; it warms up the body. Honey is healthy and nutritious food item. Honey has some medicinal values also. Honey with meat or other food items in hot is exiting and excessive intake could cause a harmful effect. Flower anther is also used in beatification. Peoples often suck the lower portion of the corolla region where the nectar is stored at the root of the stamens.
- Pine apple is often grown up reluctantly. Pine apples were once grown up in round under the mango tree shade. Rajbansis used to eat boiled algae, spore free fungi, cooked or uncooked rhizomes, leaves, flower fry, or other uncooked items like edible fruits and nuts during severe crop failure. Some Rajbansis have initiated tea plantation on their cultivable land at small scale; they sell the tae to local factory; they use the cut branches of the tae tree as constant source of fuel; and they also dry the tea leaves, bake on stove, power them and store them in cold dry places. For roasting, these sun-dried tea leaves are put inside a bamboo shoot and the funnel is placed on fire.
- Still the Rajbansis collect Mushrooms from jungles or cultivate the same upon paddy straw pile on wet soil within a basket at a damp corner of the room. Rajbansis have proper knowledge about the edible and non-

edible mushroom. Rajbansis also like Thukpa and Momo to consume; in Momo they add vegetable or chicken or mutton. Thukpa is a hot boiled watery dish of boiled noodle with vegetables, mutton, chicken or even mushroom. The grasses and rigid stem broad leaf shrubs grown up in the ponds and the marshland are good source of fuel in dry condition. The concept of soil use in conservation comes from mouse that keeps its foods preserved in dried soil. So, Rajbansis use the dry soil of rat house for germination of seeds; they keep the seeds of pea, gram, paddy or marua in it within an earthen pot, spread some water over there and shade the system by a aurum leaf, so that the seeds would germinate without being infected in that sterilized natural soil as prepared by the rat. Various types of leaves are also used in serving food: betel leaf, sorea leaf, banana leaf, palm leaf, lotus leaf and aurum leaf. Several kinds of leaves are also used in packaging like dry coconut leaf and leaf of the betel nut with jute fibers and paddy straw. In the rainy days, the Rajbansi cultivators in the field use caps on their heads with enlarged edge (made up of bamboo scales or betel nut leaf thatch or broad glossy leaves); the cap is used as umbrella to protect him from lashing rains and heat of the sun.

- Unlike the betel nut, coconut is not grown reluctantly; but its plantation is often come to see. 2/3 months before planting the coconut, in the dig fine full-prepared cow dung has to be added. If the manure is not full-prepared, it has to be stirred from time to time. The soil should be treated with salt of the amount of 1/2 Kg. The coconut sapling has to be planted in such a manner that the upper portion of the root remains out of the soil and unharmed by stagnation of excessive water there. This type of preparation is not needed in case of betel nut production. Coconut is not only important for its fruit values or use of its leaves in roofing or as a good source of fuel or the trunk as thin fast-running boats, but burning of its thick dried fruit coat is really effective as mosquito repellant. Leaves of coconut and betel nut are both used for thatching baskets, hats, utensils, mat, brush and even fence. Coconut fruit coat fibers could be used in preparing ropes and carpets. Coconut hair oil is favorite among the Rajbansis. They constructed elongated, narrow and swift running boats for quick fishing from single-tree trunk of coconut or other erect tree trunk. Prickles of young Shimul tree are taken as medicine to control the body temperature. Rajbansis of Darjeeling district are more like to chew dried betel nut. They think that betel nut and Shimul prickles are helpful in maintaining the body temperature. To reduce the quantity of salt in the dish, they often add pieces of betel nut in the cooking food. Ripen betel they chew as an energetic substance. The Rajbansis have also learnt the use of betel with tobacco, betel leaf and lime. Rajbansis cook snails with pulses boiled alive and then suck the juicy portion from inside the shell directly to the throat. They believe in its high protein value without any the scientific evidence and strange! They are all correct. They are the Bengalis who at a time avoided the Rajbansis for this type of food practice and as a result of this; they gradually shed it off item from their meal list. Snail pieces are also taken as curry. **Often, snail, snail consumption, use of snail shells for production of lime, use of lime in preparation of ponds for fishing, consumption of lime either with only tobacco or with betel nut, tobacco and betel leaf have built a relationship among themselves. The trade of betel nut – betel leaf – lime – paddy – snail shell – snail through barter system has become very crucial here. Here, the snail collector, the fishermen, the lime producer, the paddy**

grower, betel leaf grower and the betel nut raisers are equally important. Potters in one hand provide the essential earthen pots and the crop raisers the straw as fuel source to the lime producer. Lime is produced by layering up of the inflammable straw, broken pieces of clay pots and snail shells in a huge earthen pot; then heating the system in a closed manner by burning the straws; and ultimately melting the shells which are then converted into lime. In festivals, sinni is prepared from mixing same proportion of rice powder and non-boiled milk with addition of sugar and ripened bananas in large quantities. In festivals, the Rajbansis offer ship to the female fertility cults. The ship wool, skin, head and leg bones are sold to market. In a thick jute cloth, the wools were placed first and then warm water was poured and then it was rolled and tied up tightly with ropes so as to produce the blanket. Rajbansis are fond of the spicy dish of pigeon, basically prepared in festivals. Rajbansis sometimes offer buffalo to their deities. Rajbansis sometimes offer vegetables like gourd against their deities. Rajbansis use the huge dried and often polished form of gourd shell to prepare musical instrument. With this shell a string (or two) is attached and when it is beaten, sounds come out of the shell.

- Rajbansis have the concept of private and public ponds in the village. Of the public ponds, they often maintain the concept of good or bad pond: pond for bathing, to wash the clothes, for religious occasion or for other or no use. Ash and soda are used in cleaning the utensils and clothe. Women with their utensils and clothe come together to the pond; they gossip, sing songs, and recreate themselves. The ash, soda, superfluity and dirt left at the pond side are food of the fishes. They beat the clothes with the help of a wooden rod on a prepared flat stone or such type of wooden platform. The wooden platform does not decay due to the very reason of preservative nature of clay soil to the wood. Wooden items like sticks and boat used to be merged under the water inside the clay, so as to give them a stout and durable texture. Existence of separate pond for cattle is very scientific; in this way, the parasitic cycle through pond, cattle and man could be checked. The Rajbansis choose bathing ponds with due consideration of the nature of soil type which is basically clayey in nature of good quality. They paste the clay over the whole body as a natural moisturizer, skin therapeutic element and sun screen before bathing. The peoples use the dried sclerotic remains of Dhundhul fruit for rubbing and washing their body. In the dry season, these ponds are found to be full of green or violet phyto-planktons. For latrine purpose, peoples often use deep ditches on the ground (natural or man-made). When the water dried out, the manure therefore formed put to the land for vegetable cultivation, mainly the cauliflower. High edge ponds consist of big trees around. These trees with help of their strong roots check soil erosion, suck the excess pond water, and check excess water evaporation in summer by forming big shadows. These trees are placed at a safe distance, so that the shed-off leaves could not pollute the water. Grass is also used for prevention of soil erosion. The Rajbansis have the knowledge of poisonous effects of led/sisa, and arsenic as well as polluted water mixed up with pesticide. They have also experienced iron water coming out from the tube well. Rajbansis in some regions cultivate the crop in island like region, often created artificially in the big ponds or water tanks connected with the mainland by a temporary bamboo bridge. They in the rainy season often go in paddy-cum-fishery cultivation. The small fishes in the watery paddy field sometimes eat the harmful larvae of beetles and dragon flies. These small

fishes die with water evaporation and their body remains after their death rote to add manure and phosphorus to the ground. Gappi, Techokha and other fishes they never harm as these are basically mosquito larvae eaters. Important fish varieties were therefore kajari, puti, chala, dhara, gughia, bain (electric ill), chanda, taki, bacha, bata, mourala, nadiali, singi, magur, koi, rohu, catla, shol, boal. Rajbansis have the concept to let the small fishes and fishes with egg free so as to conserve the species. They did not do any harm to the non edible fish varieties of which many are used to control the mosquito larvae under water. Some plant extracts are still used as toxic substances to the fishes in order to make them senseless and catch them with open hands in very shallow water (the water level probably reaching the ankle to knee portion); they do not harm the fishes they do not want. The friendly fishes and crabs are not even paralyzed. Small ditches are also used for fishery. Thin cloth pieces (used as sieve with minute pores) are used in catching very small fishes in shallow water. Big nets on bamboo frames attached with big paddle in closed water is used for catching fishes in huge quantity at a single time. Bamboo and mud barricade is also used for catching fishes; this dam is so constructed that thin water with fishes could flow to pass to the other side of the barricade. There, on a bamboo floor water and fishes jump down. A net has been tied up there on that bamboo platform in inclined condition where all these fishes come into and get collected. So, the basic principle applied here is the water is logged in on small stream by formation of low height dam and the water coming out of that dam is then allowed to be passed by a sieve so that fishes could be collected. When the water level goes lower than the dam height, aluminum pans are used to through the water to the net on the other side so that small fishes in the water could get caught on the net. Small hand-led net fixed with bamboo frame is also used in fishing. To attract the attention of the fish, cow dung and superfluity on paddy straw is used on these net. Fishes automatically enter into the net and when the net is pulled off, it is found full of fishes. In the ponds, often lime is applied that causes the suspended particles to go down and precipitate at the bottom. In this way, water remains clear and the fishes have got a good source of food. Big nets are also used to create waves in the cold water of winter so the fishes could be forced to move. Through this exercise and physical activity, these fishes become hungry and therefore they could be fed their proper diet. This approach helps in determination of the full-level fish growth, ensures their good health and fertility in the next autumn, summer and especially in the rainy seasons and increase in their population. Ant eggs and earth warms are used in catching the fishes with fishing rod. Fishes are also caught by hooks submerged under the water with the help of a fiber or jute rope or nylon rope inclined from a bamboo rod of the hands of a fisherman. When the fish comes to eat the earthworm or other food substance attached with the hook, the indicator fixed with the rope just above the hook gets struck and indication goes to the eyes of the fisherman. He then moves up the stick and throat of the fish gets pierced by the hook and it also comes out of the water. Preparation of dried fish is done by keeping them under sun after the subsequent procedures like washing, cutting, removing the decaying parts, mixing up with turmeric and salt. These fishes are often stored under the dried soil. In dried fish production, with the cleaned fishes, Rajbansis well mix good amount of salt and keep them either under the sunbeam or dry soil; they often treat these fishes with turmeric and even warm the in a *tawa* (plate) on stove; the proportion of

salt and turmeric depends upon the nature of the fish variety. Rajbansis like both big boneless fishes (like shoal and boal) as well as small fishes whose bones could be easily consumed and digested. Fishes like magur, koi and singhi with extra respiratory organ could also grow up in low water muddy wet soil; these fishes are favored by the Rajbansis for their high nutrition level and easily digestible nature. The small fishes are enriched with phosphorus. Water hyacinth grows up in the low marshy land or slow water flows and creates a different type of water ecosystem on muddy soil. This type of stagnant water is good for production of mosquito larvae and larvae-eating small techokha fish. These fishes die off due to excess of use of oxygen, maximum growth of planktons and pollution. This again gives an invitation to the insectivorous birds as well as fish eating small birds. The mud digging birds get highly affected by Teniasis. The water hyacinth is often cut off and then sun dried before burying them under the soil which gives a very good quality of manure. However, in this muddy marshy ground, fishes like koi, magur and singhi with extra respiratory organ are well survived and hide into the holes there. To catch these fishes, superfluity has been used to allure them so that they would come out from their holes and go into the dark earthen pots dipped into the mud. To these fishes, the earthen pots seem to be dark holes and they go into them in search of food. In the evening, these pots full of fishes are collected. The water grass is considered to be good fodder for the cattle. Rajbansis are fond of fish head that they cook with *khesari*leaves or pulses. Rajbansis are also fond of *letka* fish, low-cost and transported from sea areas. This fish has no bone, very delicate and is cooked in a water-free condition in the juice coming out of the spices. Rajbansis also use several types of spices like onion, ginger, garlic, black paper, salt, rock salt, cumin seed/jira (black and white), cassia/tejpata, chili, sharisha/mustard seed, poppy seed/posto, cardamom/elach, clove/labanga, kasai, sorea seed, coriander seed/dhone, coriander leaf, tomato, soda, dry neem leaf, chirata, betel-nut, amla, haritaki/myrobalan, khoir/ catechu, resin, hemp, alum, turmeric, hing (*Asafoetida*) and so on. Rajbansis have the habit of chewing the coriander and joan (another spice) and suck up the juice. They are fond of nut, chestnut, water chest nut and also cashew (when available). They generally take tea with sugar; or milk and sugar; or milk, sugar and ginger; or milk and lime; or only lime; but the quantity of sugar never exceeds too high. Dust of rice or pulse is also produced through hand rolling machine where between the two cycling stone discs the grains become pasted and dust forms.*Kalangi* variety of arum, yellow-green berry fruits of *Solunum khasianum*, fruits of yellow funnel-like flower of *Shiuli*, a grass variety with bitter taste are some of the source of ethno-toxic substance.

- Rajbansis prefer rice cultivation the most. The rice varieties they have preferred the most are Kukra or Kukurjali, White Nunia, Black Nunia, Tulaipanji, Swarna, Kalam, Kamon/ Kaon, Payejam, Mala and so on. Black Nunia is black in color and because of that when the crops are full grown, the field is looking black and the air is filled up with a special fragrance. Grains of Black Nunia are relatively small, but very much tasty; it is sold in market in higher price level than the hybrid varieties due to its low production. White Nunia is also there, their seed coat color is as usual non-black and hence golden. Rajbansis are concerned about high nutritious value of Nunia rice. A small quantity of Nunia rice can fill the belly fully of a person for the whole day. A handful of Nunia paddy (taken for cook) could provide a higher amount of

cooked rice. Swarna gives a greater yield (about 18-20 mon/ bigha), while the lowest is documented in case of Kalam (8-10 mon/ bigha). But Kalam is the rice with elongated grains of thin size and also of good taste. Kaon or Kamon is another variety of rice with smallest grain size. Being extremely minute, Kaon looks like mustard, but it is not any kind of rapeseed. It is not too tasty as other improved qualities of paddy. Mala ripens most quickly. Kaon is a suitable example of domestication and gradual improvement of a wild variety into the category of a crop. It grows reluctantly in the natural environment of North Bengal. Usually the Rajbansis eat boiled Kamon or Kaon. It is also cultivated in the hill areas by other hill inhabitant ethnic groups and used by other Bengali peoples living in plain region with these Rajbansis.

- Rajbansis usually cultivated rice in the season of monsoon and cut it in the season of Hemanta - a typical season between spring and winter when the dews started falling on earth. Sowed with the first monsoon rain of June, this Mala variety blooms so fast that no other rice could do so and hence, the grains of this rice are only available in the annual festival of Durga puja or worship of Mother Goddess in the very next Sharat / Spring season (September-October). It could not wait till the season of Hemanta. Kukurjali is an exclusive variety of rice found in North Bengal. Kukurjali is also known for its nutritious quality. Nunia and Tulaipanji are relatively high yielding. Black Nunia may be an indigenous hybrid. Tulaipanji is the local product of Dinajpur area of North Bengal. Kukurjali is a local variety of the Terai of Darjeeling district, North Bengal. It is delicious and very soft when cooked. Rajbansis use the rice made of Kukurjali, Tulaipanji, Kalam or Nunia type of paddy varieties for some religious purposes and festive occasions. Kaon is also served as hotchpotch in these festivals. Indeed, in every step of agriculture practices, there are some exclusive folk attributes in the form of myth and festivals throughout the year that always say something about the Rajbansis Folk Life and their IKS. The Paddy straw is use for various purposes: for construction of house, for construction of shade, as fodder, on the net used in fishing, as a good source of fuel and ash, manure and so on. These straws are also used in preparation of rings on which the round-base earthen pottery is usually placed. These straws are also used in manufacture of sitting blocks. These straw bundles are piled up around an erect bamboo stick in circulating order; then the last bundles are placed laterally so that the piled up straws could not come out. In farms, such pile is formed on Bamboo lattice; in this way, this whole-year fodder reserve is protected from any kind of dampness and rotting.
- The traditional husking machine is made up of bamboo; it has a hole on the dried muddy floor plastered with cow dung, a long wooden log is used for pressing the paddy kept inside the hole. The log has fixed with a paddle or lever and through continuous pressing, the rice grains get free from their seed coat. The rice husked in this manner never looses its cotyledon from the rice grain and in this way; the nutritious value remains the same. The rice used in this type of husking at home is generally kept in storage and occasionally they are brought out for religious purpose. The persons involved in husking are generally women; they sing songs and gossip while husking the grain. They participate in this husking process generally in the calm and quite atmosphere of afternoon when the men are outside. Generally the elder women like mother or mother-in-law advocates the whole program. The elder daughter-in-law paddles the husk and the younger girl member, even unmarried, puts the paddy in the hole and removes the rice out.

They often continue this process until rice dust is not formed. Before husking initiates, especially in case of marriage ceremonies, the husking machine is worshipped or taken into the process of worshipping; the turmeric and other indigenous aromatic plant residues are husked here for their further use in these ceremonies. Instead of sandal, these peoples use the locally found aromatic scent which they have got from the dried part of *kasai*.

- So, the rice to be used in festival purpose is generally husked manually. It serves retention of nutritious cotyledon part intact with the rice grain which is usually not possible in case of husking in electric machine. So, maintenance of nutritious value of the major food grain of the Rajbansi folk community in the form of local rice varieties is highly connected with religious ceremonies. Actually, with every steps of agriculture, religious beliefs and myths are intimately associated. When a person comes to visit one's house, he is often served with warm plain rice. Rice is therefore the main food of the Rajbansi peoples.
- Settlement pattern of the Rajbansi house is basically linear and there is not much number of lanes; road is widened enough so that a bullock cart could pass by it. Rajbansis generally construct their houses of mud and clay. Rajbansis mix the rice coats as a strengthening object in the soil. They keep the lower portion of the soil thicker and the upper portion gradually becoming thinner. They build windows and doors in the rooms and made them of wood. But, first of all, the pedestal of the room has to be produced. Home is then constructed on the pedestal leaving some portions of its in front calling it the Varandah or Dhap. Dhap is used for both sitting as well as dinning. Walls and floor have to be plastered with cow dung paste. Roves are made up of jute sticks, paddy straw, glossy broad leavers and smooth bamboo sticks that acted as bio-degradable natural water resistant shade. The kitchen is generally built up next to the homes in the inner yard or at a side of the Dhap. The cow shade, kitchen and the store room are constructed very close to each other. It would be easier for the womenfolk to collect grains from the store and make food and fodder of it at the same time. May the cattle be raised in a hot place near the hearth in the winter season! The cattle and the cubs may keep under through observation. Milk collection from the cow shade, preparation of card in the store, and production of Dahi-Chura, Ghee and clustered milk in lime in the kitchen are related with each other. In case of crop failure or drought, Yugis are invited in the house and these magico-religious wise men conduct some performances in the cow shade, cook food there by their own hand and then after eating the same went on their ways. When the cub is born, from the first milk it is limed to form cluster. It is then fed to the cubs and taken also by the family members of the household. Fire wood is stored near the kitchen and the cow shade, often creating a barrier between these two. Cow dung cakes (fuel) and dump of ash are also stored nearby. Worship of the cow and earthen stove is also done at the same time by the Hindu Rajbansis. In case of fuel collection; leaf, stick and wood are kept in a separate home or under a separate shade or in the bags or from the roof in hanging condition on a temporary self. Fire wood is also stored separately in store or in the rack produced by bamboo from the ceiling of the Dhap. The front door is usually situated backwards direction. The house with several rooms surrounds the inner yard and an external yard is also there. There are again racks, stacks or box like apartments on the mud-and-clay wall inside. This type of house pattern could tackle with environmental challenges like hot day, summer, heavy

rains and winter. It maintains the temperature inside the room. For house construction and carpentry, Rajbansis also contain several types of instruments: Hammer, chisel, saw, smoothing plain, axe, *dao*(instrument to separate the log into pieces), nut, screw, screw driver, digging rod, rope and measuring rope. Besides bamboo, wood, straw, jute sticks, broad leaves and clayey mud with paddy seed coats and cow dung; the Rajbansis are now using earthen tiles of various costs and varied range of size, break, cement, asbestos, plastic and tin in house construction. At a time, the Rajbansis used *chun-surki* (mixture of egg yolk, lime, clayey soil, grinded broken breaks and paddy seed coat dust with sand) at the place of cement; only a few jotedars and land lords were able to construct break houses; breaks were generally burnt on fire and not sun dried in nature. The whole process required huge amount of fuel wood and caused deforestation. In case of traditional house types, first the earthen floor of clayey mud with paddy seed coats and cow dung have to be produced; then the walls are erected upwards with widened base (2.5ft.) gradually narrowing upwards (0.75 ft.). During this construction of layer after layers, regular supply of water is necessary to wet the wall mixture. With evaporation of this water; the dry soil becomes more rigid. Bamboo or wooden frames of windows and door are fixed to the walls during the construction period. Later, wooden doors and windows are fixed to these frames with the help of screws and hinge joints. To promote a durable form, these windows and doors are fixed with extra wooden bits of 'Z'-shape. Soil (used in this construction process) is generally collected from the nearby pond side. For the construction of roof, first a lattice-like bamboo and/or wooden platform is constructed atop the open head of the walls. On that lattice, workers construct an 'A'-shaped structure. This structure is actually made up of bamboo skeleton. Upon this texture; bundles of jute, paddy straw and other water resistant things are fixed. In addition, this system is also covered by broad leaves. To reduce the heat entrance; climbing vegetable herbs are let to propagate there on the roof and in this way, a portion of the sunbeam gets utilized by that vegetation-on-roof and vegetables reluctantly grow up there. Downwards declination of the roof is always there which helps in easy passage of rain water from the roof during the heavy rains of monsoon. Sometimes, tin or tile or asbestos is used to construct of the roof (partially or completely). In case of tin or asbestos, screws are used for fixation. A flat floor of wood under this tin-made 'A'-shaped roof is constructed; it resists the entry of heat waves from the hot tin into the room. In this way, a chamber is built up there in the roof which could be again used as storage for bundles of jute, jute sticks and paddy straws. Rajbansis may also live in the homestead with only one courtyard. The cattle shade may be at the other corner of the house along with the duck house and kitchen in the other. There might be a separate hut for the purpose of storage of fuel wood and a particular room as granary. There may be a temporary cattle shade in the outer courtyard, but at night the cattle are brought inside the inner yard. A house may be looked as consisting of only outer courtyard with two sides open, children playing there under the banyan tree, women cooking meal at the southern corner with the help of fuel wood stored at a hut, and cattle chewing the fodder under a temporary cow shade. But at the evening, the situation alters completely. The women candle on the basil pedestal inside the inner court yard, start cooking the food inside, males return back from the field, clean their feet and hands, cattle are brought inside, children prepare to go to sleep, grand mother tell them a folk lore,

student prepare for their study under the lamp of kerosene/ bio-gas (sold from the market), and private tutor comes to teach them. In hot days, the people often sleep on the Dhap of inner courtyard or even outside under the shade of common gossip center. The bed is basically prepared of low quality wood like amra or gamar, but still teak and sorea are preferred the most because of their resistance against the saw bugs and termite. Oil and essence is often produced from the sorea seed, whereas teak in preparation of burnish. Rajbansis either use mosquito net or fume the dry plant parts (as mosquito repellant) while slipping outside; burning egg-curtain also produces huge amount of fume. Rajbansis, during the period of availability of wood, used to prepare their wooden house on wooden trunks. The ladder (with or without wooden handled) is also there; it might be temporary or permanent in nature. That type of housing was basically in order to protect themselves from heavy flood and dampness in the soil. The latrine falling lower down was consumed be the reared pigs. On later days, pig cultivation was reduced and pigs were fed vegetables and underground foods like potato and yam. Pork, sheep, and pigeon were also highly favored by them. These items were actually associated with the blood sacrifice in their religious ceremonies, other social festivals and various types of magico-religious performances of the Rajbansi social fold. Often when a full grown goat is cut, every family of the village or lineage or among the neighbors, the meat was served; the major share goes to the actual owner of the goat. That owner had also the right to sell the skin, bone, horn and head of the goat to the outside market. From flint, once the Rajbansis used to make fire. From the friction of a hand driven wooden stick moving round in the hole on a dry sorea stem could create the fire. Now they usually use match box for making the fire.

- Often in the winter season and in rains, snakes take shelter in the store room; so the Rajbansis are often found habituated with worship of Manasa or Bishahara- the snake deity symbolizing as a woman and a river. Rajbansis believe that presence of grass snakes prevents the entry of poisonous snakes in the locality. Rajbansis often have domesticated species of snake eater animal like neula/ beji (mongoose).They also domesticated dogs, cats, pigeons and parrot. The talking bird parrot and barking dog are important for safety of the house. Cats protect the store from the mouse and cockroaches. Pigeons are considered to be pious for the house. Pigeon is an important source of manure. In any of these yards, a jiga tree and an earthen pedestal of basil shrub are generally placed. Basal, palm, papaya, betel nut, banyan, *Hibiscus* (jaba), tamarind are also grown in the outer yard or the kitchen garden behind all with many medicinal values. The houses often contain each a ditch where aurum serving as both food and with medicinal facilities grew up. Wells are there in the inner yards made up of earthen rings. Water from the wells is often pulled off with the help of a bucket fixed to a bamboo leaver and pulley. In some exclusive cases, the bamboo leaver is fixed with a circularly moving bullock or a pair of bullocks, so that water could come out of the well and through the canals rinse the dry soil of the danga where kitchen garden has been developed. This pulley system is also used in wind mills. However, drinking water (of either the well or the pond) is kept in earthen pots. The continuous evaporation from the minute invisible pores on the body of the pot, the water inside remains cool. The water is often treated with alum or lime to make it purified and subsequently, to remove the precipitations of the iron particles and other broad suspensions. Oil from

rapeseeds is extracted through putting them inside a box, producing huge pressure by a rolling wheel on the grains fixed up with the circularly moving bullock-pair. Bullock pair is also run up on the grains on the thrashing floor so as to thrash the grains. Lack of preventive measure and cultivation on open foot often cause teniasis in the peasant; so before entering into the house, they clean their hands and water with water; in some houses, therefore well are built at the outer yard. In that case, the outer yard is preferably covered by long fence made up of dried grass or paddy straw on bamboo frame or thatched bamboo scales or bamboo stems and leaves or jute straw.

- Rajbansis are well aware of the preserving food and preservation techniques. Besides *Tari* preparation and fish preservation, there are many more procedures of preservation of food. Another preserved product is *Gur*. This *Gur*is the unsaturated sweet solid fragranced form of cane juice. Due to lack of cane in large number in North Bengal, debt is used as the prime source of *Gur* here. Experienced peoples are either engaged into its collection under some supervision or they on their own responsibility could collect the sweet juice coming out of the cut channels in the debt trunk in the earthen pot bound at the cut portion. This collection is specifically done in winter season. In very early morning the pots filled up with fresh debt juice. After this collection process; the juice is heated in a pottery on earthen stove; with the help of dried debt leaves, this mixture is continuously serrated in mild flame for long time under thorough observation; and ultimately, the mixture is poured on a clothed pot to let it be cooled down and form a sweet hard cake. The juice gradually starts loosing its moisture, becomes crystallized and saturated with a specific taste. Lack of experience regarding preparation of gur can bring bitterness in it. It is a day long process under the bright sun in the clear sky and only at the late afternoon, the cluster is poured off and throughout the night kept for cooling. Here, the dried debt leaves are often used as the fuel. Actually the Rajbansis do not prepare sweet items of milk themselves, but they depend on the Bengali sweet makers for that. So, *Gur* for them is right alternative of milk made sweets. Some Rajbansi women make a delicious dish with rice dust called Vapa which is nothing but one type of soft fluffy rice cake. On a single poured dish placed at the mouth of a Handi on fire (pan on earthen stove) with boiling water inside, they put the rice dust packed in cloth pieces until the dust does not be cooked on steam and form the cake then served with gur. The Vapa is prepared at night time in dark or early morning and the women preparing it would go out to barter their produce against some rice; they again produce Vapa the next day from the rice collected and the extra rice left would feed her family. One kind of distribution, barter and cash exchange it is which helps in regular supply of food to the less prosperous or non-agriculturist families beyond the periphery of modern cash system and monetary economy. The Rajbansis prepare rice grain from the paddy in two different ways: they either keep the coated rice in water for the whole night or heat in regulated flame to some extent; both types are then husked to get uncoated rice grains. The rice produced by water treatment of the paddy grains is little bit thinner and softer. This thin rice is easy to cook, used in festivals and its dust emulsion is taken for painting the floor with designs. The water left after collecting the boiled rice is called *telani*or mar and used in wash treatment of old clothes. They also consume the *telani* with adding some salt in it to taste; they consider *telani* as the most important type of nutritious food good for health. Rajbansis take fried

uncooked (non-boiled) rice with tea in the early morning as their breakfast before getting involved in their daily work. The cooked rice of Kaon produced at the night they keep in water for the whole darkness and only when the sun appears to arise they do their breakfast with this watery rice with putting a pinch of salt in it (called as *panta bhat*).

- From the dried straw of the paddy crop, the Rajbansis prepare sitting blocks, shade their roves and create cautions. The Rajbansis in order to make chura, first keep the coated rice in water for the whole night or for some days so that the seed coat would be loosened; then they heat the same in mild temperature for long but under strict observation; control the flame and lastly, husk it in husking machine (*Chham*) with the help of a wooden beam continuously and only then some kind of pressed rice or chura is produced. This chura is then left to be sun-dried for some days and in this way could be preserved for a long period. Here, the flame of fire and time of flaming are both different from that in the preparation of uncoated rice from paddy. The softened seed coat here transforms into the dust and is used as fodder. The pressed processed rice, chura, is usually served with card (dahi). Dahi-chura is one of the most delicious food items to the Rajbansis.
- Rajbansis have learnt the on oven preparation procedure of puffed rice, muri, from the immigrant Bengali and the other Rajbansi fellows from Bangladesh (now well overlapped with one another). Basically, the uncoated uncooked rice is kept in salted water for the whole night or two to make it softened and diffuse the salt particles in it. Then on the earthen stove, these salted rice particles in the presence of sand and on controlled fire are cooked for several times with constant stirring with jute sticks until it becomes heated, softened, aired and puffed. Some people like salted muri where quantity of the soluble salt applied is higher. After this preparation, the muri has to be separated from dry heated sand by sieve or simply be shaking the mixture in a Kula. Kula is a semi-circular utensil made up of thatched bamboo strips with a deeper inside. So, the muri particles heavier would come to one end and the sand dust to the other and outside. Old paddy is often heated in sand with continuous stirring by jute stick and eventually the crunchy soft rice grains are jumped out of the paddy seed coats. This white colored food item (Khoi) is another form of rice preservation. Pulse-dust of maskalai or thakurkalai is preserved after its thickly mixing with water and then in the form of sun dried small cakes over a white cloth. Potato chips are also manufactured by the Rajbansi folk community; for this, they usually give the sliced potato chips sun-treatment and before frying them in cooking oil, some even add the dry chips into the vinegar for few minutes so as to make these crunchy.
- Card is the most auspicious item for any kind of ceremony. In order to prepare card, the Rajbansis keep milk [directly from the cow] in an earthen pot for several days in a clean, dust-free, cool dark room (with earthen wall and roof made by jute sticks and straw); they could also hang the pot from the beams of the roof; and after some days, the card is formed due to the activity of the bacteria and then they pull in down and intake it with salt. They do not put any lime extract or swore fruit substance in it like the Bengalis do. Nor they even heat the milk on mild temperature. Rajbansis for the festival purpose mix some more milk with the card and put sugar on it and stir it continuously while boiling; and in this way, sweet card is prepared; they do not add any unsaturated fat to this in order to make the stalk thick and sticky. Rajbansis are not usual

with the use of milk, but fond of card. Rajbansis also prepare unsaturated fat from milk called ghee. Besides, addition of lime juice or tamarind extract into mildly warm milk reacts with the milk and forms an easily digestible clumsy clustered white mass, nutritious and helpful in cooling the body temperature.

- Among the Rajbansis, it was a prevalent concept that women would not go to the field and cultivate the crop. The males would pay their full labor for this hard laborious work; women (as being the fertility symbols) would only contribute their roles during sowing and harvesting and often in thrashing the grains in home and storage. Women are involved in cooking, husking, cleaning, plastering, child raring and other ways of house keeping. They are also involved in animal husbandry and poultry partially. Fuel collection is another kind of job given to the women, girl child and even the boys. Exchange of labor could be found there between the neighbors or the agriculturists whose fields fall side by side. Often during crop failure, the neighbors help each other. This tradition is more frequent and close within a particular fold of lineage. Often during the sowing or ripening seasons married women returned back to father's home and pay their labor. Though being basically patrilineal, the husband may come to the wife's village if the facilities are more and suitable there. Marriages generally prevented within the same village due to face to face contact from childhood. To meet the high amount of labor requirement, the Rajbansis in remote village still favor joint family system. In past age, Rajbansis used to form a huge family including the joint families or several joint families within the lineage plus other extensions bound through blood relations; but there were other young persons without any direct blood or social or marital relations but as the members of the family helping in both house keeping and outside works. There might be 90-100 members in a family formed by the union of four brothers; some additional members would also be there for cooking the food (say, 4 persons), for serving the meal (say, 3 persons), washing the dishes, for raring the children or for feeding the cattle. This type of patterning is also found in eastern part of Siberia (American Anthropologist). *Ojha, Mahat, Adhikari, Kabiraj* and *Peer-Fakirs* are different personalities whom the Rajbansis consider completely devoted in their wellbeing as they also think about the astrologers, gurus and other priests. The Rajbansi Vaishnavas believe Guru [spiritual guide], followers of the same Guru are all brothers and sisters in terms. The Guru system is also found among the Buddhists, the Naths and the Muslim Peers. The dead body of the Guru is not burnt in the funeral ground, but buried in a side-chamber of a burial grave in a sitting posture decorating the body with flowers and utensils and placing the folded knees near to the chest. The burial of a Muslim Peer becomes eventually a sacred place for all. Kali, a major fertility cult requiring blood sacrifice, is often placed in the funeral ground where the dead bodies are burnt. Other version of the same Kali is often found to be placed in each Rajbansi Hindu house as a fertility cult. In each Rajbansi house, a sloping roved place could be found with some soil humps or nothing. Of these humps, some are symbolized as kali, some as shiva, some as vaishnava deity and together the system is regarded as the protector of the house and the household family (-ies). In the same house, different partitions may be there for the families of the brothers with separate hearths. Political leaders and three-tire village governance (Panchayet) are increasingly playing important role in the betterment of the livelihood of common people. They assure power decentralization and notify replacement of the traditional systems of land lords,

jotedars, village head and his associates, aged folks in the lineage and Wise Man with gradual popularity of democratic values. Still they still maintain a sense of fellow-feeling. They prefer to marry in other village. Property inheritance is held among the sons with the patrilineal system; but the mother could give her ornaments to her daughter at marriage; dowry is a common system among the Rajbansi society. First the groom is prepared for marriage. The performance is called as '*mantra para'*. After this spiritual purification, the groom goes to the bride's home for the actual marriage. The bride's family pays some dowry to the groom. The dowry payer family of the bride is often accused of not well behaving to the groom side. This quarrel is an interesting part of their marriage system. Women usually wear ornaments like necklace; bangles in hand; ring in finger of the hands and feet; earrings in ears and nose rings in nose. These ornaments are made up of silver and seldom of gold. Iron bangles they wear so as to remove all the bad eyes up on the family. Ornaments, especially necklace, are often produced from Basil seeds and the pendent of dried hartaki fruit; both are considered to be good for health and good religious impact. They also use antimony/surma, sulpher, flint and red ochre in make-up. Surma is another kind of cosmetics. The traditional dress of Rajbansi woman is a sari that she wears round the body, under the arms covering the chest part and again above the knees; this pattern of sari is termed as thethi; it shows close similarities with dress-pattern of Assamese women; this is helpful in quick walk, collection in jungles and working at the field in rains where at first the shoulders and lastly the feet areas become wet. This type of clothe is easy to dry off and again put on the body. Women with the help of a piece of cloth often bind their children at their backs. The married women have the custom to put vermilion on forehead as a symbol of her marriage. Rajbansi children often play with marbles or stones; they throw stones. They often beat a stone by a stick to cause it jump from the hole and then again beat it so as to throw it to a long distance (like cricket or baseball). They move round a circle that they have made on the ground; they hold one another's hand to form the chain before starting to move round (merry-go-round). They draw blocks on the ground and jump from block to block. They play hide and seek, police and thief, climbing from tree branches and so many. Rajbansi children pierce a small stick with delicate head inside some rounded fruit and use the system as a top. Rajbansi children use fruit of big sized lemon variety as a ball. Rajbansi children often in the summer time climb on trees and cool down their body temperature by the breezing light wind. Rajbansis in winter time blow warm air from their mouth on their nails. They have also the knowledge of acupuncture. Rajbansis in winter season, bathe as early as possible in the morning; the water in the well at that time remains warm compared to the pond or river water of any other day time.

- Now, many traditional villages have become provided with electricity and pitch road. Radio, Television, portable music system (walkman) and C.D. system have so far launched in these villages. Video hall is often there near the weekly/periodical market. Battery has been used by the households to enjoy movies on C.D. system. Torch and torch battery are also used in night; pencil batteries are essential to play the walkman. To increase the longevity of battery, the old batteries are kept under the sunlight in the inner courtyard and even chew the external body of the battery. Rajbansis prefer to listen the Bengali and Hindi music; but the local songs, now available on cassettes and C.D. at relatively low cost (Rs. 10-15/-), have

assured an increasing popularity among the Rajbansis as well as the other non-Rajbansi peoples living with them.

- Rajbansis now-a-days go to the modern fashion, but still their tradition of handloom production sustains and they are seeking help from various self-help groups and governmental organizations. Actually, they have to expand the amount of production from only jute or flax to wool and cotton fibers; they require a good and available market for their productions in the domains of agriculture, horticulture, fishery, sericulture, production of cash crop, dairy and poultry, agro-based industry, revival and sustenance of cottage industries, ethno-medicines as well as global public service (in a nature friendly way).
- Changes are also noticed in the domain of traditional medicinal and treatment system; now child birth in home on the dhap or a dark room in the presence of 'dhi-ma' is becoming more and more decreasing; primary health centers and anganwaris, mid-day-meal school and information and awareness programs from the panchayet and Block Development Authority have been gradually changing the old scenario. No doubt these things are good for any community development, but special care has to be taken for their culture survival, ethnic identity and dignity they have maintained for several millennia. Moreover, it should be worked out that how the Rajbansis could be promoted to a better position in the society and generate a well-built human resource. Their Indigenous Knowledge System could help in protection of the local eco-system at this current time of overall degradation and pollution; and in this way, through summing up the total amount of such services, a solution would come out at the world-level holistically. Their IKS could teach a common people that how to live with nature on the lap of nature according to the rules of nature in a good condition with the help of a feed-back system and symbiosis**!**

Rajbanshis could play an important role in the following domains through their IKS:

1. Rajbanshis prefer rice cultivation the most.Rajbanshis preferred the rice varieties are Kukra or Kukurjali, Black Nunia, Tulaipanji, etc.
2. Black Nunia is black in color and when cultivated and crops are full grown, field is looking black or with black patches on golden or yellowish shade there.
3. Grains of Black Nunia are relatively small, but very much tasty; it is sold in market in higher price level than the hybrid varieties due to its low production
4. White Nunia is also there, their seed coat color is as usual non-black and hence golden.
5. Rajbanshis are concerned about high nutritious value of Nunia rice.
6. A lesser amount of Nunia consumption can feed a person for the whole day.
7. The amount of Nunia taken for cook is always lower than the quantity of rice it produces.
8. Kukurjali is a local variety of the Terai of Darjeeling district, North Bengal.
9. The size of the grain is greater than the Nunia.
10. It is delicious and very soft when cooked.

11. Rajbanshis cultivate Kukurjali with some religious sense; they use the rice made of this variety of paddy in religious and any other important social occasion.
12. The rice to be used in festivals is generally husked manually.
13. The traditional husking machine is made up of bamboo; with a whole on the dried muddy floor plastered with cow dung frequently, it has a long wooden log used as a paddle or lever that pressed the paddy put inside the whole to make it free from the seed coat.
14. The rice husked in this manner never looses its cotyledon from the rice grain and in this way; the nutritious value remains the same.
15. The rice used in this type of husking at home is generally kept in storage and occasionally they bring it to a required quantity for religious purpose.
16. The persons involved in husking are generally the women, they sing songs and gossip while husking the grain.
17. They participate in this husking process generally in the calm and quite atmosphere of afternoon when the men are outside.
18. Generally the elder women like mother or mother-in-law advocates the whole program.
19. The elder daughter-in-law paddles the husk and the younger girl member, even unmarried, puts the paddy and removes it out.
20. They often continue the process until rice dust is formed.
21. Dust of rice or pulse is also used produced through hand rolling machine where between the two cycling stone discs the grains become pasted and dust forms.
22. Before husking or during marriage the husking machine is worshipped or taken into the process of worshipping; the turmeric and other indigenous aromatic plant residues are also husked here used in any kind of ceremonies.
23. Instead of sandal, these peoples use the locally fond aromatic dried part of kasai.

24. Ages before they used the hairs of Yak for fanning in a symbolic fashion; this supports their ancient connections with Tibet and Himalayas at least through trade.

25. Among the Rajbanshis, it was a prevalent concept that women (as being the fertility symbols) would not go to the field and cultivate the crop. The males would do these hard labors, women would only contribute their roles during sowing and harvesting and often in thrashing in home and storage.
26. Women are involved in cooking, husking, cleaning, plastering, child raring and other ways of house keeping. They are also involved in animal husbandry and poultry partially. Fuel collection is another kind of job given to the women, girl child and even the boys.
27. Exchange of labor could be found there between the neighbors or the agriculturists whose fields fall side by side.

28. Often during crop failure, the neighbors help each other. This tradition is more frequent and close within a particular fold of lineage.
29. Often during the sowing or ripening seasons married women returned back to father's home and pay her labor.
30. Being basically patrilineal, the husband may come to the wife's village if the facilities are more and suitable there.
31. Marriages generally prevented within the same village due to face to face contact from childhood.
32. To meet the high amount of labor requirement, the Rajbanshis in remote village still favor joint family system.
33. In past age, Rajbanshis used to form a huge family including the joint families or several joint families within the lineage plus other extensions bound through blood relations; but there were other young persons without any direct blood or social or marital relations but as the members of the family helping in both house keeping and outside works. This type of patterning is also found in eastern part of Siberia (American Anthropologist).

34. They usually cultivated rice in the season of monsoon and cut it in the season of Hemanta- a typical season between spring and winter when the dews started falling on earth.
35. Rajbanshis considers 'falling the ground for a season or a year or several years is good for increasing the productivity', which is lacking in the lower plains of southern part of North Bengal where in generally the population size and the expectation from the cultivation ground both are higher.
36. At early days, Rajbanshis did not cultivate paddy varieties throughout the whole year, but only in a specific season; so cultivation is seasonal and not yearly.
37. They preferred cultivation in the monsoon season.
38. In the rainy days, the cultivator in the field used a cap with enlarged edge (made up of bamboo or broad glossy leaves); the cap is used as umbrella to protect him from lashing rains and heat of the sun.
39. They do not cultivate at single fixed place overtime; time to time they alter their place of crop-cultivation.
40. They called it jhum cultivation where the selected bush and trees of the selected area were cut off and let to be rotten and then the planted there the crops.
41. They often burnt the area of cut vegetation as the ashes also played the role of manure.
42. Ash was also used as the pesticide; it was kept apart in store and then spread on the affected plant parts.
43. The plant parts or the plants affected were burnt off or cut and graved in the soil.
44. Cow dung, half rotten and full rotten leaf manure, ash, nitrogenous soil, soil collected from the ground where the jungle was destroyed on fire, boiled tea leaves, rice emulsion, superfluity, rice dust, seed coat, cow urine, bone dust, egg shells, snail shells, remains of small fish-crab-prawn and even paste of rotten remains of mastered or other rapeseeds (after extracting the oil) are basically used as the organic manure.
45. Rajbanshis opine that if once in a soil chemical fertilizers are mixed up, the only application of organic manure could not revive the power of fertility and productivity of the soil then.

46. They improved this jhum cultivation with introduction of wooden plough and sowing the saplings instead of using the seeds.
47. In the hill slopes what is done till now is keeping the rain water on narrow area of stepped slopes before plough the soil.
48. Later, Rajbanshis prefer the crop cultivation basically in the flood prone areas. The amount of crop is supposed to be higher in rainy season, but due to flood or irregular or untimely rain fall, the quantity could not always reach to the margin. The costly irrigated cultivation in dry winter season with low crop production often assures them a specific amount of growth and helps to get the maximum profit level.

49. Gur is the unsaturated sweet solid fragranced form of cane juice. Due to lack of cane in large number, debt is used as the source of gur here.
50. Experienced peoples are either engaged into or they on their own responsibility collect the sweet juice coming out of the cut channels in the Debt trunk so as to collect the same in the earthen pot bound at the cut portion
51. The process is specifically done in winter season so that the juice remain fresh and in very early morning the pots filled with gur were collected; then on earthen stove on earthen stove with the help of dried debt leaves serrated are mildly heated for long time under thorough observation and ultimately, poured on a clothed pot to let it be cooled down and form a sweet hard cake.
52. The juice starts loosing moisture and becomes crystallized saturated with a specific taste; lack of experience regarding preparing gur can bring bitterness in it. It is a day long process under the bright sun in the clear sky and only at the late afternoon, the cluster is poured and throughout the night kept for cooling.
53. As the fuel, the dried debt leaves are often used.
54. Actually the Rajbanshis do not prepare sweet items of milk themselves.

55. Kaon is a suitable example of domestication and gradual improvement of a wild variety into the category of a crop.
56. Usually the Rajbanshis ate boiled Kamon or Kaon grown reluctantly in the natural environment.
57. Kaon actually looked like mustard, was but never any type of rapeseed; it was not too tasty as paddy, but some wild variety of millet. Kaon was also served as a hotchpotch preparation in festivals. It is also cultivated in the hill areas by other hill inhabitant ethnic groups and used by other Bengali peoples living here with the Rajbanshis.
58. Kukurjali is an exclusive variety of rice found in North Bengal.
59. Kukurjali is also known for its nutritious quality.
60. Nunia and Tulaipanji are relatively high yielding.
61. Black Nunia may be an indigenous hybrid.
62. Some Rajbanshi women make a delicious dish with rice dust called Vapa which is nothing but one type of soft fluffy rice cake.

63. On a single poured dish placed at the mouth of a Handi on fire (pan on earthen stove) with boiling water inside, they put the rice dust packed in cloth pieces until the dust does not be cooked on steam and form the cake then served with gur.
64. The Vapa is prepared at night time in dark or early morning and the women preparing it would go out to barter their produce against some rice; they again produce Vapa the next day from the rice collected and the extra rice left would feed her family. One kind of distribution, barter and cash exchange it is which helps in regular supply of food to the less prosperous or non-agriculturist families beyond the periphery of modern cash system and monetary economy.
65. The rice seed coat is used both as manure.
66. The rice seed coat is used both as manure fodder.
67. Often the rice cotyledon they use as important fodder.
68. As the fodder, Rajbanshis also use rapeseed remains, paddy straw, rice emulsion, jungle leaves, various types of grass, old makoi (corn grain), bad smelling marua (wheat like substance) and if available gur affected with fungi.
69. As the manure the Rajbanshis do not remove the paddy straw from field.
70. They use rotten leaves as manure.
71. They dug up the soil and put the leaves there and let them be rotten.
72. Digs are not so big but medium in size.
73. They apply both the half-rotten as well as completely rotten leaves for manure.
74. Rajbanshis often consume the raw materials of the vegetables left after cooking. They treated them with soda and then cooked. This kind of dish is for clearing the stomach. So, the vegetable superfluity is not always applied as organic manure.
75. The superfluity of the food they once kept for the small birds living in the neighboring jungles or on the village trees or spending their night within the bamboo bushes.
76. These birds were very useful in controlling the insects and pastes.
77. Again, these birds often eat the ripening crops.
78. Therefore, Rajbanshis often set up human figures in the field with the help of sticks and pots.
79. They sometimes constructed watch towers (lattice-on-bamboo) and made sound by wooden stick-clappers.
80. Sometimes, they use nets to prevent their crops and fruits from the night birds and bats.
81. Some birds are there that collect insects and larvae from the ditches and thus helping in to maintain the eco-system of the ponds.
82. Fish eating small birds and other migratory birds are also there that play important role in controlling the water ecosystem and many of them use the marshlands as their breeding places.
83. Scavenger birds are also there that eat the dead remains of domesticated animals and thus balancing the eco-system.
84. Due to excess use of artificial foods, medicines and injecting hormones in the cow, some non-degradable elements toxic to these scavengers cause their death and decrease in number.

85. Predator birds and owl help in controlling the number of mouse that could create a negative impact on the production of crops.
86. Predator birds often play crucial roles in controlling the number of snakes and frogs that on the other side control the number of insects, mosquito, fly and larvae.
87. Birds stool is one kind of natural manure.
88. Crow as a scavenger clears up the dead remains and also removes other kinds of superfluity.
89. Bats and some evening and night hawk birds contribute in controlling the number of insects in night time.
90. Fox, wild dogs, tigers, deer, bison, wild pig and gharial type of fish-eating crocodile are rapidly decreasing in number or have completely lost from the bio-diversity of the North Bengal.
91. Rajbanshis use torches burnt with oil and produce sound at night by beating drums and tin to protect their crops from elephants.
92. In winter season, the large amount of deciduous leaves and small branches, shed off from the trees in the mixed jungles of Darjeeling Terai, these peoples used not only as manure, but also as their fuel for the whole year. The forests were so prevailing that their amount of collection was negligible. They in various protect the forest and its bio-diversity.
93. So, there always retain some kind of feed back.
94. These are alternative of wood and cow dung as the fuel.
95. But here the fume is produced to a large quantity.
96. They often burnt the leaves after piling them in a huge hip. This started from evening and continued to late night. This increases the temperature of the neighborhood and provides warm both to the peoples and the animal husbandry and poultry to some extent.
97. In the morning, the ashes are found wet due to the dew drops. Dogs made this ash as their sleeping bed. The wet ashes are good for organic manure.
98. Ash is also layered on the cow or they are rugged by jute blanket or dimply seats.
99. Ash, jute blanket, sand and paddy straw are important non-conducting agents.
100. They preferred the earth warm, white ant and even ants as agriculture friendly organisms (obviously when under control).
101. Earth warms do the same thing a plough does to the land.
102. White ants decompose the dead and other unnecessary organic compounds that help in sustenance of the bio-geo cycles.
103. Ants through their activities could make a weather forecasting; such as, their accumulation beneath the tree leaves or within the tree trunks denotes that the rain is coming.
104. But now even the ants could not make up with the rapid changes in weather and often denote wrong weather forecasting.
105. Excess presence of these three elements again reduces the fertility of the soil.

106. Rajbanshis have to always be aware of entrance of some harmful saprophytes or other kinds of plants with their roots reaching deep into the soil and sucking all the nourishment (causing serious herm to the vegetation of domesticated crops especially in the kitchen garden.

107. Rajbanshis favors crop rotation.

108. Rajbanshis prefers mixed way of cultivation, especially in case of vegetables.

109. They have the concept of enriching the soil by panting leguminous plants and pea and other pulses.

110. They generally feed the child pea in day time while playing under the supervision of the aged and women in the villages.

111. The Rajbanshis prepare rice grain from the paddy in two different ways: they either kept the coated rice in water for the whole night or heated it in regulated flame to some extent; both types are then husked to get uncoated rice grains.

112. The rice produced by water treatment of the paddy grains is little bit thinner and softer.

113. This thin rice is easy to cook, used in festivals and its dust emulsion is taken for painting the floor with designs.

114. The water left after collecting the boiled rice is called telani or mar and used in wash treatment of old clothes.

115. They also consumed the same with adding some salt in it to taste; they consider Telani as the most important type of nutritious food good for health.

116. Rajbanshis take fried uncooked (non-boiled) rice with tea in the early morning in their breakfast before getting involved in their daily work.

117. The cooked rice of Kaon produced at the night they keep in safe in water for the whole darkness and only when the sun appears to arise they do their breakfast with this watery ride putting a pinch of salt in it (callted as panta bhat).

118. From the dried straw of the paddy crop, the Rajbanshis prepared sitting blocks, shade their roves and create cautions.

119. The Rajbanshis in order to make chura, first keep the coated rice in water for the whole night or for some days so that the seed coat would be loosened; then they heat the same in mild temperature for long but under strict observation; control the flame and lastly, husk it in husking machine (Chham) or by a wooden beam continuously and only then some kind of pressed rice or chura is produced. This is left to be sun-dried for some days and in this way preserved for a long period. Here, the flame of fire and time of flaming are both different from that in the preparation of uncoated rice from paddy.

120. The softened seed coat here becomes a dust and used as fodder.

121. The pressed processed rice, chura, is usually served with card (dahi). Dahi-chura is one of the most delicious food items to the Rajbanshis.

122. They have learnt the preparation procedure of puffed rice, muri, on oven from the immigrant Bengali and the other Rajbanshi fellows from Bangladesh well overlapped with one another.

123. Basically, the uncoated uncooked rice is kept in salted water for the whole night or two to make it softened and diffuse the salt particles in it. Then on the earthen stove, these salted rice particles in the presence of sand and on controlled fire are cooked for several times while stirred with jute sticks continuously until it becomes heated, softened, aired and puffed.

124. Some like salted muri where quantity of the soluble salt is higher.

125. After this preparation, the muri has to be separated from dry heated sand by sieve or simply be shaking the mixture in a Kula.

126. Kula is a semi-circular utensil made up of thatched bamboo strips with a deeper side. So the muri particles heavier would come to one place and the sand dust to the other and outside.

127. Muri could also be produced from cooked rice.

128. Old paddy is heated in sand with continuously stirring by jute sticks and eventually the crunchy soft rice grains are jumped out of the paddy seed coats. This white colored food item (Khoi) is another form of rice preservation.

129. Card was the most auspicious item for any kind of ceremony.

130. In order to prepare card, the Rajbanshis keep milk directly from the cow in an earthen pot for several days in a clean, dust-free, cool dark room (with earthen wall and roof made by jute sticks and straw); hang it from the beams of the roof; and after some days, the card was formed due to the activity of the bacteria and then they pull in down and intake it with salt. They do not put any lime extract or swore fruit substances in it like the Bengalis do. Nor they even heat the milk on mild temperature.

131. Rajbanshis for the festival purpose again they mix some more milk with the card and put sugar on it and stir continuously while boiling; and in this way sweet card is produced; they do not add any unsaturated fat in this in order to make the stalk thick and sticky.

132. Rajbanshis are not usual with the use of milk, but fond of card.

133. Rajbanshis also prepare unsaturated fat from milk called ghee.

134. Besides, addition of lime juice or tamarind extract into mildly warm milk reacts with it to form a clumsy clustered white mass easily digestible, nutritious and cooling the body temperature.

135. Males are also involved in preparation of wooden plough from highly non-degradable teak grown up reluctantly in the forest areas of North Bengal.

136. Teak plough was also an important item for collection of rice in the weakly markets.

137. Cotton was once produced from the seeds of Shimul tree and a wide vegetation of Shimul was there in Terai region of Darjeeling district.

138. With increase in population, that has been destroyed and only teak belts were kept in safety for the very supply of the raw material for plough the main instrument for agriculture and for the carpenters the prime source of collecting rice and other substances. This is a clear example of feed-back.

139. They also divided the soil type on the basis of fertility, like

- loamy soil moderately found in the fertile plains,
- river side conglomerate,
- conglomerate with broad pieces or small pieces,
- proportion of sand,
- alluvial soil on river banks or the river islands formed or developed during the rainy season,
- opened conglomerate of the rain affected slopping
- slopping and highlands covered by forest and hence, composing the peat with increased pH level.

140. They in generally classify the soil type into three: danga (highland), nichu (lowland) and jola (marshy land).

141. There are ditches (khana-khando) scattered here and there in the terai region which is absent in Duras area that is the Bhutan foothills.
142. They at a time grew aurum in huge quantity in the ditches here and there and often the good varieties like the Mukhi type in their kitchen garden.
143. The extract from long leaf base of aurum with spit could be added in a cut region which helps in quick coagulation of bleeding.

144. In winter, after harvesting the paddy crop, they cultivated vegetables in the danga region, whereas the lowland areas were used for production of pulses.
145. Pulses are such as maskalai, and thakurkalai.
146. Mustered and other rapeseeds like tisi, spices, makoi or corn and wheat have come later are also cultivated.
147. In the sandy river bed areas just beneath the hill, spices like cardamom, ginger, garlic, onion, tejpata, cardamom could grow.
148. This sloppy landscape is important makoi cultivation.
149. Danga is preferred for vegetable cultivation, production of wheat and marua, habitation and kitchen garden, and grazing.
150. Marua, makoi and wheat are all dusted to prepare hand-made pancakes.

151. Mustard and other rapeseeds are also cultivated in winter.
152. In specific case of Darjeeling district, tisi is often more favored than mustard.
153. Tisi could grow in a more xerophytic condition than the irrigation-affiliated mustard.
154. Rai is grown in the hills and foothill areas as another variety of mustard, small in size and with broad leaves.
155. Dried leaf and stem of mustard are used as fuel and mosquito repellant.
156. In preparation of prickles, mustard is greatly used.
157. Mustard oil is used for cooking.

158. The oil is also used for body massage and relief of the pain.

159. Mustard seed remains are used in increasing soil fertility.

160. Mustard grains as well as their dust are also used in food preparation.

161. Mustard oil is massaged over the body under sun light before bathing and immediately after bathing, the body is rubbed with dry towel very well- this is a process of preventing the clod.

162. Often, the mustard oil with maskalai pulse, and garlic cubes is rubbed on body to reduce body pains.

163. First the legs and then the hands and thereafter the body and chest, throat, neck portion and ultimately the face and head are to be massaged.

164. The mixture of mustard seeds, zira and garlic is often eaten with onion and food to create excess body temperature in cold or vomit the undigested food from the stomach.

165. The green soft plant parts are used as vegetable.

166. Mustard oil is used in flaming the candle in the remote village areas at the night and torch to remove elephants from the crop land as well as the honey bees from their nest.

167. Vegetables are generally grown in winter in the Danga with less water-supply.

168. Among the vegetables of winter, they liked Lafa the most. That vegetable, according to their IKS, had the potentiality to fall down their body temperature.

169. Pelka, the food preparation of Lafa, caused them easily caught by cold and therefore the dust of the dried winter so entered into their nose from the thrashing floor of paddy would came out subsequently.

170. Sop sop is another kitchen garden product that they eat with pork.

171. They also grew gourd and roof-gourd that they used in preparation of goat meat.

172. Bringal, potato, bitter gourd, pumpkin, ginger, turmeric, hemp, chili, cucumber were also grown reluctantly.

173. The Rajbanshis had a least case of diabetes, because they knew the importance of the juice of bitter gourd as well as application of the water with extract of gulancha, a kind of herbaceous plant.

174. Rajbanshis are also fond of chili; they think it helps them to warm up the body and prevent the cold.

175. They preserve chili by drying it in the sun, but that does not sustain for long.

176. Preservation of chili after heating it in warm water increases its longevity.

177. Rajbanshis used to fence the kitchen garden not with bamboo sticks or dried leaves, jute and slender branches as done today, but with certain bushy shrubs with right wooden stem and bitter taste leaves.

178. They in this way prevent the cattle to enter their kitchen garden of vegetable cultivation.

179. The Vasica or Vitex leaves from the fence they used in disease cure.

180. They also collect such types of medicinal plants grown up in non-cultivated uplands, jungles, home and even the humped soil barriers dividing the ground into many small agricultural plots.

181. These humped soil barriers are also called as aal which are also used for walking and going to the field without entering anybody's personal land.

182. The non-cultivated uplands at the jungle side covered with xerophytes with medicinal values are actually sacred grooves of the Rajbanshis.

183. The Sorea forest grown by side also provides various services the tree provides the man (including some medicinal values).

184. The wax out of Sorea trunk in dry condition id used as highly inflammable object and mosquito repellant.

185. Sorea is a good source of very durable wood used in plough production.

186. Wood is also needed as poles, beams and logs in various types of construction.

187. It is a good quality fire wood.

188. Dried broad leaves are used as plates.

189. The charcoal is used in gold ornamentation.

190. Essence is produced from Sorea extract.

191. Sorea seed is used in haria preparation of the Oraons.

192. Sorea bark is used in tanning.

193. During the weather change when Sorea flowers and pollens are in the air; suffocation, pollen allergy and symptoms of asthma appear to affect the peoples.

194. Nichu is considered appropriate for rice cultivation without irrigation in winter and with irrigation in summer.

195. Traditional irrigation system of hand made wooden water carriers look like miniature of a narrow boat with or without chambers.

196. In the marshy lands jute is being grown.

197. Jute cultivation requires logged water on alluvial soil in low marshy land; therefore often surrounded by ferns and aurum vegetation.

198. The marshy alluvial soil prevents the logged water to go immediately under the ground and that water storage is utilized in post rainy period with bright sunshine with heavy moisture to rote the jutes in that marshy land and to remove the fibers from the jute stick.

199. Jute sticks are dried for several days under sunlight kept erect with the help of a balance of a tree trunk.

200. Jute sticks are both used as fuel and for construction of roof and fence for their very thin cylindrical hollow nature chambering the filled up non-conductor air.

201. Jute sticks could be used in paper making.

202. Jute sticks are used as fuel.

203. Jute sticks are also used in preparation of lattice in vegetable cultivation.

204. Jute plants and leaves are used as vegetables with somewhat pungent taste and contain medicinal values.

205. Jute fibers of very thin quality are used for preparation of mosquito net.

206. From the jute and such other less-quality fibers, Rajbanshis in their hand-led looms prepare handloom products like Dhokra the seat to sit.

207. Curtains and carpets are produced from jute. The age of the curtain is folded with bamboo rods.

208. They also produce chat from where bags are produced for propose of storage and also carriage.

209. To secure the storage, they closed the mouth of the bags with ropes again made up of fibers.

210. Ropes are produced from rolling the fibers continuously by the palms of two hands; then again do the same with two thin ropes and repeating the same again and again.

211. Ropes thus produced are of various types and categories- thin to thick.

212. Some ropes are used for binding the wooden and wooden beams and pillars during house or shade construction;

213. Ropes are also used in hanging the pots carrying curds from the beams putting an impression on the neck of the pottery.

214. Ropes are used for the same purpose during binding the pots in the debt trees.

215. Ropes are used in measurement.

216. Ropes they also used on domestic cattle, collecting water from the well through bucket, playing as well as bullock cart in transportation and bullock-plough cultivation.

217. For each and every aspect, ropes are of different types. The rope preparation is held by the entire and that is why, fibers are also stored in due course.

218. From the looms, cloths of fine jute fibers are even now sometimes produced. The Rajbanshi women used to ware them folding on their body from the breast to thy portion, while men only lower garments in the summer time.

219. In the cold days they used straw on the floor, blanket made up Shimul cotton.

220. For pillow and blanket they have do depend the Muslim Dhunia as well as for utensils on carpenter (Sutradhar), craft maker (Malakar) and potter (Pala or Rajbanshi potter).

221. Rajbanshis colored the clothing items with indigenous paints they then produced from plant extracts.

222. Hibiscus (jaba) petals and the teak leaves are used for red color, indigo for blue, duranta for violet, lime and gypsum for white, gray soil for gray, leaf extracts for green, water hyacinth for violet and so on.

223. With these natural extracts and dust of thin rice grains, paintings are often made up of natural objects and symbols on walls and floors as well as frame of window or door.

224. Burnt wood, charcoal, coal and ash are also used in the purpose of painting.

225. In washing the clothes, they use soda which they produced from the base of the banana tree (actually the part from where the leaf inflorescence grows out as “the tree” out of the underground rhizome). They

submerged the trunk base for long in water and when it started to be rotten out, the waxy extract they collected and used as soda.

226. In burnt body part, immediately after the burning, the extract from the basal region of the banana leaf inflorescence (or the 'stem') has to be rubbed so no mark would appear there and complete remedy is possible.

227. Banana is being used as a fruit. Banana as a fruit was important in religious ceremonies, but interestingly the banana local variety with seeds, namely daya kela or bichia kela (bichia= seed; kela=banana) was preferred more as the folk peoples believed in their medicinal importance.

228. In festivals, they use sweet bananas of chinichampa with small and dark spots on their body.

229. The banana fruit inflorescence in the good variety of malvog riches up to the soil.

230. Bananas with seeds are not so tasty and they thought in not fully ripened condition, these fruits are very important to cure the diseases in the abdomen like constipation.

231. They cook the banana fruit inflorescence as well as the 'trunk' leaf inflorescence as food items.

232. They used banana leaves as plates for serving food and also for packaging of various types.

233. In order to ripen the banana in a natural way, they dig the soil up and create some chambers in it of banana leaves storing bananas and dry straw of paddy alternatively. Then the system is fired in after covering the system again with soil from above. It acts as a closed kiln chamber where the wind is blown inside by a hollow bamboo pipe stick pierced by the soil. The banana gradually ripens within four hours from the heat produced by the straws kept within the non-conductor soil chamber.

234. Herdsmen often cook sweet potatoes in this manner but in small chamber and eat them hot.

235. Rajbanshis do not apply this procedure of ripening to other fruit varieties.

236. Rajbanshis are very fond of sour taste and eat the fruits before they ripen.

237. They also like the taste of chilly, small in size but very hot to taste.

238. They maintained the concept that a ripen fruit means a fruit with harmful microbes and insects.

239. Custar apple, guava, lime, banana, papaya, pindali, peach/ black berry, carambola and mango were the two most important fruit items for the Rajbanshis.

240. The fruits they eat in ripen condition are jack-fruit, banana, papaya, and pindali.

241. As a vegetable, they often cooked the composite type of jack-fruit before it attains the ripened condition.

242. Actually they never eat the soft, pulpy, juicy and sweet mango, because they considered ripened mango rotten in nature. They were actually fond of the sour taste of lime, tamarind, carambola and green mango with salts. They first rubbed the mango at its tip on the rough bark of the tree to remove the bitterness, halved to remove the seed, and consume it with salt.

243. They also pieced these green mangos and dried them is sunlight of the summer with salt and edible mustered oil in order to preserve them as pickle.

244. Pine apple is often grown up reluctantly.

245. Pine apples were often grown up in round under the mango tree shade.

246. The benefit of pruning the mango is that in this way, most of the mangos produced do not rote which is a common feature of the mango trees of the seed.

247. For pruning, first soil has to be prepared by filling the dig with full-prepared cow dung.

248. Other organic manure could be given if necessary.

249. The pruned plant would not be deeply placed inside the soil and to make ensure that it would not be got affected by water, the sides have to be piled up.

250. Herbs have to be controlled.

251. Ash and lime could be applied so as to free the land from fungus and germs.

252. Good dry (preferably sun-dried) fungus-free purified soil has to be mixed.

253. Longevity of a pruning again is lower than the original plant.

254. But pruning gives a lot more production, uninfected, and within a short period of time on a small sized tree.

255. They also liked the sticky taste of jack fruit, custar apple, guava, banana, peach/ black berry and betel-nut very well.

256. The slopes of uplands are often covered with ferns of numerous types, some being highly edible and nutritious.

257. Women used to collect the newly grown leaves and cooked as their daily vegetable dishes.

258. These Rajbanshi and Rajbanshi-associated women folks have the capability to use their fingers very swiftly and with consideration that which leaf has got sores or not and if present, whether in burst condition or not.

259. But still now, no one of them is interested in accepting the job of leaf collection in tea gardens; this shows their independent mode of behavior.

260. They have the concept of private and public ponds in the village.

261. Of the public ponds, they often maintain the concept of good or bad pond: pond to bathe, to wash the clothes, for religious occasion or for other or no use.

262. Ash and soda are used in cleaning the utensils and clothe.

263. Women with their utensils and clothe come together to the pond, gossip, sing songs, recreate themselves.

264. The ash, soda, superfluity and dirt are food of the fishes.

265. They beat the clothes with the help of a wooden rod on a prepared flat stone or such type of wooden platform.

266. The wooden platform did not decay due to the very reason of preservative nature of clay soil to the wood.

267. Wooden items like sticks, furniture and boat were merged under the water inside the clay, so as to give them a stout and durable texture.

268. Existence of separate pond for cattle is very scientific; in this way, the parasitic cycle through pond, cattle and man could be checked.

269. The Rajbanshis select ponds for bathing with due consideration of the nature of soil type which is basically clayey in nature of good quality.

270. They paste the clay over the body as a natural moisturizer, skin therapeutic element and sun screen before bathing.

271. The peoples use the dried sclerotic remains of Dhundhul fruit for rubbing and washing their body.

272. For latrine peoples often use deep natural or man-made ditches on the ground.

273. When the water dried out, the manure therefore formed put to the land for vegetable cultivation, mainly the cauliflower.

274. Rajbanshis in some regions cultivated the crop in island like region, often created artificially in the big ponds or water tanks connected by a temporary bamboo bridge.

275. They in the rainy season often go in paddy-cum-fishery cultivation.

276. These fishes sometimes eat the harmful larvae of harmful beetles and dragon flies.

277. These small fishes die with water evaporation and their dead body remains rote to add manure and phosphorus to the ground.

278. Gappi, Techokha and other fishes they never harm as these are basically mosquito larvae eaters.

279. Important fish varieties were therefore kajari, puti, chala, dhara, gughia, bain (electric ill), chanda, taki, bacha, bata, mourala, nadiali, singi, magur, koi, shol, boal; they let the small fishes and fishes with egg to free to conserve the species. They did not do any harm to the non edible fish varieties of which many were used to control the mosquito larvae under water.

280. Some plant extracts were used as toxic to the fishes they wanted to become senseless and caught them with open hands in very shallow water, probably to the ankle to knee portion; so, they do not harm the fishes they do not want. Even the friendly fishes and crabs are not even paralyzed.

281. Small ditches are also used for fishery.

282. Thin cloth pieces (used as sieve with minute pores) are utilized in catching very small fishes in shallow water ponds.

283. Big nets on bamboo frames with big paddle in closed water is used for catching fishes in huge quantity at a single time.

284. Net with bamboo frame is also used by hands.

285. Water is logged in a region by forming a low height dam and the water coming out of that dam is then allowed to pass by a sieve and fishes are collected.

286. Big nets are also used to move the cold water of winter so the fishes could be forced to move in the form of exercise and fed them to determine their growth, health and fertility in the next autumn, summer and especially in the rainy seasons.

287. They constructed single-tree trunk elongated, narrow and swift running boats for quick fishing.

288. Preparation of dried fish is done by keeping them under sun after the subsequent procedures like washing, mixing up with turmeric and salt, and storing them under the dried soil.

289. Water hyacinth grown up in the low marshy land or slow water flows crate a different type of water ecosystem on muddy soil.

290. This type of stagnant water is good for production of mosquito larvae and increasingly the small techokha fish which would die off due to excess of use of oxygen, growth of planktons and pollution; but giving the invitation to the insectivorous and fish eating small birds. The mud digging birds are highly affected by Teniasis.

291. The water hyacinth is often cut off and then sun dried before burying them under the soil which gives a very good quality of manure.

292. The water grass is considered to be good fodder for the cattle.

293. Rajbanshis are well concerned about need of cuttings and pruning; to check the risks of spreading infection, they use cow-dung and lime at the cut tips of the branches of the shrub, mainly flowering plant;

294. in case of flowering plants, the take special care about planting them separately in earthen pots or in the ground with safe distance from one another as they do in case of vegetable cultivation also;

295. In case of earthen pots, they often mix different kinds of soil strategraphically or completely mix them up

296. In case of maintaining different strata, they often put broken pieces of earthen pots;

297. It may be due to check the unnecessary growth of the root within a limited area.

298. They select the pot with a pore at the bottom, so that the excess water could run away;

299. To check the release of the nutrients and control the soil fertility, they used the stones and broken blocks inside the pot.

300. Often, they clear the place where the pot has been kept or keep it closed except only the time of pouring water into the pot. The reason is simple; not to allow the ants to enter into the pot.

301. time to time soil has to be changed, make it soft and out of any harsh thing, allow the root growth unharmed, clean single piece of insects, fungi, their sporangia and other unwanted plants and their roots completely from the soil and also protect the leaves and stem from excess sunshine or rainfall or even clod to make them safe from natural hazards and other types of infections.

302. For each variety, addition of stone free and germ free manure, pouring amount of the water, application of bone dust, boiled tea leaves, egg shells, cow dung or rotten leaves have been leveled.

303. Rajbanshis used to eat boiled algae, spore free fungi, cooked or uncooked rhizomes, leaves, flowers in fried condition, or other uncooked items like edible fruits and nuts during severe crop failure.

304. Still they collected Mushrooms from jungles or cultivate the same in the wet soil and straw on a basket at a damp corner of the room.

305. They believe that pruning plants give good production, but have lower longevity than the plants from fertilized seeds.

306. They stored the seeds or bulbs of good varieties in dried condition for the next year growth;

307. When available, they try to generate a new plant from a cut stem or rhizome or leaf or root or the bulb;

308. In nursery, they generate seeds and develop saplings in refined, shrub free, dried, stone free, nourished and fine soil beneath a shade of thatched shade or plastic, separated from each other and each of them at somewhat upper than the side channels to drain off the excess water.

309. In vegetable cultivation, they often produce an inversed funnel of the sticks for each creeper plant in the kitchen garden (instead of a common lattice).

310. In pots, they sometimes grow more than one plants, maintain a balance between them and use wooden or bamboo stick to make them erect.

311. Rajbanshis themselves or appointing the others collect honey and wax from the bee nests on trees.

312. They use torch to save themselves and remove the bees and then with the help of a sickle, cut the bee nest into pieces and keep them in a bucket. In the bucket, the honey is collected and the rest part of the nest the sell as the raw material of wax.

313. The sclerotic portion of the nest is burnt to get the wax which is stored after cooling.

314. Wax is used in sealing a hole, painting a cloth and even polishing the wood.

315. Wax is also used in beatification.

316. Honey is one type of anti-microbial element.

317. As a preservative, it could be used in food and prickle.

318. Honey is also preventive of cold; it warms up the body.

319. Honey is healthy and nutritious food item.

320. Honey has some medicinal values also.

321. Honey with meat or other food items in hot is exiting and excessive intake could cause a harmful effect.

322. Flower anther is also used in beatification.

323. Peoples often suck the back portion of the corolla region where the nectar is stored at the root of the stamens.

324. Cow dung is used as fuel. In order to so, the cow dung is mixed with water, softened; and as hand made cakes on wall or tree surface, sun-dried. It is also plastered on dried sticks and then sun dried. Both are efficient here.

325. Such mixture of cow dung and water is also used weakly or once every fortnight to plaster the soil and the lower portion of the wall itself for further protection of the earthen houses in this rain affected region.

326. In case of leaf collection, stick collection and wood gathering, these things are kept in a separate home or under a separate shade or in the bags or from the roof in hanging condition from a temporary self.

327. The collected cow dung from field is kept inside bamboo funnels and heated before applying as manure.

328. Flowering in bamboo plantation is a threat to the peoples dependent on bamboo economy. Because, it would destroy the total bamboo variety at a time and a new variety with some altered genetic configurations would arise.

329. Cultivators were also threatened at that time due to rapid intrusion of rats into the dying bamboo bushes for the nourished seeds and their subsequent attack over agricultural sector causing a situation of starvation and rat made hazard situation.

330. Sudden increased need of owl and snake to control the rat population.

331. Bamboo is used in construction,

332. arts and craft, especially vas,

333. fencing,

334. as glass,

335. roofing,

336. preparation of thatched utensils of bamboo scales,

337. preservation (of something) inside the funnel,

338. thin sticks for sainted burning sticks (religiously and economically important),

339. drainage,

340. leaves as manure,

341. leaves as fodder,

342. and in cooking by giving heat to the food taken inside the bamboo funnels.

343. Bamboo bush is regarded as natural habitat of birds,

344. latrine,

345. and also sitting place of the Ghosts and Mashans.

346. Bamboo scales are used in preparation of big baskets by the process of thatching in a special manner (kept in side the store room of a prosperous Rajbanshi folk people).

347. Bamboo sticks are used in fencing,

348. beating,

349. and even balancing something (may be the body weight of an old people).

350. To make it durable, treatment is given with oil, sun heat, as well as mud and water inside the pond.

351. Bamboo sticks are also used for balancing between two baskets on the shoulder and the body weight of the carrier.

352. Prepared bamboo sticks are used in balancing the boat in the river.

353. A house could be completely made up of bamboo, good for healthy environment and easy and cheap to construct.

354. Bamboo pulps are supplied for preparation of paper.

355. Soft bamboo shoots are used in preparation of soup.

356. Bamboo sticks are also used for preparation of umbrella and the stick of it.

357. Lime grass is famous for its lime smell.

358. The dried lime grass is burnt to reduce mosquitoes.

359. The ash is spread in the ditch and pond water to reduce the mosquito.

360. Wild grasses with medium or long height are used in preparation of brush to clear up the soil and the home yard.

361. Rajbanshis seldom eat frog flesh fried and in time of scarcity, have tasted prickles and snake.

362. Prickles in young Shimul tree they used to intake as a medicine to control the body temperature.

363. Rajbanshis of Darjeeling district used to chew dried betel nut, and then from the south they have learnt the use of betel now with tobacco, betel leaf and lime.

364. Ripen betel they chew as an energetic substance.

365. Snails they cooked with pulses boiled alive and then suck the juicy portion from inside the shell directly to the throat. They believed in its high protein value without any the scientific evidence and strange! They were all correct. They were the Bengalis who at a time avoided the Rajbanshis for this type of food practice and as a result of this; they gradually shed off this food item from their meal list.

366. Often, snail, snail consumption, use of snail shells for production of lime, use of lime in preparation of ponds for fishing, consumption of lime either with only tobacco or with betel nut, tobacco and betel leaf, production of betel leaf, production of betel nut, and trade of betel nut – betel leaf – lime – paddy – snail shell – snail through barter system are very crucial here.

367. Here, the **snail collector, the fishermen, the lime producer, the paddy grower, betel leaf grower and the betel nut raisers** are equally important. **Potters** in one hand provide the essential earthen pots and the crop raisers the straw as fuel source to the lime producer.

368. Unlike the betel nut, coconut is not grown reluctantly; but its plantation is often come to see.

369. 2/3 months before planting the coconut, in the dig fine full-prepared cow dung has to be added; if not full-prepared, has to be stirred from time to time.

370. The soil should be treated with salt of the amount of 1/2 Kg.

371. The coconut sapling has to be planted in such a manner that the upper portion of the root remains out of the soil and unharmed by stagnation of excessive water there.

372. These kinds of crucial measures are not needed in case of betel nut production.

373. Coconut is not only important for its fruit values or use of leaves used in roofing or use as a fuel or the trunk as thin fast-running boats, but the thick dried fruit coat is really good for burning mosquito repellant.

374. Leaves of coconut and betel nut are both used for thatching baskets

375. hats

376. utensils

377. mat

378. brush

379. and even fence.

380. Coconut fruit coat fibers could be used in preparing ropes and carpets.

381. Coconut hair oil is favorite among the Rajbanshis

382. Lime is produced by layering up of the inflammable straw, broken pieces of clay pots and snail shells in a huge earthen pot; then heating the system in a closed manner by burning the straws; and ultimately melting the shells.

383. The Rajbanshis often owned large-scale poultries of duck; probably that was the effect of Vaishnavism that prevent them from eating hen.

384. Whether hen or duck, they generally make the poultry farm or the cage above some heights the floor, so as to reduce the chances of attacks from water, cold, snake and other bird or blood easting animals.

385. Stool of the duck is very important for feeding the fishes inside the pond.

386. So, the stool and bone dust of the hen are used for manure the soil.

387. They use paddy straw, especially for the chicks to protect them from cold.

388. Domesticated hens are often helpful in controlling the beetles, other insects and warms including excess amount of earth warms.

389. Ducks control the excess amount of snails in the pond eco-system.

390. Rajbanshis consume bird meat in cooked manner with spices, but they often consume the fresh egg yolk uncooked.

391. Rajbanshis often rare goose.

392. Rajbanshis are also fond of wild hens.

393. Rajbanshis during the period of availability of wood, used to prepare their wooden house on wooden trunks and suing a wooden (or wooden handled), temporary or permanent, ladder.

394. That was to be protected themselves from heavy flood and dampness in the soil.

395. The latrine falling lower down was consumed be the reared pigs.

396. On later dates, pig cultivation was reduced and if so, then they started to be fed them vegetables and underground foods like potato and yam.

397. Pork, sheep, and pigeon were also highly favored by them. These items were actually associated with the blood sacrifice in their religious ceremonies, other social festivals and various types of magico-religious performances of the Rajbanshi social fold.

398. Often when a full grown goat is cut, every family of the village or lineage or among the neighbors, the meat is served and major share goes to the actual owner of the goat and that person had also the right to sell the skin, bone, horn and head of the goat in the market.

399. The fear of leach and presence of excess jungle resisted them to bring their cattle outside (cow, buffalo, bullock and ox); rather some peoples with some preventive measures like moistening the body with oil, salt and soil, innovated into the jungles and collected pungent smelling creeping herbs from there in huge number used as good fodder.

400. Rajbanshis used to smoke tobacco in wooden hookah (native type of pipe) with water.

401. The water and burnt substance in hookah are used as manure at small scale in gardening.

402. They smoke the dried pieces of tobacco, tejpata or even the hump in the form of cigar into the dry leaf of tejpata/cassia.

403. They used to burn the fibers of coconut and betel fruit and also the bark and leaves of sorea as mosquito repellant.

404. Tari is produced from freshly taken juice of palm in the same process as the debt juice is collected. The fresh juice is kept freely to be fermented and the alcoholic substance of Tari is thus produced.

405. Hemp leaves are also smoked through wooden pipes.

406. Hemp leaves are pasted and fried in oil with besan, one type of wheat product.

407. Paste of hemp leaves is mixed with milk and consumed; but this process is not prevalent among the Rajbanshis (apart from some festival purposes), because they better prefer card than milk so much.

408. Rajbanshis generally construct their houses of mud and clay.

409. Rajbanshis mix the rice coats as a strengthening object in the soil.

410. They keep the lower portion of the soil thicker and the upper portion gradually becoming thinner.

411. They build windows and doors in the rooms and made them of wood.

412. But, first of all, the pedestal of the room has to be produced.

413. Home is then constructed on the pedestal leaving some portions of its in front calling it the Varandah or Dhap.

414. Dhap is used for both sitting as well as dinning.

415. Walls and floor have to be plastered with cow dung paste.

416. Roves are made up of jute sticks, paddy straw, glossy broad leavers and smooth bamboo sticks that acted as bio-degradable natural water resistant shade.

417. The kitchen is generally built up next to the homes in the inner yard or at a side of the dhap.

418. The cow shade, kitchen and the store room are constructed very close to each other.

419. It would be easier for the womenfolk to collect grains from the store and make food and fodder of it at the same time.

420. May the cattle be raised in a hot place near the hearth in the winter season!

421. The cattle and the cubs may keep under through observation.

422. Milk collection from the cow shade, preparation of card in the store, and production of Dahi-Chura, Ghee and clustered milk in lime in the kitchen are related with each other.

423. In case of crop failure or drought, Yugis are invited in the house and these magico-religious wise men conducted some performances in the cow shade, cook food there by their own hand and then after eating the same went on their ways.

424. When the cub is born, from the first milk limed clustered milk is prepared, fed to the cub and taken also by the family members of the household.

425. Fire wood is stored near the kitchen and the cow shade, often creating a barrier between these two.

426. Cow dung cakes (fuel) and dump of ash are also stored nearby.

427. Fire wood is also stored separately in store or in the rack produced by bamboo from the ceiling of the dhap.

428. Worship of the cow and earthen stove is also done at the same time by the Hindu Rajbanshis.

429. The house with several rooms surrounds the inner yard and an external yard is also there.

430. There are again racks, stacks or box like apartments on the mud and clay wall inside.

431. This type of house pattern could tackle with environmental challenges like hot day, summer, and heavy rains and cools the room.

432. Often in the winter season, snakes take shelter in the store room; so the Rajbanshis are often found habituated with worship of Manasa or Bishahara- the snake deity symbolizing as a woman and a river.

433. Rajbanshis believe that presence of grass snakes prevents the entry of poisonous snakes in the locality.

434. Rajbanshis often have domesticated species of snake eater animal like neula/ beji (mongoose).

435. They also domesticated dogs, cats, pigeons and parrot.

436. The talking bird parrot and barking dog are important for safety of the house.

437. Cats protect the store from the mouse and cockroaches.

438. Pigeons are considered to be pious for the house.

439. Pigeon is one type of important manure.

440. In any of these yards, a jiga tree and an earthen pedestal of basil shrub are generally there.

441. These have some religious importance.

442. Basal, palm, papaya, betel nut, banyan, Hibiscus (jaba), tamarind are also grown in the outer yard or the kitchen garden behind all with many medicinal values.

443. The houses often contain each a ditch where aurum serving as both food and with medicinal facilities grew up.

444. Wells are there in the inner yards made up of earthen rings.

445. Water from the wells is often pulled off by help of bucket pulled by bamboo leaver.

446. In some exclusive cases, the bamboo leaver is fixed with a circularly moving bullock or a pair of bullocks, so that water could come out of the well and through the canals rinse the dry soil of the danga where kitchen garden has been grown.

447. This pulley system was also used in wind mills in some cases.

448. However, drinking water (of either the well or the pond) is kept and brought in earthen pots.

449. The continuous evaporation from the minute invisible pores on the body of the pot, the water inside remains cool.

450. The water is often treated with alum or lime to make it purified and subsequently, to remove the precipitations of the iron particles and other broad suspensions.

451. Oil from rapeseeds is extracted through putting them inside a box, producing huge pressure by a rolling wheel on the grains fixed up with the circularly moving bullock-pair.

452. Bullock pair is also run up on the grains on the thrashing floor so as to thrash the grains.

453. Lack of preventive measure and cultivation on open foot often cause teniasis in the peasant; so before entering into the house, they clean their hands and water with water; in some houses, therefore well are built at the outer yard.

454. In that case, the outer yard is preferably covered by long fence made up of dried grass or paddy straw on bamboo frame or thatched bamboo scales.

455. They also grow up neem tree; the young soft stems after removal of the skin they use as tooth brush.

456. The antimicrobial value of neem is not unknown to them and therefore, they eat neem leaf,

457. drink its paste with water,

458. use neem paste as a cream on burning and skin infection,

459. use hot water boiled with neem leaf in bathing,

460. and also dry neem leaf is used in preserving the uncooked and non-processed food items in the store.

461. Rajbanshis burn neem stem as mosquito repellant.

462. Neem extract is also used in garden as a non-toxic natural pesticide.

463. In every step of agriculture practices, there are some exclusive folk attributes in the form of myth and festivals throughout the year that they say something about the Rajbanshis and their IKS.

464. Rajbanshis at a time did not cultivate in close rows.

465. They prepare the land often with the help of bullock pulled plough or a ladder.

466. They also use other hand led implements to cut the soil or mix it well up.

467. The plants in rainy season grow up by themselves.

468. In winter irrigation facilities are required.

469. Water is taken from well or the canals or numerous small rivers that traverse the entire geography into many landscapes.

470. In the time of ripening of crop, they have to take special cure that cattle, birds, rat, bat or elephants could not eat it up.

471. The ripened crop after cutting with the help of a sickle, they lay the crop down on the field in clusters. In this way, crop has been sun-dried and prepared for taking to home.

472. Remaining stalk of paddy straws deliver the manure for the next year.

473. The remaining paddy grains on the field are eaten up by the birds and mouse bring them to their home underground and preserve in the dry soil.

474. The concept of soil use in conservation comes from mouse that keeps its foods preserved in dried soil.

475. In home on the thrashing floor, they crop is thrashed by hand or using the bullock running over there so as to separate the grains from the straw.

476. Then the straw and the grain are raised separately into the store.

477. In case of makoi, the grains in the spike inflorescence and bracts; are roasted in heated charcoal and then the grains are picked up and consumed often with salt to taste.

478. From marual and makoi both, flour is produced and pancakes are prepared hand-made.

479. Often, the corns of makoi are boiled and consumed as soup.

480. Corns and makoi grains along with dried gram and pea are very good food for the poultry hens.

481. Underground storage root of carrot, radish and beet is also cultivated here.

482. Underground shoot parts like rhizome of ginger, garlic, onion, potato, sweet potato and corn are very important here.

483. Kankrol is another important herb like gourd and bitter gourd cooked by the Rajbanshis.

484. Hard fruit coat of gourd is used for storage of water and also as a pot.

485. Water melons are grown in the sands of river side of Tista.

486. Water chestnut is grown up in the pond side partially submerged.

487. Lotus is grown in some places inside the pond water with floating leaves and flower. Leaves of lotus are used as plate, honey as medicine, plant and fruit as vegetable and flower in religious purpose.

488. Rajbanshis generally avoid the consumption of tortoise or its egg probably due to their origin in Kashyap clan, by the name of a Wise Man, literally meaning in Sanskrit, The Tortoise.

489. When fish bone gets struck in the throat inside during the meal, the Rajbanshis swallow handful of plain rice, and think that a cat are sitting in front of him putting its paw on his hand.

490. They think that the noise produced by house lizards is one kind of positive indication.

491. Black cat crossing the path when you are prepared to go somewhere is a bad indication.

492. The oil produced from the Lizard fat is a good type of medicine in cure of pains.

493. They once up on a time take dish of black-red ants by burning their nest in the wood and boiling their body.

494. The acid of the ants and bees was used for high blood pressure and heart disease.

495. Leach is also used for regulation for blood pressure d by them for some medicinal values.

496. Ants are also important for reproduction in some vegetable crops they cultivate.

497. An important Rajbanshi craft is the formation of wooden structure (along with paintings) of the Mashan sculpture that was actually dealt with the Folk Concept of harmful deities creating many problems of the Rajbanshi Social Fold and beyond.

498. Pulse-dust of maskalai or thakurkalai is preserved after it's thickly mixing with water and then in the form of sun dried small cakes over a white cloth.

499. Rajbanshis prevent any type of damage to jaba, neem, banyan, bel, jiga, basil, tamarind, chhatim and many other plants those have some medicinal properties by connecting them with some religious or mythical versions.

500. There are other vegetations like Sida, Cleome, Andrographis paniculata, Vitex nigundo, Croton bonplandinum, Lantana camara, Oldenlandia, grasses, Leguminous plants, Eclipta, Heliotropium, and somewhat in the hill sides, Chenopodium, Polygonum, Solanum that grow up in so large numbers that no such types of safeguard to these medicinal plants is given there.

501. Amla is good for health, increasing resistance power and hair; it is preserved as pickle.

502. From the fruit extract of annual herbaceous poppy plant, drug was once produced; the soil of upland semi-arid dry areas in winter is good for poppy cultivation and growth of cactus.

503. From banyan, jack fruit, papaya, chapa and some rigid stem white flower plants- all with glossy leaves- a milk-like substance comes out that is used in medicinal purposes, especially on cut, burn, pause and other kind of damages.

504. The bark of Sajina tree is preferred for gum production; its soft branches are consumed in curry and it is also important as its leaves are the prime source of food for the larvae of butterfly and local varieties of silk warm.

505. Rangan and plum are other trees fond of these larvae.

506. To remove the fibers of larvae from the body, broad fibrous leaves of Gourd or plants of Malvaceae family with their lower surface, the affected body part is rubbed in one direction.

507. Curry leaf is given to the food for taste and flavor.

508. Irritation in the throat due to aurum consumption is treated with sour substances, especially card for their mild acidic activities.

509. Rajbanshis are well aware about the poisonous effect of some Aurum varieties and of these, sharangi variety is well known to them. They use it in various magico-religious purposes, basically in order to reduce the effects of ghosts and other harmful deities.

510. In festivals, sinni is prepared from mixing same proportion of rice powder and non-boiled milk with addition of sugar and ripened bananas in large quantities.

511. In festivals, the Rajbanshis offer ship to the female fertility cults.

512. The ship wool, skin, head and leg bones are sold to market.

513. In a thick jute cloth, the wools were placed first and then warm water is poured and then it was rolled and tied up tightly with ropes so as to produce the blanket.

514. Rajbanshis are fond of the spicy dish of pigeon, basically prepared in festivals.

515. Rajbanshis sometimes offered buffalo to their deities.

516. Rajbanshis sometimes offered vegetables like kings of gourd against their deities.

517. Rajbanshis use the huge dried and often polished form of gourd shell to prepare musical instrument. With this shell a string (or two) is attached and when they beat the string, sounds come out of the shell.

518. In dry fish production, with the clean fishes, they well mix good amount of salt and keep them either under the sunbeam or dry soil; the often threat these fishes with turmeric and even warm the in a tawa (plate) on stove; the proportion of salt and turmeric depends upon the nature of the fish variety.

519. Rajbanshis like big bone less fishes (like shoal and boal) or small fishes whose bones could be easily consumed and digested.

520. Fishes like magur, koi and singhi with extra respiratoty organ could also grow up in low water muddy wet soil; these fishes are favored by the Rajbanshis for their high nutrition level and easily digestible nature.

521. The small fishes are enriched with phosphorus.

522. To reduce the quantity of salt in the dish, they often add pieces of betel nut in the cooking food.

523. The corn the Rajbanshis produce is called as makoi and instead of this agricultural practice diffusing down from the hills, comes to them from North Bihar plus Nepal Terai (Trihoot or mithilanchala).

524. They mix the fried uncooked rice, pressed rice (chira), dried grams and peas, dried pulse grains, chili and the makoi popcorn produced in fire openly; and prepare a good meal to eat.

525. They roast makoi inflorescence on heated charcoal.

526. Rajbanshis used to prepare a kind of gum from pressing the fern between two stones.

527. They prepare yellow color from turmeric, red from red oxide, and green from plant leaves.

528. They collect the black from the lower portion under the handi used in cooking food on earthen stove with the help of dry wood or dung cake; then they make it thicker by mixing it with warming emulsion of fried uncooked rice in water and the black paint is produced.

529. They use haritaki fruit rubbed on a stone to produce some kind of brown color.

530. Ash is produced for preparation of ash color.

531. Red is also prepared by mixing lime with powder of young turmeric rhizome.

532. Wax is also produced from Bel fruit.

533. They prepare the color brush from the tails of a cow or other animal fibers or hair.

534. Once the Rajbanshis collected sponge (shola) from the rivers of North Bengal and these light weight substances in dry condition they cut out to make various figurines.

535. Carpenters produce burnish from teak extract.

536. Rajbanshis sell wooden horses from the market as they believe that then the ghosts on the way at evening could do nothing herm to them.

537. Ash is not always used in curing plant disease, but the affected leaves are often collected along with pastes and their larvae and eggs and burnt off in a dig before covering it with soil.

538. They could burn the field affected with crop.

539. They keep the field under the sunshine for a month or a fortnight after taking the crops to home; this sun treatment helps to kill the pupae in the field soil. In the due time, they participate in some post-harvest festivals.

540. The teeth of a dead dog according to the Rajbanshis could be used in magico-religious purposes, especially to cause herm to somebody and destroy a girl's chastity.

541. They use the technique to 'ban-mara' to harm somebody; this is one kind of voodoo where a symbol of the target is hart by an arrow.

542. Rajbanshis are not directly involved in pottery, but some of them are attached with this occupation.

543. They then use a common pond to collect the soil for making the earthen elements.

544. There are peoples for cutting and bringing the soil to the factory.

545. They prepare both hand made as well as wheel made pottery.

546. They do not let the women to tough the wheel.

547. They use farness to burn these potteries before polishing, painting and designing them.

548. Cooking utensils, candles, pots for gardening, idols and terracotta are produced by them.

549. In earthen candles; wax, mustard oil, tisi oil, and ghee are used as the fuel.

550. The Rajbanshi potters prepare earthen handi with 3-6 pores at the bottom; these are used in distillation of water.

551. Adivasis use this type of pottery for distillation of Handia alcohol produced of rice cakes, salt and various medicinal plant extract.

552. They also believe that the presence of an iron object is very essential to reduce the chances of being caught by a ghost or a Mashan or experiencing bad dreams.

553. Rajbanshis also believe in astrology.

554. Treatment of jaundice they do by the practice of ethno-medicines, therapeutic measures and when the object (suppose a wooden necklace) falls down of their head to the ground, they think that the disease is over.

555. The Vaishnavas among them has a Guru, that is a religious guide and the followers of that Guru are all brothers in terms.

556. The Guru system is also found among the Buddhists, the Naths and the Muslim Peers.

557. The dead body of the Guru is not burnt in the funeral ground, but buried in a side-chamber with flowers and utensils of a burial grave in a sitting posture placing the folded knees to the chest.

558. The burial of a Muslim Peer becomes eventually a sacred place for all.

559. Kali, a major fertility cult requiring blood sacrifice, is often placed in the funeral ground.

560. Other version of the same Kali is also placed in each Rajbanshi Hindu house.

561. They have a sloping roved place in each house with some soil humps or not.

562. Of these humps, some are symbolized as kali, some as shiva, some as vaishnava deity and together the system as the protector of the house and the house hold family(-ies).

563. In the same house, different partitions may be there for the families of the brothers with separate hearths.

564. The grasses and rigid stem broad leaf shrubs grown up in the ponds and the marshland are good source of fuel in dry condition.

565. At a time, elephant bones and ivory were used for preparation of decorating items and the feet of the bed.

566. Rajbanshis consider the lower plains with wider river paths and Bhati and song of the boatmen there as Bhatiali.

567. The songs of the Rajbanshi community are of various types: Bahwaiya, Bishahari, Gambhira, Alkap, Kushana, Rampal geet, khon gan and so on.

568. Rajnbansis manufacture various types of musical instruments, like gourd shell with a string fixed with bamboo stick(s).

569. The string is often prepared from dried, processed and tanned digestive organ from the abdomen of a cattle or goat or a ship.

570. Cattle horns are used as the simplest form of musical instrument where air from mouth has to be blown into the thin pore at the head of the polished hollowed and empty horn.

571. From bamboo, such type of musical instrument is again produced where again air from mouth has to be blown inside the polished hollow pipe and by regulating the coming out of air from various pores on the flint the type of music could also be regulated.

572. Tanned animal skins are used in various kings of wooden and bamboo drums like khol, madal, dhol and dhak of various types.

573. Of these, madal and dhol have both the ends made up of tanned animal skins.

574. Cattle horns are also used in preparation of comb.

575. The metal workers produce bells, various types of clappers and metal floor beaten up with metal stick.

576. Rajbanshis also use the earthen figurine with dry seeds within that generate sound.

577. Rajbanshis prepare wooden clappers in the shapes of disc or stick.

578. Rajbanshis produce one kind of toy that is a wheeled drum; when the toy is pushed forward, with moving of the wheels, the fixed sticks starts automatically beating the drum.

579. Inside small balloons attached with small sticks, Rajbanshis put mustard or other types of seed that create sound.

580. Rebases also dance while singing with clapping and stepping with music forward and then again backward; the dancing is not in a circular manner with coming towards and then again moving outwards the center unlike many of the folk peoples.

581. The Kushana songs famous among the Rajbanshis may have some kinds of indication of political extension of Kushana Turk-Shahi, Buddhism and Buddhist traders to this place.

582. The Saha community in eastern and northern parts of Bengal has long regulated the trade there who might come from the Kushana Shahis at Rajshahi of undivided North Bengal.

583. The Khanra, Bhadra and Giri of eastern part of Bengal ruled there in the Buddhist period in Bengal.

584. The Pala kings, also Buddhists, after their defeat in the hands of Hindu Powers from South India and loosing the control over trade, faced agitation from the Kaivarthas (fishers, river route goods carriers and cultivators) North Bengal that proved the presence of trade there in hoary past.

585. To reduce the agitation, Palas replaced their capital in North Bengal.

586. There are many water tanks and places in North Bengal by names of the Palas.

587. The first Muslim rulers of Bengal from Afghanistan (formerly a Buddhist region and trans-national trade route like Bengal) tried to conquer North Bengal, Hills and Tibet that clearly indicated important position of trade in the economy of North Bengal.

588. In Mogul-Rajput era in Indian History, the Koch tribe in the power of North Bengal gradually changed themselves into Hindus, Rajbanshis; the worshippers of God Jalpesh, Kshattriya and Rajput in quite similar way of Rajputaization of the Nepalese ethnic community under the Gorkha House of Nepal. The Koch-Rajbanshis used the same Kashyap clan (indicator of excluded warrior sect or Kshattriyas and converted Buddhists) and royal dignity of Barman (once used by the rulers of Maimansing, eastern part of undivided Bengal).

589. These Kochs and other sects of the Rajbanshis under their rule have long battled withBhutan- the subordinate government of Tibet and China.

590. The Kochs maintained good terms with mainland India, Rajputs, Moguls, Ahom king, Muslim Bengal, Marvari traders as well as the British Raj in India.

591. In the various weekly markets, the Rajbanshis formed their economic system on barter.

592. In Darjeeling terai, Matigara was one of the best trade centers where the paddy from the southern plains and wooden plough from the local sorea jungles are exchanged.

593. The name of the riverside locations are like Ghoshpukur (place with ponds of the Hindu settled cattle raiser community), Jagannathpur (place where the Vaishnava deity Jagannath inhabits), Mahipal (the land of a Pal), Muraligoch (place where the Vaishnava deity with flute in mouth resides), Kishangunj (place where Hindu deity of lord Krishna inhabits), Vaikunthopur (palace or region where Lord Krishna recides), Sonapur (rich muslim farmers and traders groove the corps with metals utensils and sona that is the gold ornaments), Islampur (region of peace inhabited by Muslims in dominance).

594. The name Dangapara means a locality on highland.

595. Hatighisha indicates place affected by elephant movements.

596. Sanyasithan means the region occupied by the mentors.

597. Chaterhat indicates to the weekly market place of Chat, a jute product.

598. Gossainpur indicates the habitation of the Vaishnava Gurus or Gossains.

599. Chandaljote indicates the settlement of the Chandalas: untouchables among the Hindus, products of intervarna marriages, dealing with funeral of corps and at a high place in the Buddhist Bengal contributing their important roles in generation of Bengali language.

600. Matigara, renowned for its good quality soil, is the place where the dead bodies in the Buddhist period were buried.

601. Naxalbari is renowned for Soea forest.

602. Kharibari is renowned for production of huge quantity of crops, fibers, jute sticks and paddy straw.

603. Tarabari is known for the religious importance of the pro-Buddhist pro-Hindu fertility cult ofTara.

604. Dhimal sounds for the near to hills with snow peaks.

605. Bagdogra indicates to the region filled up with the tigers by the Hills.

606. Bangudi indicates to a marshy region in the forest filled up with frogs and snakes.

607. Dudhae is the place where the river flows like a river of milk or dudh.

608. Patharghata means a region by the river side where the boulders are used as stare case.

609. Panighatta means a region where the ghat or stare case has been directly gone down from the hills to the river water (pani).

610. Kakarbhitta means the river side region filled up with innumerable conglomerate.

611. Sahudangi means the highland region by the Sahu river.

612. Taipoo is situated by the Taipoo river.

613. Lachka is a tiny river passing its way in meandering manner with small stones.

614. Atharkhai means the place with eighteen sub-divisions.

615. Shiabari is a place with fox population at nearby jungle.

616. Ranidanga is the Queen’s territory at upland.

617. Rangapani may be a battle ground by the river whose water became red with blood.

618. Balason is a river with huge amount of sand or balu.

619. Buribalason is the old way of flow of Balason river; buri means a aged women.

620. Tarbandha is a place which was bounded and marked by tar or iron fence.

621. Hanskhoa is the place where once a big poultry of hens was there.

622. Batasi is a riverside region with open air.

623. Nirmal is a place with clean environment.

624. Gandogol is a place where once a big quarrel occurred.

625. Kamalpur and Kamlabagan are the places where orange trees were once planted.

626. Champasari was a place where champa trees were planted.

627. Devidanga was a region where Goddess inhabits on the upland.

628. Dabgram is the place where coconut trees were planted in large number.

629. Fulbari is the place of horticulture where varieties of flower were used to grow in the forest and riverside areas.

630. Leusipakuri is the place where litchi plant was propagated by the side of a pond or near a banyan tree.

631. Khaprail was a place where the local inhabitants were living in the houses made of khapra or thatched bamboo.

632. Kalagoch is the habitation of kali deity or the banana plants.

633. Singijhora is the place with little water fall or tiny water flow occupied by the Singha/Sinha Rajbanshis or fishery of singi fish.

634. Magurmari was another jhora with magur fishes growing there reluctantly.

635. Thakurgunj is the place of Thakurs, Rajput landlords, equated with the rank of Thakur, the deity.

636. Sukna is the dry Sorea forest upland by the Tista river.

637. Mahananda is named after Hindu Goddess to show the religious importance of the river.

638. Several tea gardens have been found after the names of Church, English name and name of a person.

639. Lohagarh has been till bearing the remnants of a fort; may in the construction of this fort/ garh, iron oar was used (or it was as strong as iron).

640. Belgachia is a place with bel tree.

641. Ambari-Falakata is the region with mango garden and agricultural soil well ploughed with an aim of good production.

642. Phansidewa is the administrative place where the offenders were punished by hang till death.

643. Siliguri is the region made up of rocks or with a rocky soil beneath the hill.

644. A new tendency has been found by naming the hamlets of a locality by the different parts of Siliguri town.

645. Siliguri is following the same path by imitating the names after Kolkata and Salt Lake likeLake Town and Bow Bazar.

646. Ghugumari (killing the dove), Ashigarh (ford with sward), Thakurnagar (place of deities), Baikunthopur and Barabhasi (flooded area), Dabgram are some areas near the Siliguri or included in it.

647. Regions are also named after distance to a place like Domile (two Miles), Aatmile (Eight Miles) and so on.

648. By the name of temples (Mandir) like Sivmandir, Durgamandir; places are there.

649. Places after trees are also there like Bot tola, Neem tola or Kadam tola; shades of bot, kadam or neem have been mentioned here.

650. The meeting place of Mahananda and Balason where the latter after its incomplete journey suddenly falls into the former, therefore forming a "khari" is named as Kawakhari; because of the presence of crow (crow) in excess number there that eat up the deadly decaying objects floating on the river, the prefix 'cowa' is added there.

651. So, the names of places, at least within the Darjeeling Terai and neighboring places are important part of Rajbanshi IKS study. Rajbanshis used the term jote to designate the farmland of a prosperous family under which many work and even live with them and used to propagate crops through jhum cultivation. Rajbanshis used various suffixes like tala, jote, mile, guri, bari, dangi, -i, ghata/ghatta, jhora, para, garh, pukur, and such other terms to denote the place names.

652. Some Rajbanshis have initiated planting tea on their cultivable land; they sold the tae to the local factory; they also use the cut branches of the tae tree in fuel and manually dry the tea leaves, bake on stove, power them and store them in cold dry places. For roasting, often the sun dried leaves are put inside the bamboo shoot and place into fire.

653. The Rajbanshis have the concepts of dry and wet, cooked and uncooked, mixture, daily or special, regular or occasional, fry and non-fry, roasted and baked, veg and non-veg, solid, semi-solid, liquid, leafy, scaly, mucous, paste, fresh and old, preserved, nutritious, boiled, with salt or without, with mustard or without, with fiber or without, with onion or without, with tumeric or without, fermented, rotten, poisonous, small, big, medium, boney, bone-less, soft, hard, digestive, non-digestive, fatty, muscular,

654. fish piece of the belly side or chest part or tail or head;

655. birds of neck region, head, legs, wing or body;

656. goat or ship with liver, leg, chest, heart and body;

657. taste of sweet, sour, bitter, salty, sticky, chili, spicy;

658. hot and cold, warm and fuming, Smokey;

659. bad smelling, sweet smelling, pungent, strong smell, smell of wet (wet soil, wet bark, wet paddy straw, wet manure and so on);

660. color of black, charcoal black, red, yellow, pink, orange, blue, white, ash, crop green, algae green, fern green, grass green, bamboo green, brown, gray, dry leaf, golden, mud, cow dung, light, deep, dark, bright, afternoon dark and so on.

661. Rajbanshis also like Thukpa and Momo to consume; in Momo they add vegetable or chicken or mutton. Thukpa is a hot boiled watery dish of boiled noodle with vegetables, mutton, chicken or even mushroom.

662. Rajbanshis also classify the grasses like for grazing, on the aals or path side, in the field, with lemon flavor, grown up in water, under the water of a pond, under a stream, on the sand by a river with scattered boulders and conglomerate, long grasses, with seeds used as fodder, used in roofing, in religious purposes, fuel and such other things.

663. Plants are simply classified into wild, domesticated, crop, food crop, cash crop, fiber yielding, fruit yielding, decorative, flowering, white flower, colored, with colored flower, with colored leaf, sweet smelling, pungent smelling, medicinal, tree, deciduous, shrub, underground, sub-terrenean, bamboo, grass, creeping, climbing, fodder, fuel, religious, on field, in forest, at garden, on pot, fenced in the kitchen garden, vegetables, betel, palm, coconut, plum and other types of silk warm and butterfly raring plants, plants with bees, plants with nest, plants with snake, wood yielding, oil yielding, and so on.

664. Animals are also of various types like wild, domestic, herbivorous, insectivores, carnivores, omnivores, ferocious, big, medium, small, eating, swallowing, pecking, poisonous, insects, reptiles, bird, mammals, living in water, on land, inside dense forest, light jungle and bush or on trees or outside jungle, living both inside and outside water, inside and outside jungle, on the trees and on the ground, diurnal or nocturnal, meat-giving, egg providing or even milk yielding.

665. Rajbanshis have a ceremony of giving marriage of the frogs; they do so with a wish of good raining.

666. Clustering of ants under the leaf or at the corner of the room or holes on the plant trunk or songs of frog are natural indicators of raining.

667. Aged Rajbanshi peoples could tell the time by watching the heat, movement and position of the Sun in day time.

668. The stars and moon in the sky and the environmental conditions are helpful in determining the seasons, months, weeks and day.

669. Rajbanshis have the concept of six seasons like summer (Greeshma), rain (Varsha), spring (Sarat), foggy (Hemanta), clod winter (Sheet) and autumn (Basanta); each with two months out of total twelve.

670. Rajbanshis had the knowledge of protecting the by the natural fence of cactus or prickle plants during war.

671. Dry time in autumn, hot day and thunderstorm at evening in summer and clear starry sky in night indicate incoming of a good rainy season.

672. In case of Jhum cultivation, the fire was given to the deciduous leaves of winter in the first of autumn; the field was prepared within the later half full of pest killing ashes and mixed fertilizer of ash and rotten leaves; the system then treated with sunbeam throughout the entire summer; and then with the first drops of monsoon, seeds or saplings were sowed with the help of a digging stick.

673. The burning of the land also helps in destroying the pupae of pastes in the crop field.

674. In settled cultivation, after collection of the crops of rainy to spring seasons and harvesting throughout the month of Hemanta, crops are again cultivated in winter; Rajbanshis enjoy throughout the first part of winter season for this new stock raise. On the last date of first month of Bengali winter season, perform the religious festival of Poush Sankranti and binds a bundle of crop on the bamboo pillar of the cow shade.

675. Rajbanshis go their supreme deity, Jalpesh, once at the autumn with the aim of good production of the winter crops, and then again in rainy season when the crops are going to sow into the crop field.

676. In spring breezing wind comes from the south and in winter, cold wind from north and north-west.

677. Black cloud in north east indicated heavy storm with lashing rain.

678. Rain started in Saturday continues for seven days, whereas in Tuesday lasts for three days.

679. For paddy and jute cultivation, bright sunshine in day time and rain in night is required.

680. Rain in the spring causes damage to the ripening crop grains in the field and if there is lashing, the effect is more serious and deadly.

681. Raining in late autumn and early summer with lashing is also harmful to the mango inflorescence and growth of mango in the next summer.

682. Rajbanshis depend on other occupational groups like metal workers, iron smith, tailors, gold smith, potter, honey collectors, women helping child delivery, butcher, blanket producers, money lenders, local traders, migratory communities, medicine men, forest dwellers, wood cutters, salesmen, foreign traders, lime producers, brick manufacturers, milk man, hair cutter, priest and so on.

683. Rajbanshi children pierce a small stick with delicate head inside some rounded fruit and use it as the top.

684. Rajbanshi children use fruit of big sized lemon variety as a ball.

685. Rajbanshi children often in the summer time climb on trees and cool down their body temperature by the breezing light wind.

686. Rajbanshis in winter time blow warm air from their mouth on their nails.

687. Rajbanshis in winter season, bathe as early as possible in the morning; as water in the well at that time remains warm compared to the pond or river water of any other day time.

688. Rajbanshi children often play with marbles or stones; they throw stones; beat a stone out of a hole by a stick to cause it first jump and then throw to a distant place (like cricket or baseball); move round a circle they made on the ground as a chain by holding one another’s hand; draw blocks on the ground and jump

from block to block, hide and seek, police and thief, merry-go-round, climbing from tree branches and so many.

689. The Rajbanshis are not interested in hunting; but still they have bow, arrow, axe, sword, spear and gun.

690. For hunting, they once prepared cadge or dig covered by branches and leaves and to attract the target, lay down some dead animals.

691. To catch hens, they used another type of system where the food is placed under a basket partially opened by the help of a stick; as the hen goes inside, they pulled the rope bound on the other end with the stick; so the basket fell down and the hen was captured.

692. They often use rubber band with elasticity on a Y-shaped forked wooden implement to through stone pieces to the targeted bird.

693. Bow and arrow are used for the same purpose.

694. Sleeping owl is captured in day time with free hands from their habitation inside the tree-holes.

695. Birds are also caught with the help of net, especially used in crop protection.

696. Rajbanshis in order to collect the mud fishes with extra respiratory organ create a drain that goes to a hand with open end or bamboo filled up with food; these fishes in attraction entered into the bamboo stick and hand and automatically caught inside there.

697. Fishes are also caught by hooks submerged under the water with the help of a fiber or jute rope or nylon rope attached with a bamboo stick in the hands of the fisherman outside. When the fish comes to eat the earthworm or other food substance attached with the hook, the indicator fixed with the rope just above the hook gets struck and indication goes to the eyes of the fisherman. He then moves up the stick and throat of the fish gets pierced by the hook and it also comes out of the water.

698. Rajbanshi folks often propagate different kinds of epiphytic orchids on the tree trunks in a shadow place- not with much warm; they collect the orchid from jungle with its green roots intact (or a propagating part) and tied it on the tree with the help of a piece of cloth very tightly on the wet bark.

699. Rajbanshis use the dry soil of rat house for germination of seeds; the keep the seeds of pea, gram, paddy or marua in it taken within an earthen pot, spread some water over there and shade the system by a aurum leaf, so that the seeds would germinate without being infected in that sterilized natural soil as prepared by the rat.

700. Various types of leaves are used thereby in serving food: betel leaf, sorea leaf, banana leaf, palm leaf, lotus leaf and aurum leaf.

701. Several kinds of leaves are also used in packaging like dry coconut leaf and leaf of the betel nut with jute fibers and paddy straw.

702. Guava fruit is thought to be curing cancer.

703. Leonurous, Oxalis reluctantly grow inside the village bushes with certain medicinal importance.

704. Alovera, Jaba (China rose) and Ganda (marigold) are some garden plants growing reluctantly in the garden also important for their medicinal values.

705. Marigold flower is used in decoration, flower necklace and religious purpose; while leaf paste of its leaves is used in stop bleeding and quick removal of pause and other cut and rotten body parts.

706. Some fungi grown on rotten tree trunks in jungles could be used as decorative objects.

707. Rajbanshis have proper knowledge about the edible and non-edible mushroom.

708. Kadam is another important tree grown reluctantly in the region of North Bengal. Kadam flower in paste condition is used in stomach clearing.

709. The bark of Gamar is used for curing fever.

710. Leaf of white Lajjabati/touch-me-not (Mimosa pudica) is used in curing cold, cough and fever.

711. Amlaki/ amla protects against cold.

712. Card regulates body temperature.

713. Alovera sticky juice is good for skin.

714. Honey increases the strength and stamina within a person as well as warm up the body.

715. Durba grass leaf helps in clotting the blood.

716. Kanda grass root is used in curing fever.

717. Saw grass root is used in the same purpose.

718. Haritaki/myrobalan is used for curing liver disorder.

719. Rajbanshis extract the juice from khoir/ catechu that is another natural source of brown color and adding lime with it red color is produced.

720. Thankuni leaf is used to control liver and stomach problems.

721. Brahmi herb as a vegetable or its liquid extract is consumed for good memory.

722. Kalmegh (Andrographis paniculata) leaves are taken as the bitter juice of its is useful in curing abdominal and liver problems, dysentery, mild temperature and teniasis.

723. Nearly same service is provided by neem along with some extra measures like treatment of skin diseases and chicken pox for its anti-microbial activities and even in fertility control.

724. Basal leaf taken with honey is useful in curing cold and bronchitis; abdominal problems and skin disease.

725. Vasak leaves protect from cough and cold, regulate blood pressure, purify blood, cure jaundice, skin disease, abdominal problems, heart problems, nerve pains, and also help in memory restoration, act against acid action due to insect bite.

726. Datura leaf paste is used in maintaining asthma.

727. Tannin is usually produced from the fruits of Haritaki, Amla, Bahera and Tamarind (also the tea leaf) and used in tan the animal skin. So, Rajbanshis once supply these raw materials to the shoe-makers who also supplied them the tanned skin to be fixed in musical instruments.

728. Shimul, Sajina and Babla are used in gum production.

729. Porcupine is also an important wild faunal object in the bio-diversity of North Bengal.

730. In forest areas, animals like rabbit, squirrel, bat, chamchika, rat, mole, deer, macaque, bison, tiger, leopard, wild cat, wild boar, elephant, wild dog, fox, vam, water cat and black bear could be found.

731. Chameleon (color changing Girgity), iguana (Gosap), Python, non-poisonous grass snakes (Hele sap), fish eating water snakes (Jal dhora), venomous snakes like Cobra (Keutey), King Cobra (Sankhachur) and most of all, Gokhuro are some important reptiles of North Bengal.

732. Birds found here are of two types: migratory and non-migratory.

733. Crow, wild crow/raven, cuckoo/blackbird/kokil, pigeon, dove, drongo/ finge, crested lark/bulbul, parrot/tia, parakeet/tota, mynah, hornbill, peacock, fowl/grey hen, honey bird/moutusi, spine/kada khocha, wern/tuntuni, magpie/nilkantha, yellow bird, king fisher, penduline tit/baya weaver/babui, house sparrow/ charui, shalik, gray shalik, wag tail/khanjani, wood pecker, hoopoe, bee eater, sarus/saaras, wild goose, crane/bak, eagle, kite/chil, hawk/baz, vulture, various small colored birds, nocturnal black bird and so many are the examples of permanent birds to the localities and neighboring forests of North Bengal.

734. Swan, pelican, stork (hargila), flamingo are some of the migratory birds found in the marshy land, Mechi river side and Fulbari canal.

735. Rajbanshis have good knowledge about what these birds eat, how they live, hatch egg in wild and rare the chicks.

736. Rajbanshis have the traditional concept of presence of paradise birds: Bangoma and Bangomi.

737. Moreover, they maintain certain beliefs like sole concept; existence of ghosts, gin and pari (the female angles coming down from heaven in jungles at night).

738. Insects (along with their larvae and pupae) like dragon fly, grass hopper, bee, honey bee, ant, white ant, beetle, gandhi poka, majra poka, stick insect, leaf insect, prawn, crab, earthworm, millipedes, scorpion, leach, spider, bug, saw bug, fly, mosquito, cockroach, moth, butterfly, tasar, and muga are important bio-diversity elements of North Bengal.

739. Snails are of three types: apple snails (harmful for the gardening), small snail Nautilus (consumed by man) and mussel (which is actually not a snail).

740. Triton shell (shankh) is used as a musical instrument and also ornaments (bangle) are produced of it.

741. Besides Toad, there are frog and flying frog also in the region of North Bengal.

742. Tadpoles are really hard to separate from techokha fish in the ponds and streams.

743. Rajbanshis should have contained these creatures in their folk tales and acquire some knowledge of them in the specific situation of an ecosystem within the bio-diversity and ecology of North Bengal.

744. Rajbanshis are aware of rapid disappearance of forest, its connections with untimely rains, crop failure, modern ways of tackling the problems and seasonal changes; but they are also continuously being suffered from fuel wood requirements.

745. Rajbanshis may also live in the homestead with only one courtyard.

746. The cattle shade may be at the other corner of the house along with the duck house and kitchen in the other.

747. There might be a separate hut for the purpose of storage of fuel wood and a particular room as granary.

748. There may be a temporary cattle shade in the outer courtyard, but at night the cattle are brought inside the inner yard.

749. A house may be looked as consisting of only outer courtyard with two sides open, children playing there under the banyan tree, women cooking meal at the southern corner with the help of fuel wood stored at a hut, cattle tasting the fodder under the temporary cow shade; but at the evening, the women would candle on the basil pedestal inside the inner court yard, cook food inside, males return back from the field, clean their feet and hands, cattle are brought inside, children prepare to go to sleep, grand mother tell them a folk lore, student studying under the lamp of cow dung/ bio-gas (sold from the market), private tutor (temporary private teacher cum helper) teaching them; in hot days, they often sleep in the dhap or inner courtyard or even under the shade of common gossip center outside the home.

750. The bed is basically prepared of low quality wood like amra or gamar, but still teak and sorea are favored because of their resistance against the saw bugs and termite; oil and essence in often produced from the sorea seed, whereas teak in preparation of burnish.

751. They either use mosquito net or fumes of dry plant parts (as mosquito repellant) while slipping outside; burning egg-curtain also produces huge amount of fume.

752. Settlement pattern of the houses is basically linear and there is not much number of lanes; road is widened enough so that a bullock cart could pass by it.

753. Now, many traditional villages have become provided with electricity and pitch road.

754. Radio, Television, portable music system (walkman) and C.D. system have so far launched in these villages.

755. Video hall is often there near the weekly/periodical market.

756. Battery has been used by the households to enjoy movies on C.D. system.

757. Torch and torch battery are also used in night; pencil batteries are essential to play the walkman.

758. To increase the longevity of battery, the old batteries are kept under the sunlight in the inner courtyard and even chew the external body of the battery.

759. They listen the Bengali and Hindi music; but the local songs, now available on cassettes and C.D. at relatively low cost (Rs. 10-15/-), have assured an increasing popularity among them (also the other non-Rajbanshi peoples living with them).

760. Some other important musical instruments used by the Rajbanshis are harmonium, whistle, sarenga (one kind of string instrument, better to say violin), drum with drumsticks, bamboo flute of various kinds, tabor/tabla, tanpura (another type of string instrument where strings are attached with the polished gourd shell and the long wooden handle).

761. Religious personalities, mentors, magico-religious practitioners and salesmen often use drumet (dugdugi) which is a miniature of drum with beating strones inside.

762. In old days, beating drums and bugle made up of bison or deer horn are used to call all the villagers in the common meeting place to know them the message of the concerned authority, especially the land lord, at a single time.

763. Rajbanshis like to use soap while bathing; but before they use sorea fruit as the alternative of soap.

764. Rajbanshis also produce several types of spices like onion, ginger, garlic, black paper, salt, rock salt, cumin seed/jira (black and white), cassia/tejpata, chili, sharisha/mustard seed, poppy seed/posto, cardamom/elach, clove/labanga, kasai, sorea seed, coriander seed/dhone, coriander leaf, tomato, soda, dry neem leaf, chirata, betel-nut, amla, haritaki/myrobalan, khoir/ catechu, resin, hemp, alum, turmeric, hing (Asafoetida) and so on.

765. Rajbanshis have the habit to chew the coriander and joan (another spice) and suck up the juice.

766. They are fond of nut, chestnut, water chest nut and also cashew (when available).

767. They generally take tea with sugar; or milk and sugar; or milk, sugar and ginger; or milk and lime; or only lime; but the quantity of sugar is not too high.

768. Rajbanshis in their kitchen/rannagrar/annaghar, use various types of cooking and cooking related utensils like jar/ghot, pitcher/kalsi/kalas, jug/kunja, pot/hari, small bowl/bati, big bowl/tub/gamla, basket/tukri, bucket/balti, glass/gelas, cup/piala/pirich, dish/sarai/sara, thatched plate with edge/batai, plate/thala/thali, cooking bowl/karai/noya, large spoon/hata, large flat spoon/khunti/chilni, spoon/chamcha/chamche/chamuch, rolling machine (to paste pulses)/dalghata/phirki, nutcracker/janti, match box/shalai, kettle/ketli, tong/chimta/sharanshi, box/diba, lid/dhaka/dhakna/dhakni, spice presser and grinder /shil-pata, husk/chham, sieve/chalni, shaking plate (to separate two different types of granule mixed up with each other)/chalni, oven/unan, dry stick/lakri, cow dung/ ghuta/ghute, jute stick/pat kathi, paddy straw/ khor lamp/kupi, wick/sholta/polta, bottle/botol, phial/shishi, rope/dori/roshi, wooden seat/piri, jute seat/dhokra, thatched mat/chatai, bag/chat/bora, and so on. Some of them are made up of steel, aluminum, local metal like kasan and pitol, thatch and even of earthen type; kasan/bell metal is made up of zink/dasta, gray copper/tama and tin/rang (Rajbanshis are not involved in these metal works).

769. Rajbanshis have used thatched semi-rounded baskets/jhuri in both household and outside work.

770. Rajbanshis at a time use both cart and boat for carriage and transportation to the nearest town or trade center; but now they are more dependent upon paddle vans, cycles with carrier on back, tractor, auto (small automobile carriers), trucks, buses, motorcycle and even personal vehicles.

771. Rajbanshis have used various agricultural and soil cutting implements like spade/kodal, spade/belcha, sickle/kaichi/kaicha, dibble/khurpi/poshani, plough/langol, ladder/moi, rope/dor/dori, joal/a wooden log (that fixes the plough/ladder with the bullock pair) and fauri/fal/ the portion of langol entered into the soil and cultivating the ground.

772. Rajbanshis use hone, flat big stone piece with fine narrow cutting edges, so as to make sharp their metal/iron implements used either inside the house (knife/chaku/boti) or outside in construction of house, peasantry or other occupational works.

773. The metal workers use the following objects in order to prepare products of copper, bell-metal or iron: anvil, farness, clamp, bellow, blow pipe, hammer, tooling plane, trying plane, jack plane, rasp, file and others.

774. Rajbanshis have the technology to pour melted wax into an empty earthen doll (made up of clayey soil) and let it cool down, so that when they would break the sculpture, a solid wax doll (with a little retouch) they could get into their hands.

775. Some Rajbanshis have chosen the occupation of goldsmith and they deal with copper, bronze, silver and gold ornaments.

776. Rajbanshis have now been habituated with monetary economy and use of balance, but they often take the stone pieces for balancing (especially in case of measuring little weights).

777. Women usually wear ornaments in necklace, bangles in hand; ring in finger of the hands and feet, earrings in ears and nose rings in nose. These ornaments are made up of silver and seldom in gold.

778. Iron bangles they wear so as to remove all the bad eyes of the others up on the family.

779. Ornaments, especially necklace, are often produced from Basil seeds or with a pendent of dried hartaki fruit; both are considered to be good for health and good religious impact.

780. The Rajbanshis have the knowledge of poisonous effects of led/sisa, and arsenic as well as pesticide in water.

781. They have also experience about iron water coming out from tube well.

782. They also hard of antimony/surma, sulpher, flint and red ochre.

783. Red ochre is used in pottery.

784. Surma is one kind of cosmetics.

785. From flint, once the Rajbanshis used to make fire.

786. From the friction of a hand driven wooden stick moving round in the hole on a dry sorea stem could create fire.

787. The married women put vermillion on forehead as a symbol of her marriage.

788. The traditional dress of Rajbanshi woman is a sari that she wears round the body, under the arms covering the chest part and again above the knees; this pattern of sari is termed as thethi; it shows close similarities with dress-pattern of Assamese women; this is helpful in quick walk, collection in jungles and

working at the field in rains when at first the shoulders, head portion and feet areas become wet. This type of clothe is easy to dry off and again put on the body.

789. Women with the help of a piece of cloth often bind their children at their back.

790. They also contain other types of instruments used in house construction and carpentry: Hammer, chisel, saw, smoothing plain, axe, dao (instrument to separate the log into pieces), nut, screw, screw driver, digging rod, rope and measuring rope. Besides bamboo, wood, straw, jute sticks, broad leaves and clayey mud with paddy seed coats and cow dung; the Rajbanshis are now using earthen tiles of various costs and varied range of size, break, cement, asbestos, plastic and tin in house construction.

791. At a time, the Rajbanshis used chun-surki (mixture of egg yolk, lime, clayey soil, grinded broken breaks and paddy seed coat dust with sand) at the place of cement; only a few jotedars and land lords were able to construct break houses; beaks were generally burnt in nature and not sun dried in nature.

792. In case of traditional house types, first the earthen floor of clayey mud with paddy seed coats and cow dung was produced; then the walls are erected upwards with widened base (2.5ft.) gradually narrowing upwards (0.75 ft.); during this construction of layer after layers, regular supply of water is necessary to wet the wall mixture and let this water to evaporate; the dry soil becomes more rigid; bamboo or wooden frames of windows and door are fixed in this course of wall construction; later, wooden doors and windows are fixed to these frames with the help of screws and hinge joints; to give a durable form, these windows and doors are fixed with extra wooden bits taking the 'Z'-shape.

793. Soil they generally collect from the nearby pond side.

794. High edge ponds consist of big trees around that with help of their strong roots check soil erosion, suck the excess pond water, and check excess water evaporation directly in summer (by forming big shadows but from safe distance, so that the shed-off leaves could not pollute the water).

795. For the construction of roof, first a bamboo or wooden or mixed type of lattice is produced on the open head walls from the ground; on that lattice, workers construct a 'A'-shaped construction of a bamboo frame often guided by wooden flat plies and/or bamboo sticks; on this texture, bundles of jute, paddy straw and other water resistant things are fixed with declination downwards; often this system is covered by broad leaves to reduce the heat entrance; climbing vegetable herbs let to propagate there on the roof and in this way, a portion of the sunbeam gets utilized by that vegetation-on-roof and vegetables reluctantly grow there up.

796. Sometimes, tin or tile or asbestos is used to construct the partial or complete portion of the roof; in case of tin or asbestos, again screws for fixation are used; a flat floor of wood under this tin-made 'A'-shaped roof is constructed there that again checks the entry of heat waves from the hot tin into the room; in this way, a chamber is built up there which is again used as a storage for bundles of jute, jute sticks and paddy straws.

797. Tailors and shoe makers use the following objects like scissors, needle, and awl.

798. Ojha, Mahat, Adhikari, Kabiraj and Peer-Fakirs are different personalities whom they think completely devoted in their wellbeing as also do the astrologers, gurus and other priests.

799. Political leaders and three-tire village governance (Panchayet) are increasingly playing their important roles in the betterment of their livelihood and replacing the traditional systems of land lords, jotedars, village head and his associates, aged folks in the lineage and Wise Man.

800. They still maintain a sense of fellow-feeling.

801. They prefer to marry in other village.

802. Property inheritance is held among the sons with the matrilineal system; but the mother could give her ornaments to her daughter at marriage; dowry is a common system among the Rajbanshi society.

803. The dowry payer family of the bride is often accused of not well behaving to the groom side. This turns into the form of a trend in the Rajbanshi society.

804. Even after such a long period till passing out the tradition of jhum cultivation, spread of the old seeds in the ashes of a sterilized field burnt on fire and rinsing it with mild water spray so as to grow the saplings before the rain reaches the prepared cultivation ground, somehow reminds the once practice of the shifting cultivation even in this stage of modern technologies and improved machinery.

805. Rajbanshis now-a-days go to the modern fashion, but still their tradition of handloom production sustains and they are seeking help from various self-help groups and governmental organizations. The production they have to expand from only jute or flax to wool and cotton fibers; they require a good and available market for their productions in the domains of agriculture, horticulture, fishery, sericulture, production of cash crop, dairy and poultry, agro-based industry, revival and sustenance of cottage industries, ethno-medicines as well as global public service (in a nature friendly way).

806. Changes are also noticed in the domain of traditional medicinal and treatment system; now child birth in home on the dhap or a dark room in the presence of 'dhi-ma' is becoming more and more invalid; primary health centers and anganwaris, mid-day-meal school and information and awareness from the panchayet on behalf of Block Development Authority have been gradually changing the old scenario; no doubt these things are good for the Rajbanshis, but special care has to be taken for their culture survival, ethnic identity and dignity they have maintained. Moreover, it should be worked out that how they could be promoted to a better position in the society with a potency to generate a well-built human resource and parallel to this, their indigenous knowledge system could help in protection at least of the local eco-system at a time of overall degradation and pollution; and in this way, to the world holistically. Their IKS could teach a common people that how to live with nature on the lap of nature according to the rules of nature in a good condition with the help of a feed-back system and symbiosis**!**

807.

Last of all, North Bengal is situated along the borders with Bangladesh, tribal pockets of North East, Darjeeling, Sikkim, Nepal, and Bhutan where many ethnic elements have been equally responsible for creation of a Multicultural situation under the various labels like languages, ethnicity, historicity and religion. The tribal pockets populated by scheduled tribes

and converted tribal populations along with the non-tribal ethnic elements are actually enfolded by territories like Tibet and Burma. These varying ethnic pockets have close ethno-geographic relationships with Bangladesh dominated by local Bengali-speaking peoples (most of which belong to the Muslim community) and secondly, to the Indian state of West Bengal with a long history of peasant movements and labor movements under Naxalite and Leftist organizations along with several out-shoots of ethnic movement. Such things have happened in case of the major group of Nepali peoples in the Hills on the basis of Plantocracy, Gorkha identification and uniformity; demanding for autonomy and even a separate statehood. This movement for social status has now turned into the issue of tribal designation, a reverse process from the North East against Kshattriyaization and in favor of Tribalization. This would surely put an impact upon the various tribal offshoots that have been included under the Rajbanshi Kshattriya Social Fold of North Bengal.

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This is some ethno-botany related document collected by virtue of KEY INFORMANT'S INTERVIEW and observation and rapid report writing as important parts of RRA.

Methodology is like this: first seeing the modes of production and on the basis of that recognizing the social, economic, political and religious matters that are illustrated within the way of living according to the culture and cognate.

Mode of Production:

- collection of raw materials,

traditional technologies,

- traditional way of disaster management,
- bio-diversity management,
- ethno-medicine plantation,
- agriculture,
- animal husbandry and poultry,
- ethno-fishery,
- ethno-toxicology,
- fuel collection,
- house construction,
- fodder preparation,
- water use,
- soil use,

- forest use,
- control and use of fire,
- storage,
- folk cookery,
- food preservation,
- folk craft,
- production and use of cloth and ornamentation,
- production and use of crop, fiber, alcohol and fruits;
- use of betel leaf and betel nut with lime and tobacco;
- snail consumption, use of snail shells in lime production, pottery use in lime production, collection of dry straw as the fuel through the barter system of lime and rice, relatedness with growers of betel leaf and betel nut, application of lime in fishery, construction, manure, remedy and food;
- honey collection (indirectly),
- floriculture,
- fruit and vegetable production,
- sericulture (not here in the field),
- smoking and drug addiction,
- pottery and utensil,
- production and use of color,
- production of garments by local handlooms (not now),
- carpentry

The Social System:

Rajbanshis are mostly agrarian though some showing affiliation with collecting ferns, small game hunting (occasional), medicinal plants, fishes, raring livestock and grazing on fallow lands, food processing, social forestry, maintaining bamboo grooves, handicraft making, etc. People are basically caste. Rajbanshi is often considered a huge social fold and means of Hindu Method of Tribal Absorption. They have detached from their urban civilization of Pundrabardhana long ago; being heavily marginalized by late-comers and again conducting status mobilization by various means. They once being the ruling category and soldiers have strong community sentiment, mechanical solidarity, low rate of crime and peasantry in practice. Many have become landless and are moving into urban and peri-urban areas. They do not let their women working outside, in others' houses and even in all the steps of agricultural practices. Women only can participate in few steps, kitchen garden, household works, food processing, post-harvest works, raring children, and so forth. Rajbanshis are settled cultivators and also also prefer seasonal pastoralism. Their joint extended families have broken into joint and nuclear families.

The Economic System:

- traditional economy

i. role of
   - cash,
   - kind,
   - barter
   - and reciprocity;

ii. division of labor on the basis of
   - gender,
   - age,
   - kinship,
   - lineage,
   - neighborhood;

iii. exchange of service;

iv. large scale patronage and concept of property, descent of property;

v. role of norms and values: in different stages of traditional economic life

The Power System:

i. power sharing at the levels of
   - family,
   - lineage,
   - caste,
   - ethnicity,

ii. neighborhood,
   - hamlet,
   - village,

iii. gender,

iv. age,

v. dominance,
   - protective measures according to the constitution,
   - caste association,
   - minority association,
   - religious institution,
   - class,
   - political party,
   - lobbying

People are aware of partition of British India during independence, independence of Bangladesh, nationalism, socialism, leftist wings, ultra-left activities, being with USSR, magico-religious practices, Muslim World, Buddhist World, Christian World, Neo-Vaishnavism, post-USSR situation, Nation States, own historicity and indigenous statehood, ethnic issues, minority matters, subaltern polity, regional parties, bi-party system in national politics, existence of a fragile third front, and history of colonialism. They know better the Shahi impact in South Asia and gradual transformation of non-Shahi pockets into the sub-Shahi. They also discuss about Hindu reforms, Brahmanism, pre-Brahmanism, Vedic and pre-Vedic situations, animism and animatism, and racism along with blood sheds and fertility cults.

The Religious System:

- magico-religious performances are related with

1.agriculture and other modes of production,
2.post harvest measures
3.and disease treatment

The Unwritten Book of Culture:

- folk song,
- folk proverb,
- folk etymology and chants,
- folk music,
- folk tales,
- folk literature,
- folk dance,
- folk painting,
- folk sculpture,
- folk recreation,
- folk play,
- folk art and craft,
- folk cookery,
- folk settlement patterns,
- folk architecture,

the notion of time,

- weather forecasting,
- dialectology of folk speech,
- superstitions,
- myths,

- legends,
- riddles,
- folk religion,
- folk lore,
- sense of right and wrong (folk ways),
- norms (regarding kinship relations and rites-de-passage),

folk customs (regarding household affairs, agricultural operations and other social behavior)

These people are rapidly changing in terms of material culture, but they are not ready to change their values and norms illustrating their social, economic, political and religious matters.

They are increasingly adapted to modern educational system. Their indigenous knowledge is still relevant to recognize how to live in a specific ecosystem with the ethno-botanical knowledge.

In their cognate, they are very much sensitive about the activities of missions, health system (modern and traditional), identity and existence of Neo-Vishnavism parallel to Islam and Christianity. In their traditional health system, they always keep in mind the following steps-

- fixed type of ethno-medicinal practices

- concepts about

1.reproductive health,
2.pregnancy and child birth,
3.related beliefs and performances in terms of

- rites-de-passage
- and religious festivals

They are serious about psychological illness, religious issues, gender issues, aborigine status, alternative economic sources, earlier generations, solidarity, worship of cow, decrease in blood sacrifices and beef consumption.

Information traits are taken from Mahananda-Dock river basin at Chopra block of Islampur sub-division of Uttar Dinajpur district, and secondly Mahananda-Buri Balason river basin at Phansidewa block of Siliguri sub-division of Darjeeling district. Both the districts are in North Bengal

administrative region of northern part of West Bengal state of India.

Local biodiversity:

Appendix1: Some plants around agro-system of North Bengal- local & scientific names:

Common crops propagated by the Rajbanshi peasants are mentioned below:

CEREAL GRAINS AND PRODUCTS

- Rice: *Oryza sativa,* Chal
- Italian millet or Foxtail millet: *Setaria italic,* Kaon
- Maize: *Zea mays,* Bhutta, Makai
- Finger Millet: *Eleusine coracana,* Marua, Ragi
- Wheat: *Triticum aestivum,* Gom

PULSES AND LEGUMES

- Blackgram dhal: *Phaseolus mungo* Roxb, Mashkalai dal
- Greengram - Whole: *Phaseolus aureus* Roxb, Mug
- Peas: *Pisum sativum,* Matar

Cowpea: *Vigna catjang,* Barbati

- Fieldbean: *Dolichos lablab,* Sim
- Bengal gram - roasted: *Cicer arietinum*, Chola

NUTS & OILSEEDS

- Coconut: *Cocos nucifera,* Narkel
- Sesame seeds: *Sesamum indicum,* Til
- Mustard seeds: *Brassica nigra,* Sorse, Rai
- Sunflower seeds: *Helianthus annuus,* Suraj mukhi
- Common flax or linseed: *Linum usitatissimum,* Tisi

List of vegetables is given below:

English name	Native name	Scientific name	Family
Cabbage	Bandhakopi	*Brassica oleracea* var *capitata*	Cruciferae
Cauliflower	Phulkopi	*Brassica oleracea* var *botrytis*	Cruciferae
Broccoli	Sabuj phulkopi	*Brassica oleracea var. italica*	Cruciferae
Kholrabi	Olkopi	*Brassica oleracea* var *gongyloides*	Cruciferae
Mustard green	Sarisa shak	*Brassica campestris*	Cruciferae
Turnip	Shalgom	*Brassica rapa*	Cruciferae

Radish	Mula	*Raphanus sativus*	Cruciferae
Pea	Motor	*Pisum sativum*	Leguminoseae
Hyacinth bean	Sheem	*Lablab niger*	Leguminoseae
String bean	Barbati	*Vigna sesquipedalis*	Leguminoseae
French bean	Jhar sheem	*Phaseolus vulgaris*	Leguminoseae
Yam bean	Shakalu	*Pachyrrhizus tuberosa*	Leguminoseae
Sweet gourd	Misti kumda	*Cucurbita maxima*	Cucurbitaceae
Bottle gourd	Lau	*Lagenaria siceraria*	Cucurbitaceae
Wax gourd	Chal kumda	*Benincasa hispida*	Cucurbitaceae
Cucumber	Shasa	*Cucumis sativus*	Cucurbitaceae
Cucumber (short)	Khira	*Cucumis anguina*	Cucurbitaceae
Ribbed gourd	Jhingga	*Luffa acutagula*	Cucurbitaceae
Sponse gourd	Dhundul	*Luffa cylindrica*	Cucurbitaceae
Bitter gourd	Ucche/Karala	*Momordica charantia*	Cucurbitaceae
Teasle gourd	Kakrol	*Momordica cochinchinensis*	Cucurbitaceae
Palwal	Patal	*Trichosanthes dioica*	Cucurbitaceae
Snake gourd	Chichingga	*Trichosanthes anguina*	Cucurbitaceae
Squash	Squash	*Cucurbita pepo*	Cucurbitaceae
Potato	Alu	*Solanum tuberosum*	Solanaceae
Brinjal	Begoon	*Solanum melongena*	Solanaceae
Tomato	Tomato	*Lycopersicon esculentum*	Solanaceae
Sweet pepper	Misti marich	*Capsicum annuum*	Solanaceae
Chilli	Jhal marich	*Capsicum* species	Solanaceae
Okra	Dhedosh	*Abelmoschus esculentus*	Malvaceae
---	Laffa	*Malve verticillate*	Malvaceae
Stem amaranth	Danta	*Amaranthus lividus*	Amaranthaceae
Red amaranth	Lalshak	*Amaranthus gangeticus*	Amaranthaceae
Spiny amaranth	Katanotey	*Amaranthus spinosus*	Amaranthaceae
Leaf amaranth	Noteyshak	*Amaranthus viridis*	Amaranthaceae
Indian spinach (green)	Puishak (sabuj)	*Basella alba*	Basellacease
Indian spinach (red)	Puishak (lal)	*Basella rubra*	Basellacease
Spinach	Palonggshak	*Spinacia oleracea*	Chenopodiaceae
Beet	Beet	*Beta vulgaris*	Chenopodiaceae

Goose foot	Bathua	*Chenopodium album*	Chenopodiaceae
Marsh herb	Helencha	*Enhydra fluctuans*	Compositeae
Lettuce	Lettuce	*Lactuca sativa* var. *capitata*	Compositeae
Water spinach	Kolmi	*Ipomoea aquatica*	Convolvualceae
Kangkong	Gima kolmi	*Ipomoea reptans*	Convolvualceae
Sweet potato	Misti alu	*Ipomoea batatus*	Convolvualceae
Carrot	Gajor	*Daucus carota*	Umbelliferae
Indian penny wort	Thankuni, Manboni	*Centella japonica*	Umbelliferae
White yam	Matey alu	*Dioscorea alata*	Dioscoreaceae
Cassava	Shimul alu	*Manihot esculenta*	Euphorbiaceae
Eddoe	Mukhikachu	*Colocasia esculenta*	Araceae
Tannia	Dudkachu	*Xanthosoma violaceum*	Araceae
Taro	Panikachu	*Colocasia schott*	Araceae
Giant taro	Mankachu	*Alocasia macrorrhiza*	Araceae
Elephant foot aroid	Olkachu	*Amorphophallus campanulatus*	Araceae
Drumstick	Shajina	*Moringa oleifera*	Moringaceae
Plantain	Kanchkala	*Musa paradisiaca*	Musaceae
Green papaya	Papay	*Carica papaya*	Caricaceae
Bunching Onion, Welsh Onion, Oriental Green Onion, Spring Onion, Wild Onion	Desi Piyaj	*Allium fistulosum*	Liliaceae
Sorrel	Tak palangg	*Rumex vasicarious*	Polygonaceae
Jute leaf	Patpata	*Corchorus capsularies*	Tiliaceae
Water lily	Shapla	*Nymphaea stellata*	Nymphaceae
Giant carandilla	Sheeta lau	*Passiflora quadrangularis*	Passifloraceae
Immature jack fruit	Echad	*Artocarpus integrifolia*	Moraceae
Baby corn	Choto bhutta	*Zea mays* var. *saccharata*	Graminae
---	Malencha	*Jussiaea repens*	Onagraceae
Wood sorrel	Amrulshak	*Oxalis europaea Jord*	Oxalidaceae
Garden purslane	Nunia	*Portulaca oleracea*	Portulaceae
Fern	Dhekishak	*Dryopteris filix-mas*	Polypodiaceae

Rajbanshi womenfolk develop their kitchen garden as a compilation of vegetables, fruits and flowering plants. Important fruits are: mango, pineapple, banana, papaya, mandarin orange, guava, jackfruit, watermelon, Jam/Black Plum/Java Plum, Jamrul/Rose Apple/Star Apple and so forth. Small tea gardens and pineapple cultivation are important and newly introduced features here.

Different fruits round the year are grown up by the Rajbanshis.

English name	Local name	Scientific name
Banana	Kala	*Musa sapientum*
Jackfruit	Kathal	*Artocarpus heterophyllus*
Mango	Am	*Mangifera indica*
Litchi	Lichu	*Litchi chinensis*
Hog Plum	Amra	*Spondias dulcis*
Papaya	Papaya	*Carica papaya*
Coconut	Narikel	*Cocos nucifera*
Guava	Payara	*Psidium guajava*
Star Apple	Jamrul	*Syzygium samarengense*
Black Berry	Kalajam	*Syzygium cumini*
Grape Fruit	Jambura	*Citrus grandis*
Indian Apple	Bel	*Aegle marmelos*
Wood Apple	Kathbel	*Feronia limonia*
Custard Apple	Ata	*Anona squamosa*
Indian Jujube	Boroi	*Zizyphus mauritiana*
Sapodilla	Sofeda	*Manilkara achras*
Indian Goose Berry	Amloki	*Phyllanthus embelica*
Pomegranate	Dalim	*Puncia granatum*
Elephant Apple	Chalta	*Dillenia indica*
Carambola	Kamranga	*Averrhoa carambola*
Pineapple	Anaras	*Ananas comosus*
Watermelon	Tarmuj	*Cucumis melo*
Lemon	Lebu	*Citrus limon*
Black Plum	Jam	*Syzygium cumini*
Tamarind	Tentul	*Tamarindus indica*
Palmyra Palm	Tal	*Borassus* spp.
Indian Olive	Jalpai	*Olea europaea*
River Ebony	Gab	*Diospyros malabarica*

Appendix2: Some plants around agro-system of North Bengal- local & scientific names:

Plants: aparajita (*Clitoria ternatea*), gulmohar (*Delonia regia*), bel (*Aegle marmelos*), aam (*Mangifera indica*), amra (*Spondias pinnata*), ashok (*Saraka asoka*), brahmi (*Bacopa monnieri*), bon tulsi/ (*Hyptis suaveolens*), babul (*Acacia nilotica*), chor kata (*Andropogon aciculate*), palas (*Butea* spp.), pipal (*Ficus religiosa*), khetraparpati (*Oldenlandia corymbosa*), pakur (*Ficus infectoria*), dumur (*Ficus benghalensis*), yagya dumur/ gular (*Ficus glomerata*), chalta (*Dillenia indica*), khoir (*Acasia catechu*), tea (*Camellia* spp.), nagkeshar (*Meusa ferrea*), sal (*Shorea robusta*), piyal (*Buchanania lanzan*), pepe (*Carica papaya*), chalta (*Dillenia indica*), jalshingara/ paniphal (*Trapa*), chalmugra (*Gynocordia*), jat neem (*Azedirachta indica*), neem (*Indigofera tinctoria*), buguri (*Zyzyphus mauritiana*), boyar (*Zyzyphus jujuba*), labanga (*Zyzyphus aromaticum*), jambura/ timbur (*Zanthoxylum* spp.), ashphal (*Dimocarpus longan*), ghas (*Aronopus compressus*), joan (*Trachysperous ammi*), jhika (*Lannea coromandelea*), dhudhul (*Luffa aegyptieaca*), amla (*Embelica officinale*), chikrasi (*Chikrassia tabularis*), muktajhajhi (*Acalypha alba*), *Acalypha indica*, tetul (*Tamarindus indica*), peyara (*Psidium guajava*), jamrool (*Syzygium samarangense*), hatishur (*Helianthus indicum*), karkatashringi (*Rhus* sp), rudraksha (*Elaeocarpus serratus*), hartaki (*Terminalia chebula*), chilauni (*Schime wallichii*), hingul (*Balanites aegyptiaca*), *Murraya koenigii*, kamranga (*Averrhoa carambola*), nagbeli (*Lycopodium elevatuin*), akashbeli (*Cascuta* sp.), babul (*Acasia nicotina*), kolke (*Thevetia neriflora*), kash (*Saccharum spontanium*), ghas (*Melocanna baccifera, Thysannolaena,Gleichenia pectinata),* shephali (*Nyctanthus arbortristis*), gajor (*Daucus carrota*), mula (*Raphanas sativus*), bhang (*Cannabis sativa*), ganja (*Abrus precatorius*), pan (*Piper betel*), tejpata (*Cinnamomum zeylanica*), tamal (*Cinnamomum tamala*), karpur (*Cinnamomum camphora*), sajina (*Moringa obleisera*), pipal (*Ficus religiosa*), bot (*Ficus benghalensis*), *Spathodea campanulata* (rhododendron of the plains), simul (*Bombax ceiba*), kapok (*Ceiba pentandra*), bakul (*Mimusops elengi*), mahua (*Madhuca latifolia*), hathchur (*Vaicum erticuletum*), bringaraj/ kalkeshut (*Eclipta alba*), ata (*Annona reticulate*), nona (*Annona squamosa*), kadam (*Anthosephalus indicus*), kush (*Desmostachya bipinnata*), groundnut (*Arachis hypogea*), ghritakumari (*Aloe vera*), thankuni/ manboni (*Centella asiatica*), pudina (*Mentha* sp.), suryashishir/ fox-leg (*Drosera*), lajjabati (*Mimosa pudica*), bhui-champa (*Memiltonia* sp), muchkundo-champa (*Pterospermum acerifolium*), kathali-champa (*Artabotrys hexapetala*), jackfruit/ kathal (*Atrocarpus heterophyllus*), mulberry/ tut (*Bombax ceiba*), (*Morus*spp.), ganda (*Tagetes erecta*), hinche (*Enhydra fluctunus*), swetindrani (*Citrullum colocyanthus*), shon (*Crotilaria juncea*), methi (*Trigonella foenum-graecum*), mitha pata (*Scoparia dulsis*), spinach (*Basella alba*), dhutura (*Datura filix-mas*), black dhutura (*Datura stremonium*), amla (*Embelica officinalis*), phalsa (*Grewia subnaequalis*), jaba (*Hibiscus* spp.), pat/ jute (*Corchorus capsularis* and *C. olitorius*), china jute (*Abutilon* spp.), dumur/ fig (*Ficus glomerata*), kankrol (*Cucumia sutiuua*), tal (*Borassus flabellifer*), jalpai (*Elaeocarpus serratus*), bhadali (*Paederia foetida*), jam (*Eugenia jamboline*), gamar (*Gimelina arborea*), kagaj phul (*Bougainvillea spectabilis*), dhobi phul (*Mussaenda frustiari*), kek phul (*Crinum asiaticum*),

dheki (*Dryopteris ternatia*), amaltas (*Cassia fistula*), sankhapushpi (*Convolvulus microphyllus*), jatamanasi (*Nardostachys jatamansi*), paraspipul (*Thespesia populnia*), keora (*Pandanus fascicularis*), karanja (*Pongamia pinnata*), halud/ turmeric (*Adinis cordifolia*), tok-pata (*Oxalis* spp.).

Appendix3: Some animals, birds & fishes outside living in and around agro-system of North Bengal:

Animals: Makar/ spider/ *Heteropoda* spp., bichha/ scorpion/ *Buthus meroccanus*, kecho/ earth warm/ *Pheretima posthuma*, jonk/ leech/ *Hirudinaria granulosa*, kenno/ millipede/ *Julas terrestris*, telapoka or arshola/cockroach/ *Periplaneta americana*, kuno beng or vek/ common toad/ *Bufo melanostictus*, kotkoti beng/skipper frog/ *Rana cyanophlyctis,* kola beng or sona beng / *Rana tigrina,* jhi jhi poka/ cricket frog/ *Limnonectes limnocharis*, dhere indur/bandicoot rat/ *Bandicota indica*, metho indur/ Indian field mouse/ *Mus booduga*, nengti indur/ house mouse/ *Mus musculus*, girgity/chameleon, rokto chosa/ common garden lizard/ *Calotes versicolor*, gosap /monitor/ *Varanus* spp., maitta shap/ olivaceous keelback snake / *Atretium schistosum,* daras/ common rat snake/ *Ptyas mucosus* beji/ common grey mongoose/ *Herpestes edwardsii*, biral/ cat/ *Felis domesticus*, ban-biral/ swamp cat or jungle cat/ *Felis chaus*, fishing cat/ *Rionailurus viverrinus,* chita bagh/ Indian leopard/ *Panthera pardus*, East Asian porcupine/*Hystrix brachyura*, gandha gokul or khatash or bham or bagdash/civet/*Vivma zibetha*, bhodor or ud biral /common otter/*Lutra lutra*, oriental small-clawed otter/*Aonyx cinerea*, smooth-coated otter/ *Lutra perspicillata,* badur / flying-fox or common bat / *Pteropus giganteus*, daini badur/ Indian false vampire/ *Megaderma lyra*, khargosh/ Indian hare/*Lepus nigricollis*, hispid hare/*Caprimulgus hispidus*, Himalayan mouse hare/ *Ochotona royeli*, kathbirali/ squirrel/ *Ratufa bicolor*, *Callosciuruserythracus, Dreomys pygerythrus*, *Hylopstes alboniger, Pataurista pataurista, Ratufa indica, Funambulus* spp*.,* kukur/dog/ *Canis familiaris*, janglee kukur or dhole or ram kutta/ Asiatic wild dog/ *Cuon alpinus*, pati shial or shial/Asiatic jackal/ *Canis aureus*, khek shial/Bengal fox/ *Vulpes benghalensis*, chhagol/ goat/ *Capra species*, goru or gai/ cow/ *Bovis indica*, water buffalo/ *Probalus nubalis*, gaur/ *Bos gaurus*, macaque/ *Macaca* spp., swamp deer/ *Cervus duvaucelii*, Asian elephant/ *Elephas maximus*, bon suar/ Indian wild bear/*Sus serofa*, sajaru/ porcupine/ *Atherurus macrourus*, sajaru/ hedgehog/ *Hystrix hodgsonil,* bonrui/ pangolin/*Manis*spp.

Birds: dar kank/ large-billed crow or raven/ *Corvus macrorhynchos*, pati kank/ house crow/ *Corvus splendens*, dhanesh/ hornbill (pied hornbill/ *Anthracoceros maladaricus*, rufous-necked hornbill/ *Aceros nepalensis*, great hornbill/*Buceros bicornis*, wreathed hornbill/*Rhyliceos undulatus*), tree pie/ *Dendrositta* spp. (grey tree pie /*D. Formosa* and hari chacha/ rufous tree-pie/ *D. vagabunda*), cheer pheasant/ *Catreus wallichii*, kaleej pheasant or black breasted kalij/ *Lophura leucomelana*, kat mayur/ peacock pheasant/ *Polyplectron bicalearats*, mayur/ Indian peafowl/ *Pavo cristesus*, peafowl/ *Pavo* spp., green peafowl/ *Pavo muticus*, kukkut/ red jungle fowl/ *Francolinus francotinus*, bon murgi/

tragopan/ *Tragopan* spp. (Blyth's tragopan/ *Tragopan blythii*), jol kukkut/ coot/ *Falica atra*, jol murgi/ water rail or water hen/ *Rallus aquaticus,* moorhen/ *Gallinula chloropus*, purple moorhen/ *Prophypio porphyrio*, chochoka or choka/ shelduck/ *Tadorna* spp. (*T. ferrugina* and common *T. tadorna*), rajhans/ bar headed goose/ *Anser indicus*, buno rajhans/forest bean goose/ *Anser fabilis*, lesser white-fronted goose/ *Anser erythropus*, pati hans/ spot billed duck or grey duck/ *Anas poecilorhyncha*, khunte hans/northern shoveller/ *Anas clypeata*, chhai hans/ grey leg duck/ *Anas anser*, widgeon/ *Anas penelope*, gadwall/ *Anas strepera,* khopa hans/ tufted duck/ *Aythya fuligula*, kalo hans/ common pochard/ *Aythya ferina*, ranga jhuti hans/ red crested pochard/ *Rhodonessa rufina*, bhitu hans/ Bear's pochard/ *Aythya baeri*, sada chokh bhitu hans/ (white eyed) ferruginous duck/ *Aythya nyrocha*, vadi hans/ white-winged duck/*Cairina seululala*, holde sithi hans/ Eurasian wigeon/ *Anas penelope*, nil matha hans or nilsir/ mallard or blue head wild drake/ *Anas plantyrhynchos*, bacha hans/ comb duck/ *Sarkidiornis* sp., bali hans/ cotton teal or cotton pigmy-goose/ *Nettapus coromandelianus*, patari hans or peri hans/ common teal/ *Anas crecoa*, baikal teal/ *Anas formosa* , sikhajukto hans/ falcated teal/ *Anas falcate*, marbled teal/*Marmaronetta angustirostris,* bara sarali/large whistling teal/*Dendrosygna bicolor*, chhoto sarali/lesser whistling teal/*Dendrosygna javanica,* goyar/darter/*Anhinga rufa*, pan kauri/shag/*Phalacrocorax fusciecllis,* dahuk/ white breasted waterhen /*Amaurornis phoenicurus*, chhai bok or anjan/grey heron/ *Ardea cinerea*, purple heron/ *Ardea purpuria*, kani bok/ Indian pond-heron or paddy bird/ *Ardeola grayii,* white-billed heron/ *Ardea insignis*, giant white-billed heron/ *Ardea imperialis*, Chinese pond heron/ *Adreala gra*yii, little green heron/ *Butorides striatus*, Indian reef heron/ *Egretta gularis*, night herron/*Nycticorax mucticorax,* go bok/ cattle egret/ *Bubulcus ibis,* bok /little egret/ *Egretta garzetta*, sada bok/great egret/ *Casmeroidus albus*, khute bok/spoon bill/*Platelia lencorodia*, saros/ ibis/ *Pseudibis* spp. (brown and black) and *Thresciornis melanocephala*(white), saros/ crane/ *Amaurornis* spp., shamuk bhanga/ Asian open billed stork/ *Anastomus oscitaus*, hargile/ stork/ *Ciconia* spp. (oriental stork/ *Ciconia boyciana*, white stork/ *C. ciconia*, white necked stork/ *C. episcopus*, black stork/ *C. nigra*), ram shalik/ black nacked stork/ *Xenorhynchus asiaticus*, sona jongha/ painted stork/ *Ibis leucocephalus*, shakun/vulture/*Gyps* spp. (white-rumped vulture: *Gyps bengalensis*), chil/black-winged kite/*Elanus caeruleus,* bhuban chil/ black kite/ *Milvus migrans,* gung chil/ tern/ *Stern* spp., shankachil/ brahminy kite/ *Haliastur indus,* tila baz or shapkheko baz/ crested serpent eagle/ *Spilornis eheela*, greater spotted eagle/ *Aquila clanga*, imperial eagle/ *Aquila heliaca*, fish eagle/ *Haliaeetus leucoryphus*, cuckoo (*Cacomantis*spp., *Cuculus* spp. : *Cuculus varius*- papia or chokh gelo, *C. microplerus*/ bou katha kao), kokil/ koel/ *Endynanuys scolopacea*, bon kokil/ large green billed malkoha/ *Rhopodytes tristis*, finge kokil/ drongo cuckoo/ *Surniculus lugubris*, finge/ drongo/ *Dicrurus*spp. (*D. adsimilis*/ black drongo, *D. aeneus*/ bronzed drongo, *D. paradiscus*/greater racket tailed dorongo, *D. aenena/* lesser racket tailed dorongo, *D. annectans/* crow billed type, *D. coernlescens* /white billed, *D. hottentottus*/ hair crested), ghugu/ dove/*Streptopelia* spp. (*S. chinensis* /spotted dove/tila ghughu, *S. orientale*/ rufous turtle dove/ bon ghugu or ghugu, *S. tranquebarica*/ red turtle dove/ lal ghugu or jongla ghugu and *S. decaota* /Indian ring dove or collared dove /raj ghughu), raj ghugu/ emerald dove/*Chalcophaps indica*, bar tail cuckoo dove/ *Macrorygia*

unchall, horikol/ pigeon/ *Tyeran* spp. (green *T. biceneta,* orange-breasted*T. curvirostra,* yellow-footed *T. phoeniciptera,* grey-fronted *T. pomdadora*), payra/ pigeon/ *Columba* spp. (blue rock pigeon/*Columba livia*, purple wood or pale-capped pigeon/ *Columba punicea*, great imperial pigeon/ *Columba ducula aenae*, mountain imperial pigeon/ *Duluca badia*), shalik or bhat shalik/ common myna/ *Acridotheres tristis*, bon shalik/ jungle myna/ *Acridotheres fusces*, gung shalik/ bank myna/ *Acridotheres ginginianus*, mynah/ hill myna (grackle)/ *Gracula religiosa*, jhuti shalik/ short crested myna/*Acridotheres javanicus*, gue shalik/ pied myna/*Sturnus contra*, bhahmini myna/ brahmini mynah/ *Strunus pagodarum*, grey headed myna/ fat shalik/ *Strunus malabaricus*, charui/ house sparrow/*Passer domesticus*, Eurasian tree sparrow/*Passer montanus,* khanjan/ white wagtail/ *Motacilla alba*, grey wagtail/ *M. caspica*, yellow headed wagtail/ *M. citreola*, yellow wagtail/ *M. flava*, khanjan/ Chinese olive-backed pipit/ *Anthus hodgsoni*, khanjan/ australasian pipit or paddy field pipit/ *Anthus novaeseelandiae*, nilkantha/ broad billed tay (*Eurystomus orientalis*), Indian roller (*Coracias benghalensis)*, magpie: green *Kittu chinensis* and green with red *K. crythrorhyncha*, flower pecker or honey bird/moutusi/ *Dicaeum* spp., kat thukra / woodpecker/*Dinopium bengalense*, *Celebus brachyurus, Dendrocopos canicapillus, Blythipicus pyrrhotis, Chrysocolaptes lercidus, Dendrocopos atratui, D. canicapillus, D. mabrattensis, D. macei, D. namus, Dinopium bengalense, D. javanensis, D. marnathensis, Gecinulus grautia, Hemicircus cancute, Hypopicus hyperithrus, Jynx torguilla, Micropternus breachyurus, Mulleripicus pulveulentus, Picumnus innominatus, Picus canus, P. chorolophus, P. harinucha, P. myrmecophoneus,* shui chura/ bee-eater / *Merops* spp., haldey pakhi/ block-hooded oriole or yellow bird/ *Oriolus xanthornus,* nil pakhi/ *Pitta* spp., hooded pitta or green breasted pitta/ *Pitta sordida*, chhoto machranga/ common kingfisher/ *Alcedo atthis*, machranga/ blyth's kingfisher/*Alcedo hercules,* machranga/ white throated kingfisher / *Halcyan smyrnensis*, brown-winged kingfisher/ *Pelargopsis amauropterus*, stork-billed kingfisher/ *P. Capensis*, babui/ black-breasted baya weaver/ *Ploceus benghalensis*, bulbuli/ bulbul/*Pycnonotus* spp. and *Hypsipetes* spp., pata bulbuli/ golden-fronted leaf bird/ *Chloropsis aurifrons*, tuntuni/ common tailorbird or wren warbler/ *Orthotomus sutorius*, golden headed wren warbler/ *O. cucullatus,* paddy field warbler/ *Accrocephalus agricola*, spotted bush warbler/ *Bradypterus thoracicus*, bristled grass-warbler/ *Chaetornis striatus*, large grass-warbler/ *Graminicola benghalensis*, booted warbler/*Hippalais caligata*, grasshopper warbler/ *Locustella* spp., striated marsh warbler/ *Megalurus palustris*, black- breasted warbler/ *Ploceus benghalensis*, leaf warbler/ *Phylloscopus* spp., long tailed warbler/ *Prinia* spp., thick billed warbler/ *Phragmaticola* spp., Adjutant/ *Leptoptilos* spp, slender-billed babbler/ *Turdoides longirostris*, marsh babbler/*Pellorneum palustre*, rusty-throated wren babbler/ *Spelaeornis badeigularis*, tawny-breasted wren babbler/ *Spelaeornis longicaudatus*, snowy-throated babbler/ *Stachyris oglei,* munia/black-headed munia/ *Lonchura malacca,* gagan ber/ spotted billed pelican/ *Pelecanus philippensis*, spine/ *Capella* spp. (kadakhocha/ great snipe/ *C. minima*, bon chaha/ solitary spine/ *C. solitaria)*, wood snipe/ *Gallinago nemoricola*, batan/ plover (ring plover and sand plover)/ *Charadrius* spp., balu batan/ sandpiper/ *Tringa*spp., spoon-billed sandpiper *Eurynorhynchus pygmeus*, titi/ lapwing/ *Vanellus* spp. (white tailed lapwing/ *V. leucurus*), bogudi/ stone curlew/ *Burhinus*

cedicnemus, ababil/ house martin/*Delichon kashmiriense*, sand martin/ *Riparia* spp., chatak/striated swallow/ *Hirundo daurica,* tal chata/ larger striated swallow/ *Hirundo striolata,* palm swift/naknati/ *Cypsiurum parvus*, dark-rumped swift/*Apus acuticauda*, edible nest swift let/ *Collocalia innominata*, crested swift/ *Hemiprocne longipennis*, dhania pakhi or basanta bauri/ barbet/ *Megalaima* (*M. asiatica, M. baemacaphala, M.australis*), din kana/ night jar/ *Caprimulgus* spp., latoa/ shrike/ *Lanius* spp., tia/ parakeet/ *Psillacula* spp. and *Loriculus* spp., beua/ pheasant tailed jacana/ *Hydrophazianus chirurgus*, jolpipi/ bronze winged jacana/ *Metopidius indicus,*doel/ Indian robin/ *Saxicoloides fulicata,* pathure doel/ blue rock thrush/*Monticola solitarius*, laughing thrush/ *Garrulax* spp., flycatcher/ *Muscicapa* spp., futki/ grey headed flycatcher/ *Culicicafa*sp., fantail flycatcher/ *Rhipidura* spp., forktail/ *Enicurus* spp., bush chat/ *Saxicola* spp., blue chat/ *Enicurus* spp., hudhud/ hoope/*Upupa epopa*, pencha/ spotted owlet/*Athene brama*, hutum pencha/brown fish owl/ *Bubo zeylonensis*, rock eagle owl/ *Bubo benghalensis*, collared scops owl/ *Otus spilocephalus*, lakshmi pencha/ barn owl/ *Tyto alba*

Fish:magur/ magur/ *Clarius batrachus,* shingi/ shinghi/ *Heteropneustes fossilis,* koi/ climbing perch/ *Anabas testudineus*, bain/ eel/ *Macrognathus aculeatus*, shol/ striped snakehead/ *Channa striatus*, cheng/ Asiatic snakehead/*Channa orientalis*, taki/ spotted snakehead/ *Channa punctatus*, bele/ tank gobi/ *Glossogabius giuris*, gutum/ pool barb/ *Lepidocephalus guntea,* foli/ grey featherback/*Nolopterus notopterus*, chapila/ Indian river shad/ *Gudusia chapra*, punti/ guntea loach/ *Puntius sophore*, sarpunti/ olive barb/ *Puntius sarana*, tit punti/ *Puntius ticto*, catla/ catla/ *Catla catla*, rui/ rohu/ *Labeo rohita*, mrigel/ mrigel/ *Cirrhinus mrigela*, **etc.**

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Remarks

What steps are to be needed in agriculture from the domain of social-cultural anthropological fieldworks?

This is the era of global market economy and there are some suggestions in generalized form that might be taken care off in favour of different agrarian rural structures that I have felt during my fieldworks.

Direct Experience from Fieldwork should be appreciated as an extension of the main study. What steps are to be needed in agriculture? Indigenous knowledge regarding the following aspects could be better observed.

1. Soil testing
2. Seed treatment
3. Seed testing
4. Preparation of organic manure and Vermicompost in units
5. Stepwise application NPK
6. Application of margosa oil of different ppm
7. Application of different cakes with manure
8. Quick destruction of diseased plants
9. Controlled application of pesticides and fungicides
10. Weeding
11. Separate preparation of seed bed/nursery and agricultural field
12. Application of micro-nutrients
13. Application of Shed tree (if needed)
14. Fallowing and grazing in off-season
15. Learning of how to apply ash from shifting/Swedish/slash-and-burn cultivation
16. Improvement in bush-fallow cultivations
17. Excess importance on vegetable cultivation
18. Nitrogen control (if needed)
19. Application of lime (to decrease salinity supporting various pests)
20. Use of Light trap/ Fruit trap, etc.
21. Mixed cropping
22. Selective weeding in concern of Nitrogen fixing algae
23. Crop rotation
24. Side or alley cropping
25. Alternative cropping
26. Cropping in row
27. Use of modern techniques like Zero Tillage
28. Floriculture/Fruit propagation/ Piciculture/ Agro-forestry/alternative cropping

29. Bio-gas plant
30. Solar lamp and such other equipments
31. Wind Mill and other instruments including post-harvesting processes
32. Easy loan, Self-Help Groups, Credit card
33. Cereals and rapeseed cultivation together
34. Irrigation and drainage system
35. Complex cultivation systems
36. Food processing techniques, proper packaging and other additional work opportunities within agrarian sector
37. Cultivation on fencing, lattice and pots in kitchen garden
38. Proper pest control in stem, leaf, root, tuber, fruit, etc.
39. Use of good quality and hybrid varieties
40. Protection to traditional verities and sacred grooves (biodiversity)
41. Propagation of honey bee collection and nectar yielding plants
42. Traditional grain and seed storing system
43. Proper understanding of Nature-Human-Supernature system (sounds extra-scientific) in order to get weather forecast and other precaution to mitigate natural disasters
44. Involvement of womenfolk in agriculture and documentation of women-oriented various techniques
45. Understanding of the agrarian rural structure on the basis of mode of production and supported by traditional faith-fear-belief system
46. Alternative cultivation of medicinal plants, mushrooms, rubber, catechu, tobacco, fiber-yielding plants, areca, betel, banana, guava, orange, tea, coffee, sugarcane, cane, bamboo, wood-yielding plants, strawberry, mango, mulberry, livestock feeds, and various bi-products
47. Rural entrepreneurship followed by food processing units on PPP model or private nature
48. Unidirectional approaches turning into sustainable process considering nature and local peoples' interest
49. In order to reduce pressure on agriculture, economic growth in other sectors and meeting the fuel crisis are needed

50. Clear cut concept of situations in countryside, urban and global sectors and not quick but thorough integration among these domains
51. Macro and micro level studies both and proper generalization
52. Understanding the peasant life with both plus and minus points though agricultural extension, RRA, PRA, Observation, Case study, etc. with methodologies like qualitative in-depth post-modern approaches
53. Decoding of hidden information of the folk life, cognate and symbols
54. Cultural lag between material culture and traditional values: role of Media
55. Implementation of Government policy
56. Sentiments within the Youths
57. Using NREGS in construction of rural infrastructure, water storage and communication cum transportation
58. Protection of Indigenous Rights, involvement of scientific labs, Intellectual Property Rights and patent law
59. Relationship of agrarian system with pre and post-agrarian systems
60. Realizing the fact that social, economic, political, religious institutions and division of labour such as caste are still very much dependent on the agrarian system no way to be completely neglected

    Conclusion: These measures are some primary steps fully taken care off. Sudden input from global market from a power section could be opposed by people on social, economic, political and religious sentiments. Other power sectors would also interpret in this. This could even cause fall of a government in either of democratic line or violence. Economists and policy makers should aware of this fact.

    It is a fact that villages are nearly self-sufficient in South Asia and still maintain alternative economy. Again any pressure on the production system could strongly hamper the traditional rural life and be reason for any social movement. Indians maintain various party systems, different politico-religious and socio-economic aspects, historicity and mindset reflected through concerned culture, etc. Still multicultural India maintain unity in diversity. Various cultural areas are here in India acculturating each other such as on the basis of natural resources, mode of exploitation/production and food habit with concept of nutrition. They often overlap and sometimes partially assimilated by the other.

These aspects are often underestimated and which is why, projects are being opposed and delayed. A multi-level approach is needed for peasantry, peasants and their economy. If you really want to know the peasantry here of south Asia, you have to understand the South Asia which is a wonder in it and only then you can be successful in getting benefit from the agrarian production system. Otherwise, peasants would not fully support the global market initiatives like direct cash transfer and foreign investment. Various strata in different agrarian systems have vested interests horizontally as well as vertically.

Whatever I have mentioned above I have felt on my own during my fieldwork and realize how much minute is an individual in respect to this whole system. If one does not go to the field and only thinks off double digit growth, I am afraid to say that this might not be permanent.