

Original Research Article

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Indigenous Traditional Tools and Implements Used in Agriculture and Allied Sector in Tripura

Utpal Giri^{1*}, Niladri Paul², Dipankar De^{3,5}, Soma Giri⁴ and M. C. Kundu⁵

¹Department of Agronomy, College of Agriculture Tripura, Lembuchara, West Tripura – 799210, India

²Department of Soil Science and Agril. Chemicals, College of Agriculture Tripura, Lembuchara, West Tripura - 799210, India

³KVK, Khowai, Chebri, Khowai, Tripura, India

⁴KVK, North 24 Parganas Krishi Vigyan Kendra, Haripur, Ashokenagar, 743223, India

⁵Department of Soil Science and Agricultural Chemistry, PalliSiksha Bhavana (Institute of Agriculture), Visva-Bharati, Sriniketan 731236, Birbhum, West Bengal, India

**Corresponding author*

ABSTRACT

Indigenous technology knowledge (ITK) refers to the exclusive, old-style, local thinking present and developed in and around the explicit situations of men and/or women native to a specific terrestrial area. Lots of indigenous agricultural know-how is available with the farming communities especially in tribal people of Tripura. Surveys were conducted in different districts of Tripura mainly in South Tripura, Gomati, Khowai, and West Tripura during November 2018 to June, 2019 for identifying and documenting the different Indigenous Traditional Knowledge used in Agriculture and allied agricultural activities. Survey was done through the method of using local resource persons and In-depth interview of farmers and notes, photos, audio and video recording were used for documentation. Some Indigenous Traditional implements which are still used by the people of Tripura for agriculture as well as allied sectors like in fisheries, animal husbandry etc. are documented. ITK is still an unprecedented resource in the development activities. It needs to be intensively and extensively studied and incorporated into formal research and extension practices in order to make rural development strategies more viable and sustainable. Special efforts are needed to understand, document and disseminate ITK for preservation, transfer or adoption elsewhere.

Keywords

Indigenous
technology
knowledge, Tools,
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Tripura, Agriculture

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Introduction

The attention on indigenous technical knowledge (ITK) involving the use of natural elements for solving the constraints or difficulties related to agricultural and other activities has induced in India in late eighties. Indian farmers acquired knowledge to produce food and live in constraint situation where they usually used various ITK for producing crops as their age-old tradition.

The enhancement of the quality of life of the Indians who in great majority live in and depend on agricultural production systems would be impossible by keeping this rich tradition of ITK aside (Prakash *et al.*, 2019). Indigenous technology knowledge (ITK) can be defined as any information originated out of farmers experience which has practical utility in solving farmers problems which is feasible, profitable and socially acceptable and adopted farmers own conditions which moves from one generation to another by word of mouth (Sabarathnam, 1990). Indigenous technology knowledge (ITK) refers to the exclusive, old-style, local thinking present and developed in and around the explicit situations of men and/or women native to a specific terrestrial area (Prakash *et al.*, 2019). Indigenous Technology Knowledge (ITK) is based on the experiences that gathered momentum through generation and are being developed and standardized through innumerable experimentation and practices to enhance the life of the people who greatly depend on agriculture production system.

Characteristics of ITK

Prakash *et al.*, (2019) described the characteristics of ITK as – “ITK is not static but dynamic; Exogenous knowledge and endogenous creativity bring change to ITK; ITK is intuitive in its mode of thinking; ITK is mainly qualitative in nature; ITK study

needs a holistic approach; ITK, if properly tapped, can provide valuable insights into resources, processes, possibilities and problems in particular area; ITK is recorded and transferred through oral tradition; ITK is learned through observation and hands-on experience; ITK forms an information base for variety; ITK reflects local tradition”.

Roles of ITK

According to Prakash *et al.*, (2019) the roles of ITK are – “ITK can aid development efforts; ITK can facilitate local people’s participation; ITK is a valuable source of developing appropriate technologies”.

Scope of ITK analysis

According to Prakash *et al.*, (2019) the scope of ITK analysis are - “New biological and ecological insight; Resource management; Protected areas and conservation education; Development planning; and Environment assessment”.

Advantages of ITK

Prakash *et al.*, (2019) described the advantage of ITK as – “It has low cost and is readily available; ITK is found to be socially desirable, economically affordable, sustainable, environmentally safe and minimum risk to research users and widely believed to conserve resources; ITK provides basis for problem solving strategies for local communities; Use of ITK assures that the end user of specific development projects are involved in developing technologies appropriate to their needs”.

Tripura being one of the eight sister state of the North Eastern India, is a land of beauty with a unique feature of land topography and cultural heritage. The state is covered by picturesque hills and dales, deep and green

valley's which add beauty to its landscape. The State has rich natural resources; including gas and forests. Tripura (22°56' - 24°32' North latitude and 91°10' - 92° 21' East longitude) is situated in one of the farthest corners of the country and three fourth of its boarder being shared with the Bangladesh on its North, South and West. Only communicable main land connection of the state is with Assam and Mizoram. Tripura having a population density of about 350 persons per sq.km., comprising a multitude of ethnic groups, tribes, religions, languages and dialects, yet a very much peaceful and sober state to live. The main livelihood of the people of the state depends mainly on Agriculture.

Tripura is one of the hotspots of bio-diversity. Tripura peoples are still using the traditional knowledge in agriculture particularly Tribal people. The survey work is carried out from November, 2018 to June, 2019. The results of research and survey for the year 2018-19 has been presented in this document, along with the methods and scope for ITK in the state of Tripura.

Materials and Methods

Process and methods used for ITK documentation (Pandey *et al.*, 2017)

Identification and collection of ITK

Methods and techniques used during survey works are –

- Use of local resource persons
- Hear-say method
- Survey method
- Detailed talking with cultivators.

Documentation

Methods and Techniques for documentation used in survey are -

- Notes
- Photos
- Audio-recordings
- Video-recordings

Area of survey work




Extensive survey works were done in purposively selected regions Belonia and Rajnagar block in South Tripura district, Bamutia block in West Tripura district, Killablock in Gomati district and Khowaisub-division in Khowai district for study and documentation of ITKs used by the local people of Tripura.




Results and Discussion

Lots of indigenous agricultural know-how is available with the farming communities especially in the tribal people. These traditional farming systems are products of centuries of accumulated experiences. Farmers all over the world have developed their own indigenous systems of farming with local inputs. Some of the ITKs are herewith documented with photographs and description in Table 1.





In conclusion, indigenous technology knowledge (ITK) is still an unprecedented resource in agricultural and rural development activities. The ITK requires to be studied intensively and exhaustively and should be included into the research as well as extension activities for sustainable rural development. Special efforts are to be needed for understanding, documenting and disseminating ITK for preservation, transfer or adoption elsewhere. Since, the ITK's seems to be cheaper, locally and easily available in rural areas and have lesser side effects, the use of these ITK's may be encouraged by formulating proper strategy mainly through training and demonstration.




Table.1 Different indigenous traditional tools and implements observed during survey work in Tripura



Sl. No .	Name of the ITK	Function	Photo of the tools/implements	Description of tools/ implements	Name of the farmers from whom collected	Place of collection
1	Sudam (Kokborok language) or Fishing Trap	It is mainly used by Traditional or Indigenous people. It is used as a fishing trap to catch the fishes in pond, lake, river or in any water bodies.		It is made up of bamboo by the local people.	Mandira Debbarma	Hari kanto para, Gabordi
2	Two hook (Kokborok Language)	It is mainly used by Traditional or Indigenous people. It is used for carrying water bucket or any hard items in more number.		It is made up of bamboo by the local people. It is round shaped at the top and becoming narrow towards bottom.	Meselha Molsom	Darjeeling, Killa
3	Rusham& Romo (Kokborok language) or Denki or Man operated Rice miller	It is mainly used for making flour specially from paddy grain and sometime other grains are also placed for making flour.		It is made up of wood by the local people. Instead of mechanical grinder in market, the local people use it for making ground of paddy/ rice or other materials. It consists of one rod shaped woody hard structured and one round shaped which is concaved in the middle.	Tiyari Debbarma	Hari kanto para, Gabordi




4	Janta (in Bengali/ local language) or pulse breaker	It is mainly used to break whole pulse grain by crushing them into it to make edible pulse.		It is made up of stone or cement. It consists of two round shaped cemented structure of equal sizes. These two parts are connected with iron rod which is fixed with one cemented part. The non-fixed part has an hole where through pulses or any other material which need to be grinded are placed.	Sripati Datta	Chittamara, Belonia
5	Sishing (Kokborok language) or fishing trap	It is mainly used for Fish trapping		It is made up of bamboo by the local people with a trap to captured the fishes.	TiyariDebbarma	Gabordi
6	Dengki or man operated rice miller	It is mainly used for milling of rice. Earlier days when milling machine was not available, it was being used by the people for preparing rice from paddy.		It is made up of wood. It consists of long woody structured which is fixed at one end with two stalks fixed with earth where pressure is given by the legs to pull the other end like a liver and one relatively narrow peg is fixed at right angle at the other end which strikes the paddy grains kept in the container. The	Nakul Debnath	Salema




				container is remained fixed with the earth.		
7	Bailwng (Kokborok language) or Winnower	It is mainly used for winnowing of paddy.		It is made up of “beth”. It is round shaped thin matter.	Tiyari Debbarma	Gabordi
8	Takhuk (kokborok language) or poultry rearing house	It is mainly used for Rearing of poultry.		Bamboo made structured. It looks like a bag having small door at one side of the structure.	Khakuwchang Debbarma	Patni Para Killa
9	Ura or Tukri or Bamboo made container	It is used for Storage purpose or carrying materials from one place to another.		Bamboo made structured. It looks like a container with round shaped.	Suchitra mohanJamatia	Killa




10	Dol(kokborok language) or granary	It is used for store the paddy grain for long purpose.		Bamboo made plastered with mud.	Suchitra mohanJamatia	Killa
11	Jangini (kokborok language) or drying tool	It is used as a object in which other material are kept and let them for drying in sun.		It is made off of bamboo and looks like sieve.	Suchitra mohanJamatia	Killa
12	Indigenous plough	It is used for ploughing the soil.		It is a wood structured.	Durga Manik Jamatia	Noabari, Killa
13	Jowal (kokborok / Bengali language) or Yoke	It is used for attaching two bullocks during ploughing by indigenous plough.		Wood or bamboo made material.	Durga Manik Jamatia	Noabari, Killa




14	Khupa (kokborok language)	It is used for closing of cattle mouth during ploughing.		It is prepared by bamboo or nylon net with rope which is used to close the mouth of cattle during ploughing so that they will not eat any grasses and do not waste any time.	Durga Manik Jamatia	Noabari, Killa
15	Dapa (kokborok language) or smoking tool	It is used for smoking purpose.		It is normally made of bamboo used for smoking of hookah, cheroot etc.	Durga Manik Jamatia	Noabari, Killa
16	Washung Gudak (Kokborok language) or dry fish making tool	It is used for making gudak or dry fish.		It is made by bamboo.	Subhash DayalJamatia	Twirupa Bari, Killa



17	Natai Or charki	Thread is prepared from cotton by Spinning the thread with this.		It is made by wood.	KVK, Khowai	Khowai
18	Baatibokhrok and patina	It is used for preparation of local alcoholic beverages or wine by the tribal people by boiling the rice which is kept for soaking for 2-3 days.		It consists of one aluminum container, three earthen pots and two long channels made off of bamboo or wood. Ricce is boiled in earthen pot with the help of hot steam which is evaporated from the aluminum container by applying stem at the bottom of the container. The steam evaporated from the boiled riec is collected in other two earthen pots through the bamboo made channels and the earthen pots are cooled with cold water so that it becomes liquid which is the ultimat product.	Hiran Tripura	Chittamara, Belonia



19	Bol or Bamboo stalk	It is use for carrying harvested paddy from the field to the threshing floor.		It's a bamboo made stick.	Narendra Tripura	Chittamara, Belonia
20	Bamboo made sprayer	Spraying of pesticides is done in absence of sprayer		It is bamboo made having two nodes. One side has small hole and other side of the bamboo has bigger hole where through valve will be inserted. Small hole is made where through water or spray material will be emerged when pressure will be given at the other side through a valve type bamboo made parts by the hand.	Raghuram Tripura	Chittamara, Belonia
21	Tanth (Man weaving machine)	it is used for making cloth. Handmade cotton "saree", locally called "tanthersharee" is prepared by using this tools.		This is mainly wooden made having various parts. Different parts have different functions. One man can produce 2-3 "sharre"s per day.	KVK, Khowai	Chebri, Khowai

22	Pitcher irrigation technique	Irrigation is given by pitcher. Slow water release irrigation		Sometimes, one small hole is made at the bottom of the pitcher and it has been placed near the base of the plant or placed below the ground surface after digging and soil is pressed properly. Water is poured in the pitcher and it is released slowly as per requirement of the plant.	KVK, Khowai	Khowai
23	Tin made irrigation tool	Irrigation purpose.		It is man operated tin made irrigation tool. One man can irrigate his field from the pond or other field where water is stored. So, without machine, irrigation can be done particularly where machine cannot be brought in the field or not available.		Khowai
24	Chalon (Sieve)	To clean Parched/ puffed rice		It is made up of bamboo. After preparing the puffed rice, it contains husk of paddy which needs to be cleaned.	Mr. Nirmal Ch. Roy	Chandrapur, Agartala

25	Seed preservation with banana pseudo stem	For better seed germination (Seed of Bitter Gourd)		Bitter gourd seeds are kept by wrapping with banana pseudo stem for few days before sowing. It will increase the germination percentage of seeds and health of the seeds remain in good condition.	Mandira Debbarma	Hari kanto para, Gabordi, Killa, Gomati
26	Seed preservation in bamboo (wasung)	Store the seeds for next year cultivation.		Seeds are kept inside the bamboo for whole year. It will maintain the germination percentage of seeds and health of the seeds. It acts as storage of seeds.	Mandira Debbarma	Hari kanto para, Gabordi, Killa, Gomati
27	Rat trap by Bamboo (Rat killing Kaman - local name)	Trapping of rat and killing thereby to reduce the rat attack in crop.		The structure is placed at mouth of the rat hole. It contains three parts – arrow and two bamboo structure. One bamboo part is narrower than the other. The narrower part contains food item of rat which is placed with the help of jute rope in such a way with the bigger one that when rat has enter in the bamboo to eat, the rope needs to be cut. When the rope is cut, the	Bijoylal Majumder	East R. C. Ghat, Khowai

				narrower part is forcefully enter to the top portion of the bigger one as it is tight with the arrow and kill the rat.		
28	Bird controller (birds run-away from crop; local name - Dongki)	To protect the crop from bird attack. To run away the birds from the crop.		One bamboo of small size is splinted in two parts with one end remaining fixed. It is hold with hand at the fixed side end. After holding it, if it is shaken, it creates a typical sound which crops are protected from attack of birds.	Chandan Das	East R. C. Ghat, Khowai
29	Mango harvester (Local name - AmmParani)	To harvest mango.		It is also bamboo made tool to harvest mango. A long bamboo is taken and the top of the bamboo is splitted to make a oval shape structure with one side remaining open to enter the mango.	Gouranga Das	East R. C. Ghat, Khowai
30	Pafla (Rain and sun protector)	Protect the head from rain and sun during the field work.		It is locally made by the bamboo and dry leaves or polythene sheet. It looks like a hat. It is used by the farmer during the field work to protect him from scorching of sun and splashes of rain.	Jharna Das	East R. C. Ghat, Khowai

31	Fish net	Harvesting of fish.		<p>It is locally made with nylon rope. It is used to trap fish in pond, lakes, river etc. It is mainly used by the people any time to catch fish from pond for immediate requirement.</p>	Sripati Datta	Belonia, south Tripura
32	Paddy marker for SRI	It helps in marking the recommended spacing under SRI.		<p>Initially the major problem which farmers were facing was to marking the land to maintain recommended spacing under SRI. To overcome the overcome the Mr. BikasDebbarma developed a wooden device which helped in marking of land at a distance of (25x25). By applying his innovative idea, farmers are now adopting the SRI technology in a large scale which is helping the farmers in increasing the productivity of Paddy.</p>	Sri. Bikash Debbarma	North Pulinpur, Khowai

33	Phuta (kokborok language) or bamboo made container	It is used for keeping specially onion, chilli and other spices in the kitchen.		It is made up of bamboo or similar type materials. It looks like a container which store different materials used for cooking purpose.	Suchitra Mohan Jamatia	Twirupabari, Killa
34	Langha (kokborok language)	It is used for carrying material.		It is made up of bamboo or similar type materials. It looks like a container which is used to carry different materials.	Durga Manik Jamatia	Noabari, Killa

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