

ANNEX 1

Occurrence of *Musa* species in different geographical locations in India

States	Diversity collected				
	Genus	Species	Subspecies/type*	Section	
Tamil Nadu	<i>Musa</i>	<i>acuminata</i>	<i>ssp burmannica</i>	Eumusa	
		<i>balbisiana</i>	type <i>Elavazhai</i>		
Kerala	<i>Musa</i>	<i>acuminata</i>	<i>ssp. burmannica</i>		
		<i>balbisiana</i>	type <i>Elavazhai</i>		
		<i>laterita</i>		Rhodochlamys	
	<i>Ensete</i>	<i>superbum</i>			
Karnataka	<i>Musa</i>	<i>acuminata</i>	<i>ssp. burmannica</i>	Eumusa	
		<i>balbisiana</i>	type <i>Elavazhai</i>		
	<i>Ensete</i>	<i>superbum</i>			
Andhra Pradesh	<i>Musa</i>	<i>balbisiana</i>	type Arakku	Eumusa	
		<i>ornata</i>		Rhodochlam	
Orissa	<i>Musa</i>	<i>balbisiana</i>		Eumusa	
		<i>ornata</i>		Rhodochlamys	
Bihar	<i>Musa</i>	<i>balbisiana</i>	type Bhimkol	Eumusa	
			type Athiakol		
West Bengal	<i>Musa</i>	<i>balbisiana</i>	type Bhimkol	Eumusa	
	<i>Ensete</i>	<i>superbum</i>	type Athiakol		
Assam	<i>Musa</i>	<i>acuminata</i>	<i>ssp. burmannica</i>	Eumusa	
			type Kaziranga		
		<i>balbisiana</i>	type Bhimkol		
			type Athiakol		
			type Rissue		
	<i>Ensete</i>	<i>glaucum</i>	type Small		
Arunachal Prad	<i>Musa</i>	<i>acuminata</i>	type Khaziranga		
			<i>balbisiana</i>	type Sessa-I	
				type Sessa-II	
				type Sessa-III	
		type Seppa-I			
		<i>itinerans</i>	-		
		<i>aurantiaca</i>	type Ziro-I	Rhodochlamys	
			type Ziro-II		
		<i>rosacea</i>		Rhodochlamys	
		<i>ornata</i>			
		<i>velutina</i>	Normal type		
	Red fruited type				
	Hybrid				

States	Diversity collected			
Meghalaya	<i>Musa</i>	<i>acuminata</i>	<i>ssp.</i> burmannica	Eumusa
			type Kaziranga	
		<i>balbisiana</i>	type Bhimkol	
			type Athiakol	
Manipur	<i>Musa</i>	<i>nagensium</i>		Eumusa
		<i>acuminata</i>		
		<i>balbisiana</i>	type Themenglong	
			type Athiakol	
Mizoram	<i>Musa</i>	<i>acuminata</i>	type Kaziranga	Eumusa
		<i>balbisiana</i>	type Bhimkol	
			type Athiakol	
		<i>nagensium</i>		
		<i>glaucum</i>		
		Rosacea**		Rhodochlamys
		<i>rubra</i>		
Tripura	<i>Musa</i>	<i>acuminata</i>	type Rigitchi	Eumusa
		<i>balbisiana</i>	type Bhimkol	
			type Athiakol	
Nagaland	<i>Musa</i>	<i>acuminata</i>	type Rigitchi	Eumusa
			type burmannica	
		<i>balbisiana</i>	type Pagalapahad	
			type Themenglong	
			type Phirima	
Andaman Nicobar Island	<i>Musa</i>	<i>acuminata</i>	type Jirkatang type Chouldhari	Eumusa
		<i>balbisiana</i>	type Nicobar	
		<i>balbisiana</i>	type Mayabander	
			type My My	
			type Baratang	

Editor's note: Where a type name is given, it probably represents a domesticated clone.

ANNEX 2

Ethnobotany of Bananas and Plantains

Sl. No.	Tribe	Location	Clone or type used	Plant part used	Methodology	Form used	Properties
1	Tagins and Nitshi	Subansiri district of Arunachal Pradesh	<i>M. balbisaniana</i> (w) <i>M. nagensium</i> (w) and other domestic clones	Pseudostem sap	Collected from the wedge shaped cut on the pseudostem	Used for drink-called 'khar'	Good for diabetes and stomach ailments
2	Ahoms, Bodo Hajong, Garo Mikir	Assam	Bhinkol Athiakol	Inner core of pseudostem and fruit peel	Cut into small pieces, sun dried and burnt to obtain ash.	Drink Additive to meat	Drink as ant acid, colic and for heart burn For meat softening
3	Ahoms, Garo, Karbi, Bodo, Koch tribes Khasi	Assam, West Bengal, Meghalaya	Bhinkol Athiakol	Pseudostem	Juice extracts by crushing pseudostem is filtered and consumed orally	Drink	To dissolve kidney stones, reduce stomach ulcers and for better bowel movement
4	Kuki	Themenglong, Imphal, Noney, Irang areas of Manipur	<i>M. balbisaniana</i> , <i>M. acuminata</i>	Shoots	Fibreless inner shoots of young suckers	Salad and vegetables	-
5	Common people	Tamil Nadu, Kerala, Karnataka	Mysore (AAB), Pisang Awak (ABB)	Inner core of pseudostem	Cooked with pulses	Vegetable	To induce excess urination and dissolve kidney stones. To alleviate anaemia
6	Village folks	Tamil Nadu	Mysore (AAB), Pisang Awak (ABB)	Young growing meristem of 5 cm ³	Cooked with spices	Vegetable	To induce excess urination and dissolve kidney stones. To alleviate anaemia
7	Mizo tribes Diphu tribes	Mizoram Assam	<i>Ensete glaucum</i>	Leaf sheath	Cut into small pieces	Salad or vegetable	Source of fibre in daily diet
8	All tribes of Tirap, Lohit districts	Arunachal Pradesh	<i>M. balbisaniana</i> and edible clones	Young meristem of suckers	Chopped into pieces and added into curry	Vegetable	To remove inadvertent addition of excess salt while cooking
9	All tribes	Northeastern region	<i>M. balbisaniana</i>	One foot long bits of leaf sheath on the pseudostem	-	Coolant	For wrapping betel leaves and long distance transportation
10	All tribes	Northeastern region	<i>M. balbisaniana</i>	One foot of long bits of leaf sheath on the pseudostem	-	-	Sunshade for young transplants and seedlings

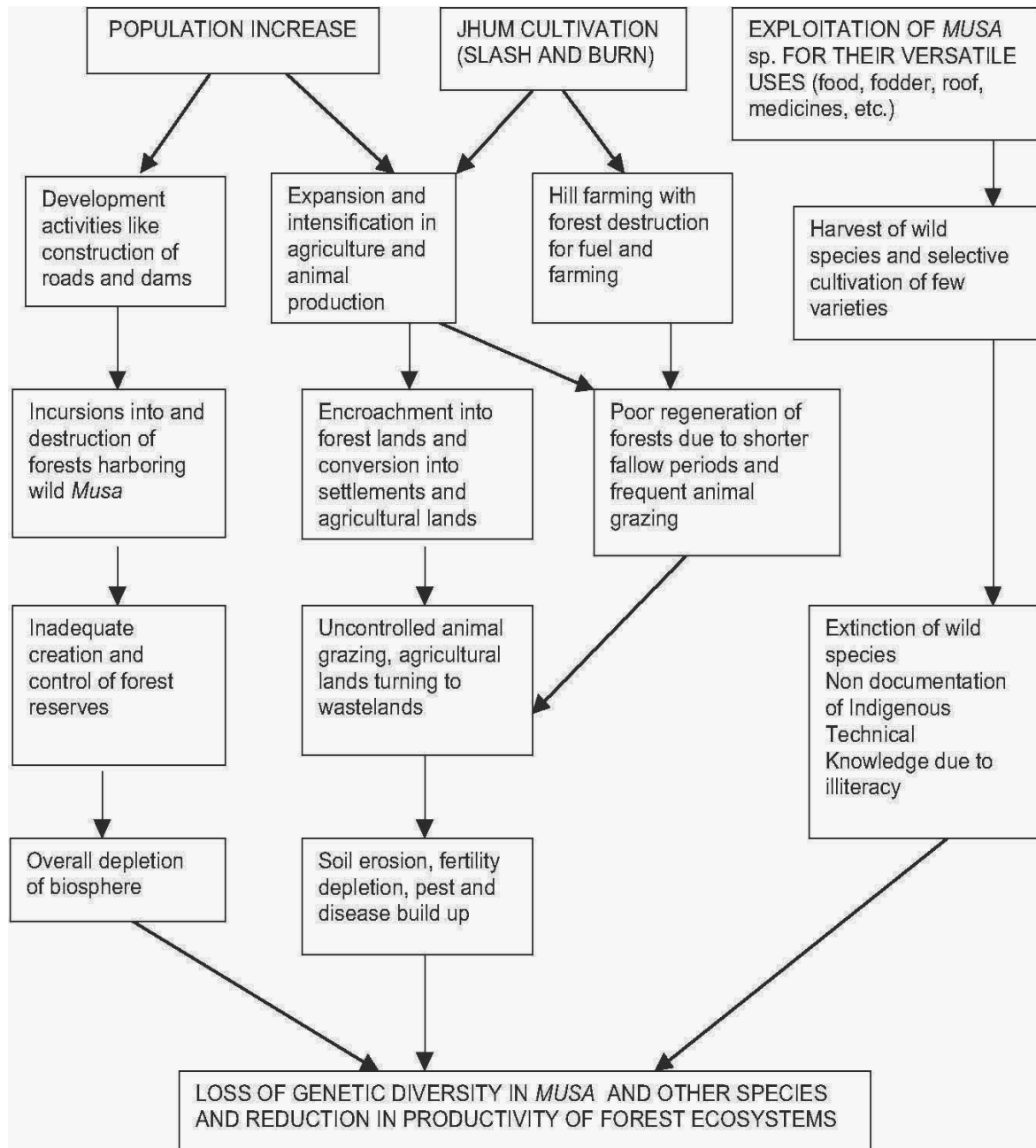
Sl. No.	Tribe	Location	Clone or type used	Plant part used	Methodology	Form used	Properties
11	Village folks	Assam	<i>Bhimkol</i>	Pseudostem	4-5 stems are tied parallelly	As a raft to cross rivers and a mode of transportation during floods	-
12	Mizo tribes	Mizoram	<i>Changtheir</i> <i>Changpui</i> <i>Chang Pawal</i> <i>Chang Vand-wat Lairoop</i> <i>Ensete glaucum</i>	Mature pseudostem	Fibre is hand extracted	For making handicrafts (with export potential)	Sustained income source
13	Apatani, Adi, Nitshi	Subansiri & Siang districts of Arunachal Pradesh	<i>M. balbisiana</i> <i>M. nagensium</i> , <i>Bhimkol</i> , <i>M. ornata</i> , <i>M. rosaceae</i> , <i>M. aurantiaca</i>	Young leaves	Fibreless young and unopened leaves are ground to paste	Poultice against burns	Cooling and early healing effect
14	Mizo Manipuri	Mizoram Manipur	<i>M. balbisiana</i> <i>M. acuminata</i> <i>M. nagensium</i>	Tender leaves	Oil smeared leaves	For dressing wounds and blistered skin surfaces	Coolant
15	Irulas	Kerala	<i>M. acuminata</i> <i>Ensete glaucum</i>	Leaves	Ash obtained by burning leaves	Inhaled by asthma patients	For relief from wheezing
16	Tangam, Sherdukpens, Mishmi Bodo, Lalung, Garo of Assam.	Dirang, West Siang, Upper Siang districts of Arunachal Pradesh. Assam	<i>M. nagensium</i> <i>M. balbisiana</i> <i>Bhimkol</i> <i>M. ornata</i> <i>M. rosaceae</i> <i>M. aurantiaca</i>	Leaves	Water proof banana leaves after scorching are used as inner lining for the wooden barrel used for making rice beer	Lining for the wooden barrels	Adds flavour to the beer
17	All tribes	Arunachal Pradesh, Meghalaya, Tripura, Manipur	<i>Bhimkol</i> , <i>Athiakol</i> , <i>M. nagensium</i>	Mature leaves	Dried leaves	As roofing material for preparing temporary sheds and animal sheds	Cheap source of roofing material
18	Common man	Tamil Nadu, Kerala, Karnataka, Assam, Tripura, Meghalaya	<i>Mysore (AAB)</i> <i>Pisang Awak (ABB)</i>	Flower buds	Cooked with pulses or with coconut	Vegetable	Good for heart and kidney stones. Anti dysmenorrhoeic
19	All tribes	Assam, Arunachal Pradesh, Meghalaya, Manipur and Tripura	<i>M. acuminata</i> <i>M. balbisiana</i> <i>M. ornata</i> <i>M. rosaceae</i> <i>M. velutina</i>	Flower buds	Cooked with pulses and cereals	Vegetable	As an alternate vegetable source during dry periods.
20	All tribes of Lohit and Tirap district	Arunachal Pradesh	<i>M. balbisiana</i> , <i>M. acuminata</i> , <i>M. nagensium</i>	Yet to emerge immature inflorescence	Cooked with pulses	Vegetable	Alternate source of vegetable during periods of dry season and hunger

Sl. No.	Tribe	Location	Clone or type used	Plant part used	Methodology	Form used	Properties
21	Adi, Mishmi, Sherdukpens etc.	Arunachal Pradesh	<i>M. acuminata</i> <i>M. balbisiana</i> and others	Flowers	Boiled	Eaten with salt and oil	For relief from joint pains and for better blood circulation
22	Ahoms, Garo, Karbi, Bodo, Koch tribes Khasi,	Assam, West Bengal, Meghalaya	<i>M. acuminata</i> , <i>M. balbisiana</i> , <i>M. nagensium</i> and <i>M. ornata</i> , <i>M. aurantiaca</i> , <i>M. laterita</i>	Root	Not revealed	In ayurvedic preparations for herbal medicines	Anthelmintic and tonic
23	All tribes	Northeastern India	All wild types of <i>M. acuminata</i> , <i>M. balbisiana</i> , <i>M. nagensium</i> and <i>M. ornata</i> , <i>M. aurantiaca</i> , <i>M. laterita</i>	Rhizome	Chopped and cooked with pulses	Cattle and pig feed	Cheap source of animal feed
24	All tribes of	Assam, Meghalaya and Lower Arunachal Pradesh	<i>Bhimkol</i> <i>Athiakol</i>	Underground rhizomes	Cut into small pieces, sun dried and burnt to obtain ash	Detergent	For washing clothes
25	Adi, Nitshi, Sherdukpen, Apatani and others	Arunachal Pradesh	Any fruit of <i>Eumusa</i> (wild <i>Musa</i> spp.)	Ripe fruit pulp	Pulp is mashed with water and sieved to remove seeds and mucilagenous pulp is collected	Additive to cereal beer made of rice, sorghum, etc.	For better fermenting of beer with fruity flavour
26	Ahoms, Garo, Khasi, Karbi, Bodo, Koch tribes	Assam	<i>Bhimkol</i>	Ripe fruit pulp	Pulp is mashed with water and sieved to remove seeds and mucilagenous pulp is collected	Additive to cereal beer made of rice, sorghum, etc	For better fermenting of beer with fruity flavour
27	Ahoms, Garo, Karbi, Bodo, Koch tribes Khasi	Assam, West Bengal, Meghalaya	<i>Bhimkol</i> , <i>Athiakol</i>	Mucilagenous pulp of fruits	Pulp is mashed with water and sieved to remove seeds. Pulp is collected, dried as flakes and powdered	Baby food with rice or milk	Easily digestible for infants
28	Local tribes of Subanisiri, Dibang, Tirap districts	Arunachal Pradesh	<i>M. nagensium</i>	Ripe and unripe fruits	Cooked with sorghum and other cereals	Pig feed	For better health of piglets

Sl. No.	Tribe	Location	Clone or type used	Plant part used	Methodology	Form used	Properties
29	Ahoms, Garo, Karbi, Bodo, Koch tribes Khasi,	Assam, West Bengal, Meghalaya	<i>M. acuminata</i> , <i>M. balbisiana</i> , <i>M. nagensium</i> and <i>M. ornata</i> , <i>M. aurantiaca</i> , <i>M. laterita</i>	Whole plant	Finely chopped and mixed with soil. Allowed to feed on plant waste and its excreta is collected for manuring	Vermicomposting	Vermicompost used as a biological manure for growth of crop plants

ANNEX 3

Drivers – effects framework showing a synthesis of causes and effects of biodiversity loss revealed by the case study on “Farmers’ Knowledge of Wild *Musa* in India”



FARMERS' KNOWLEDGE OF WILD *MUSA* IN INDIA

This publication provides an overview of general occurrence of *Musa* species in different geographical locations and agro-ecological zones in India, and describes *Musa* genetic diversity and its conservation by ethnic groups. It provides an insight into the indigenous knowledge regarding multiple uses of wild and cultivated bananas for the benefit and advantage of the local communities. It summarizes the implications of farmers' production systems on the ecosystem and contributes to a better understanding of some of the causes and effects directly related to the risk of loss of banana biodiversity in India and makes recommendations on steps that should be taken to expand the use of wild *Musa* in breeding programmes.

