

## Building village economies through climate farming & forest gardening (BeChange)

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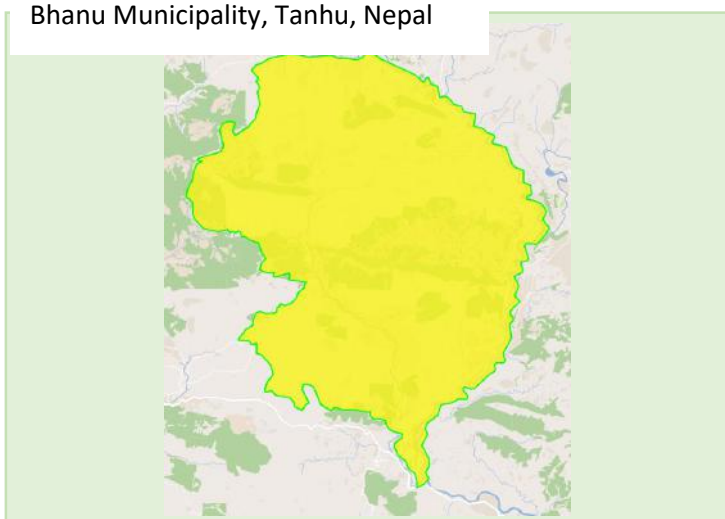
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**Bio\*** Graduated PhD in Rural Development and Watershed Management from Asian Institute of Technology, Thailand in 2004, Dr. Pandit has been involved in promoting forest garden project with 218 farming families as a collaborative activities of IPSI, KAFCOL, Ministry of Forests and Environment (MOFE) and Ithaka Institute for Climate Farming, Nepal. Completed more than a dozen of research projects with various organizations (FAO, ADB, CIFOR, SDC Nepal, SNV Nepal, ICIMOD, FECOFUN etc.) related to climate change adaptation, forest enterprise development and biochar based organic fertilization. Recently, he has been involved as a Lead National Agroforestry Expert for developing National Agroforestry Strategy and Action Plan with the Ministry of Forests and Environment funded by Food and Agricultural Organization of United Nations.

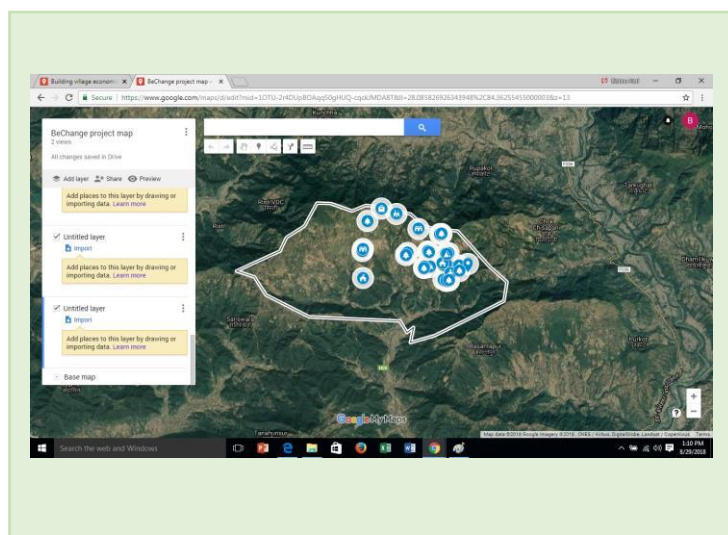


### Geographic and demographic information

Bhanu Municipality, Tanhu, Nepal



Country	Nepal
Province	Pokhara
District	Tanhun
Size of geographical area	184 km <sup>2</sup>
Number of indirect beneficiaries	46,179 persons Men : 20,045 persons Women:26,134 persons
Dominant ethnicity	Gurung/Magar and Chhetri/ Brahmin



Size of project area	25.4 km <sup>2</sup>
Number of direct beneficiaries	persons (Men: persons) (Women: persons)
Geographic coordinates (longitude and latitude)	Longitude: 84.3625°E Latitude: 28.08582°N
Dominant ethnicity	Chhetree and Gurung

## Ecosystem Types

X	Forest	X	Grassland	X	Agricultural		In-land water
	Coastal		Dryland	X	Mountain		Urban/peri-urban

## Important species in the site

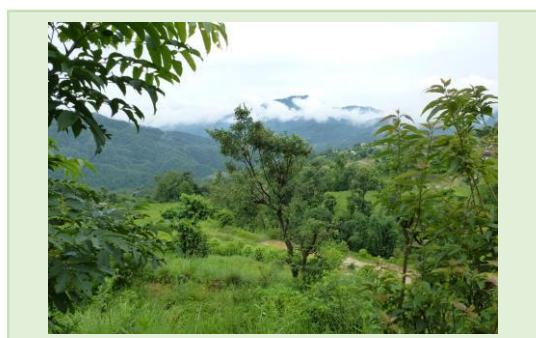
English common name (Local name)	Scientific name	Description
Bay leaf	<i>Cinnamomum tamala</i>	Cinnamon leaf and bark is used for spices and perfume making. Its essential oil is good medicine for gastric.
Blue marble or bead tree	<i>Elaeocarpus ganitrus</i>	Has religious significance and its bead is use as garland by Hindu Priest.
Champak	<i>Michelia champaca</i>	Used as a source of food, medicines and a range of commodities. It is particularly valued for its essential oil and timber
Mulberry	<i>Morus alba</i>	Leaf of cinnamon is used for food of silk worm and also used for making organic tea
Butter tree	<i>Bassia butyracea</i>	Vegetable ghee production, candle manufacturing and soap making.



Figure 1  
*Michelia champaca*

## General introduction

BeChange project has been implemented in two villages (Ratanpur and Bandipur) of Tanhu district of Nepal. A total of 42000 mixed tree species that are locally threatened (such as *Michelia*, *Elaeocarpus*, *Cinnamomum tamala*) were planted on 50 ha of abandoned agriculture land of 218 farm families. About one-third of the population in these villages falls below the poverty line (base line report). Food produced in private farm lands can feed only 11 percent of households for the whole year. The remaining households depend on off-farm and other sources for their food and survival. Farmers in these villages have been hard-hit by water scarcity. To address the climate related risks and to enhance livelihoods of the people living in these villages, this project provided support to mostly disadvantaged, low-income woman farmers to establish sustainable forest-garden systems on abandoned private farmlands. These activities were linked to cultural eco-tourism, cinnamon leaf essential oil distillation and intercropping of high value shade loving crops such as ginger, turmeric, and lentils. Moreover, the project contributed to the conservation of upstream and downstream watersheds by planting erosion resisting trees and vegetation, and by constructing small irrigation ponds. Since 2016, the project has been mainly financed by voluntary carbon credits paid for atmospheric carbon sequestered in forest biomass and soil applied biochar.



Caption: Forest garden on abandoned agricultural land



Caption: Lady receiving carbon payment

**Contribution to Aichi Biodiversity Targets' Strategic Goal B**

		<b>Breakdown Target</b>	<b>How did you measure the outcome?</b>	<b>Result</b>
<b>Strategic Goal B</b>	<b>TARGET 5</b>	The rate of loss of forests is at least halved and where feasible brought close to zero	Community monitoring and observation	First year 60 % tree survived; Second year and third year tree survival reached to 70% from the total of 42000 trees planted.
		The loss of all habitats is at least halved and where feasible brought close to zero	Community reporting	Bear and tiger re-appeared in the village. One of the village men was attacked by bear in 2017.
		Degradation and fragmentation are significantly reduced	Mapping of forest garden	1039 farmers established forest garden, now using plant from farmers' grown nurseries
	<b>TARGET 6</b>	All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches	NA	NA
		Recovery plans and measures are in place for all depleted species	Planning of forest nurseries of threatened species with local government	Five forest nurseries already established and functional producing at least 30,000 tree saplings of threatened species
		Fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems	NA	NA
		The impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, i.e. overfishing avoided	NA	NA
	<b>TARGET 7</b>	Areas under agriculture are managed sustainably, ensuring conservation of biodiversity	Observation and mapping	Disappeared species (Michelia, Cinnamon and <i>Elaeocarpus</i> spp) re-appeared and people taking benefits of intercropping.
		Areas under forestry are managed sustainably, ensuring conservation of biodiversity	A triad system of forest management adopted	A total of 50 ha abandoned and degraded agricultural land managed by planting locally threatened tree species (Michelia, Elaeocarpus, Cinnamon tamala)
	<b>TARGET 8</b>	Pollutants (of all types) have been brought to levels that are not detrimental to ecosystem function and biodiversity	NA	NA
		Pollution from excess nutrients has been brought to levels that are not detrimental to ecosystem function and biodiversity	NA	NA
	<b>TARGET 9</b>	Invasive alien species identified and prioritized	Eupatorium species are used as feedstock for making biochar	Invasive species (Eupatorium odoratum) are used to make biochar, by means of which their population decreased by 50%
		Pathways identified and prioritized		
		Priority species controlled or eradicated	Community leaders evaluate about removal of alien species	At least half of the farming households (total 218 hhs) are engaged in biochar making using Eupatorium feedstock
		Introduction and establishment of IAS prevented		
	<b>TARGET 10</b>	Multiple anthropogenic pressures on coral reefs are minimized, so as to maintain their integrity and functioning		
Multiple anthropogenic pressures on other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning				

### Relations to other Aichi Biodiversity Target & SDGs

Please indicate the Aichi Biodiversity Targets other than the targets your working group focuses and SDGs that your activities contribute to if any. Use “●” and “■” to indicate the “direct” or “indirect” contributions to the targets.

CBD Aichi Biodiversity Targets (<https://www.cbd.int/sp/targets/>)

Strategic Goal A				Strategic Goal B					
●	■	■	■	■	NA	●		●	
Strategic Goal C			Strategic Goal D			Strategic Goal E			
	●		■	●	■	■	■	■	■

UN Sustainable Development Goals (SDGs) (<https://sustainabledevelopment.un.org/sdgs>)

■	■	■			■			
			●		●			

### Any difficulties you found during your assessment

Measuring or doing assessment of the biodiversity is time consuming and largely based on qualitative judgment, which demands for a highly qualified and professional researcher. In the context of increasing demand of additional agricultural commodities to supply food for increasing population, . only addressing biodiversity needs may not be enough for rural population. In order to address this challenge, we need to increase food production and productivity of agricultural land with maintaining biodiversity of the plant communities. Most male partners are out of their villages and communities, only involving female members of the households increase workload of female members of the households.

### Key messages for the CBD in planning for the post-2020 Targets

Considering the potential consequences of gradual reduction in the production and biodiversity loss on the agricultural land and increasing scale of abandoned land, the following points need to consider as key messages:(i) assessing the current status of biodiversity on abandoned agricultural land applicable to generate income for the poor farmers (ii) testing of best-bet agro forestry options that provide high income and at the same time maintain local biodiversity; (iii) exploring market possibilities for the selected products from these options;(iv) analyzing institutional challenges, especially tenure issues, associated with increasing biodiversity on abandoned agricultural land; and (v) proposing options for wider application while simultaneously analyzing policy implications associated with growing and marketing products from under-utilized/abandoned agricultural land.