

A photograph showing three individuals sitting on the ground in a field of palm trees. The person on the left is wearing a light-colored shirt and a pink scarf. The person in the middle is wearing a yellow shirt and a dark vest. The person on the right is wearing a grey shirt. They appear to be engaged in a discussion or interview. The background is filled with tall palm trees and some other vegetation.

# Baseline Study Results

**Rodent issues, species, perceptions and management in 3 local communities in Nepal**

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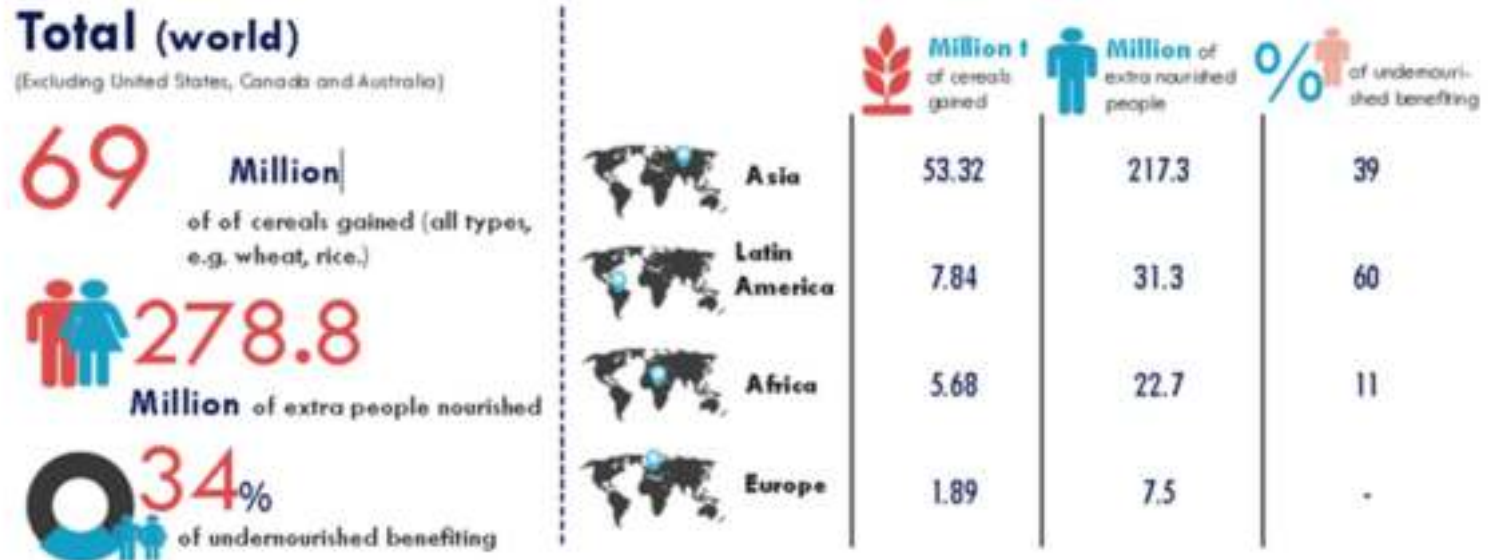
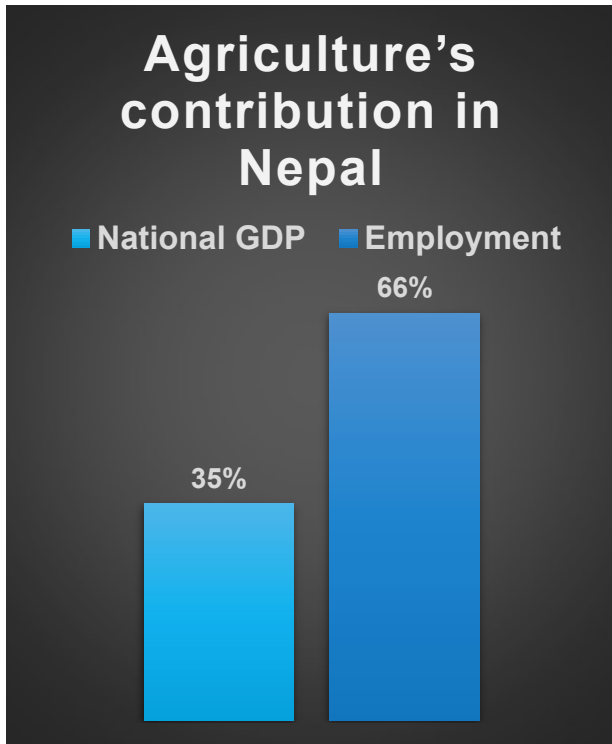


# Outline

1. Introduction
2. Objectives
3. Methodology
4. Results
5. Conclusion
6. Recommendations



# 1. Introduction



Source: Meerburg et al (2008). Data derived from FAOSTAT

‘Latest’ data from Nepal is a study in **1984-1992** done by Prevention of Food Losses (PFL)” and “Rural Save Grain Programme (RSGP). They found estimated rodent **post-harvest losses of 15-20%** in cereals (mainly paddy, wheat, and maize).

☐ There is a need for up-to-date information on food losses due to rodents and management practices.

## 2. Objectives of fieldwork

01

Assess species richness, ecology and population dynamics of rodents in rural and urban contexts.

02

Understand public perception on rodents' related issues, health and management.

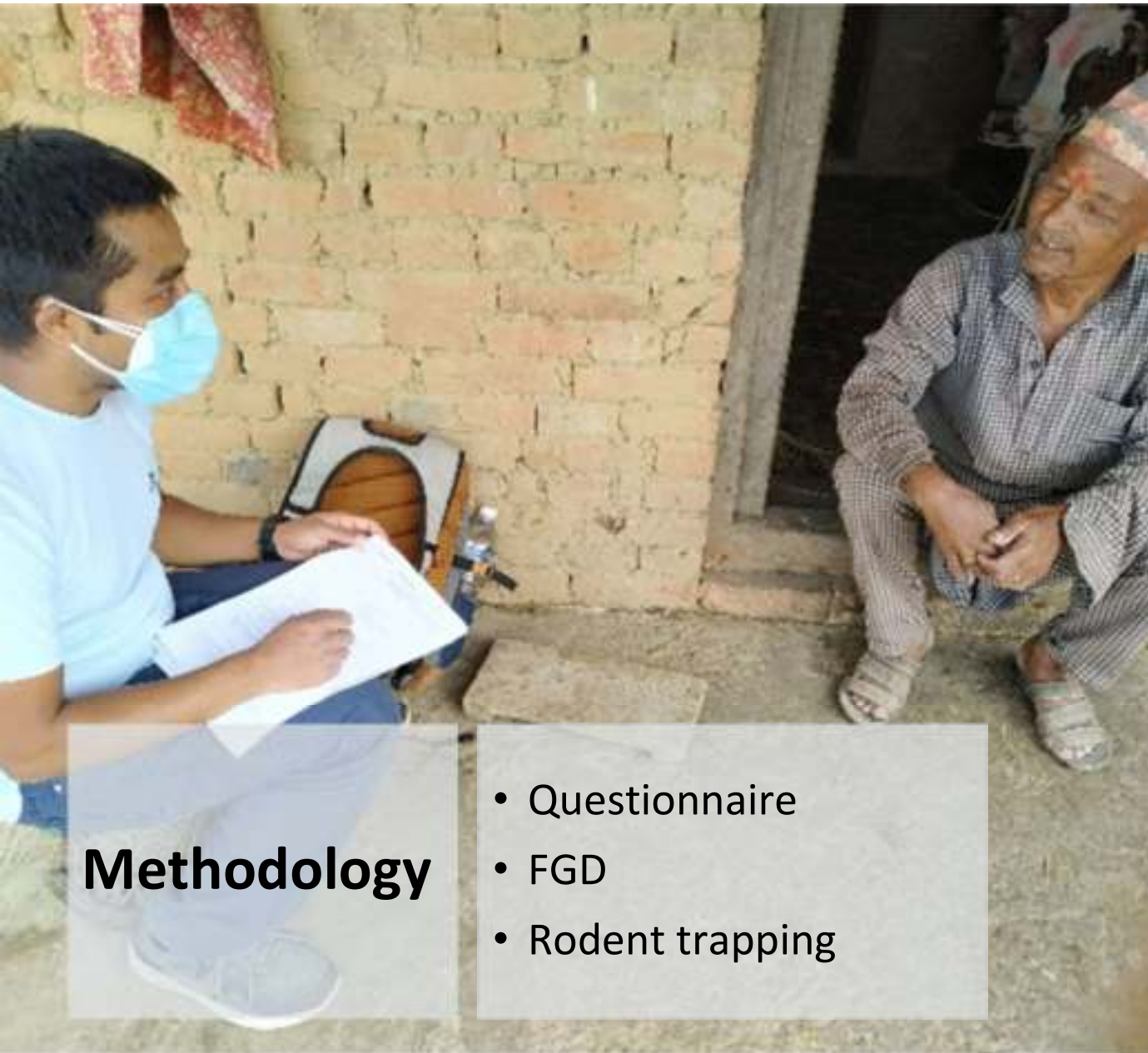
03

Assess damage incurred by rodents to crops in field and in storage.

04

Understand community willingness to adopt Ecologically-Based Rodent Management (EBRM)



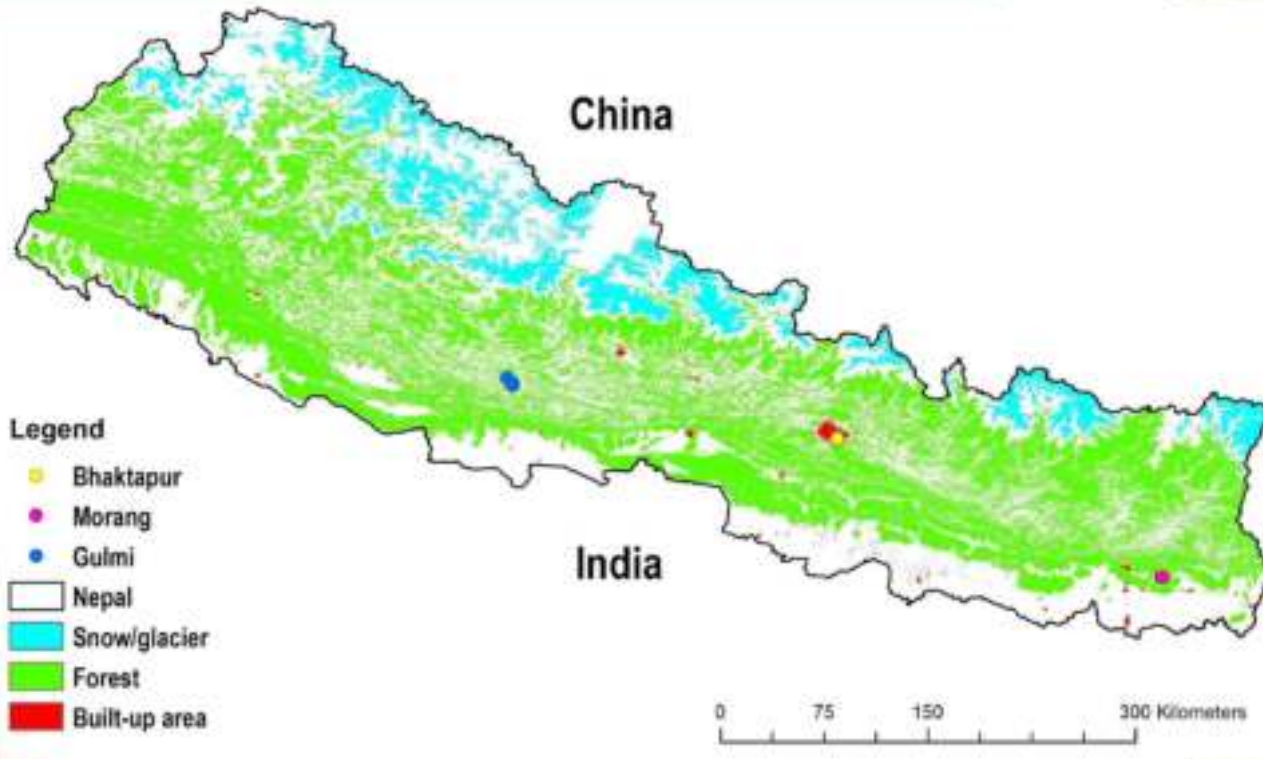


Site	Province	District	Municipality	Area	Characteristics
1	Province no 1	Morang	Letang	Kheruwa village	Terai, south-east Nepal, 100 asl.
2	Province no 3 Bagmati	Bhaktapur	Suryabinayak	Dadhikot	Peri-urban, Kathmandu valley, 1400 asl.
3	Province 5 Lumbini	Gulmi	Gulmidurbar	Durbardev isthan	Mid-hill, mid-west Nepal, 1600 asl.



Dadhikot

# Study areas



Kheruwa

Gulmidurbar





## 4. Results

### 4.1 Agricultural systems

2 planting seasons: during monsoon & during winter.

Main crops: paddy rice, maize, wheat and vegetables.

Mainly for self-sufficiency

Cropping calendar

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Dadhikot	& vegetables		Paddy rice					Wheat				
Kheruwa			Paddy rice/ Maize/Vegetables			Paddy rice			Potato			
Gulmidurbar	& vegetables		Maize					Millet (sometimes intercropped with maize)		Mustard, wheat, berley		



## 4.2 Rodent species

Mice: *Mus booduga*, *Mus musculus* & *Mus cervicolor* (mainly homes)

Shrew: *Suncus murinus* (homes and fields)

Rat: *Rattus rattus* (homes)





## 4.3 Rodent infestation and problems

All people face rat problems

Rats damage household and storage items

Mud/wood/unbaked bricks are chewed by rats



## 4.4 Crop loss

Paddy, maize, wheat & millet are most damaged

- Paddy is mostly damaged after harvesting time
- Maize, wheat & millet damaged both in field and in storage
- Storage is often not sealed, thus favourable for rats to access



Area	Crop type	Crop loss (% total produce field & storage)	Monetary loss (NPR/ha)	Explanation on loss
<b>Dadhikot</b>	Paddy rice	8-21%	21000	1-2 months of income
	Wheat	10-38%	14000	Cropped in dry time, thus high rodent interference
<b>Kheruwa</b>	Maize & Paddy	5-10%	10000-20000	1 month of income
<b>Gulmidurbar</b>	Maize	30-50%	8400	Loss of 136-200 kg of maize
	Millet	>50%	1200-3000	Millet mostly used for own consumption, thus direct food loss to family
	Mustard	5-10 %	9000	Mustard is high value crop



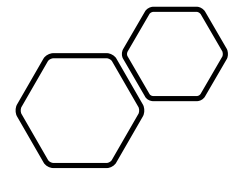


## 4.5 Public health concern

People not aware of diseases

Rat bites occur sometimes

Poverty main cause to not avoid rat contaminated food items and utensils causing health risk





## 4.6 Rodent management

### Storage material

Local materials (bamboo, sacks) easily attacked by rats

Few people use plastic, metal or tin drums/containers

Animal feed is just piled on the floor

People know, but have no money to buy improved storage



## 4.7 Current rodent control measures

Chemical rodenticide/poison, though not very effective

Some thorny/prickly plants to plug burrows

Locally made rat traps

Blocking rat routes/holes





A group of people are gathered under a traditional thatched roof structure, possibly a community meeting or a traditional gathering. The scene is outdoors, with wooden pillars supporting the roof. In the foreground, a woman wearing a pink and blue striped shawl and a floral patterned dress is seated, looking towards the group. Other people are seated around her, some wearing face masks. The background shows more of the structure and some greenery.

## 4.8 Suggestions by local community

- Store food in separate room/building, seal it properly
- Cement floor
- Use good storage material, like metal bin
- Keep the house clean
- Raise awareness
- 'We work individually, but that does not help against rodents.'



## 5. Conclusion

- **Enormous damage caused by rodents is disproportionate to management options available.**
  - People rely on individual effort, mainly based on chemicals, which renders ineffective.
  - No advice/training provided on effective rodent management.
- **Poverty restrains people in tackling rodent problems.**
  - Local materials used which are unsafe against rodents.
- **Lack of awareness on rodent-borne diseases.**





## 6. Recommendations

1. We need to raise awareness among local communities on health risks due to rodent infestation and contamination.
2. Training is needed on effective rodent management, e.g. with Ecologically-Based Rodent Management (EBRM).
3. We need to enhance research on rodent species, populations, ecology, behaviour, damage and management methods.