

DRIVERS OF INTENSIVE AGRICULTURE EXPANSION IN AMPUSONGAN WATERSHED BENGUET, PHILIPPINES



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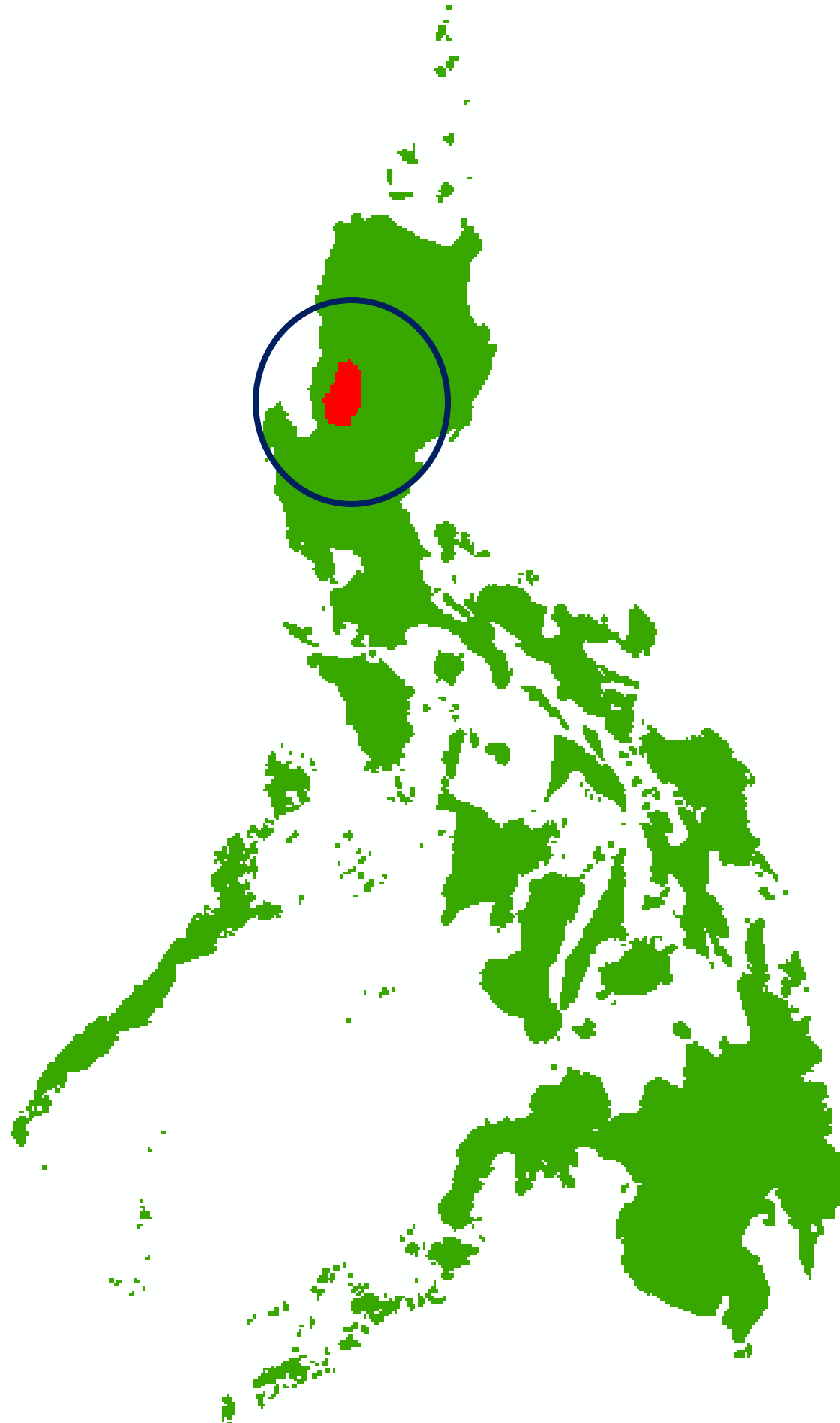
PRESENTATION OUTLINE

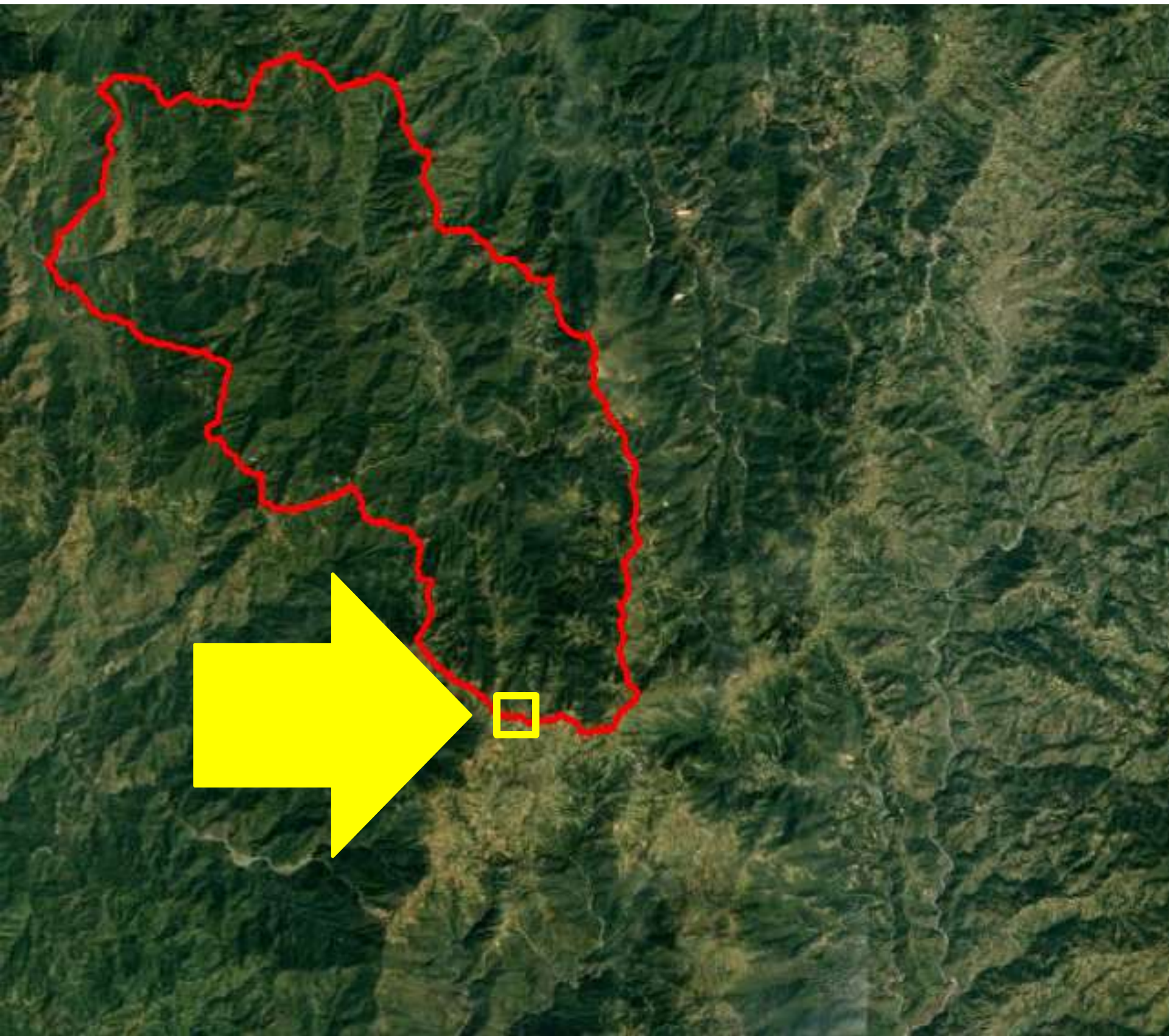


- **RATIONALE**
- **OBJECTIVE**
- **METHODOLOGY**
- **KEY FINDINGS**
- **RECOMMENDATIONS**
- **TAKEAWAYS**

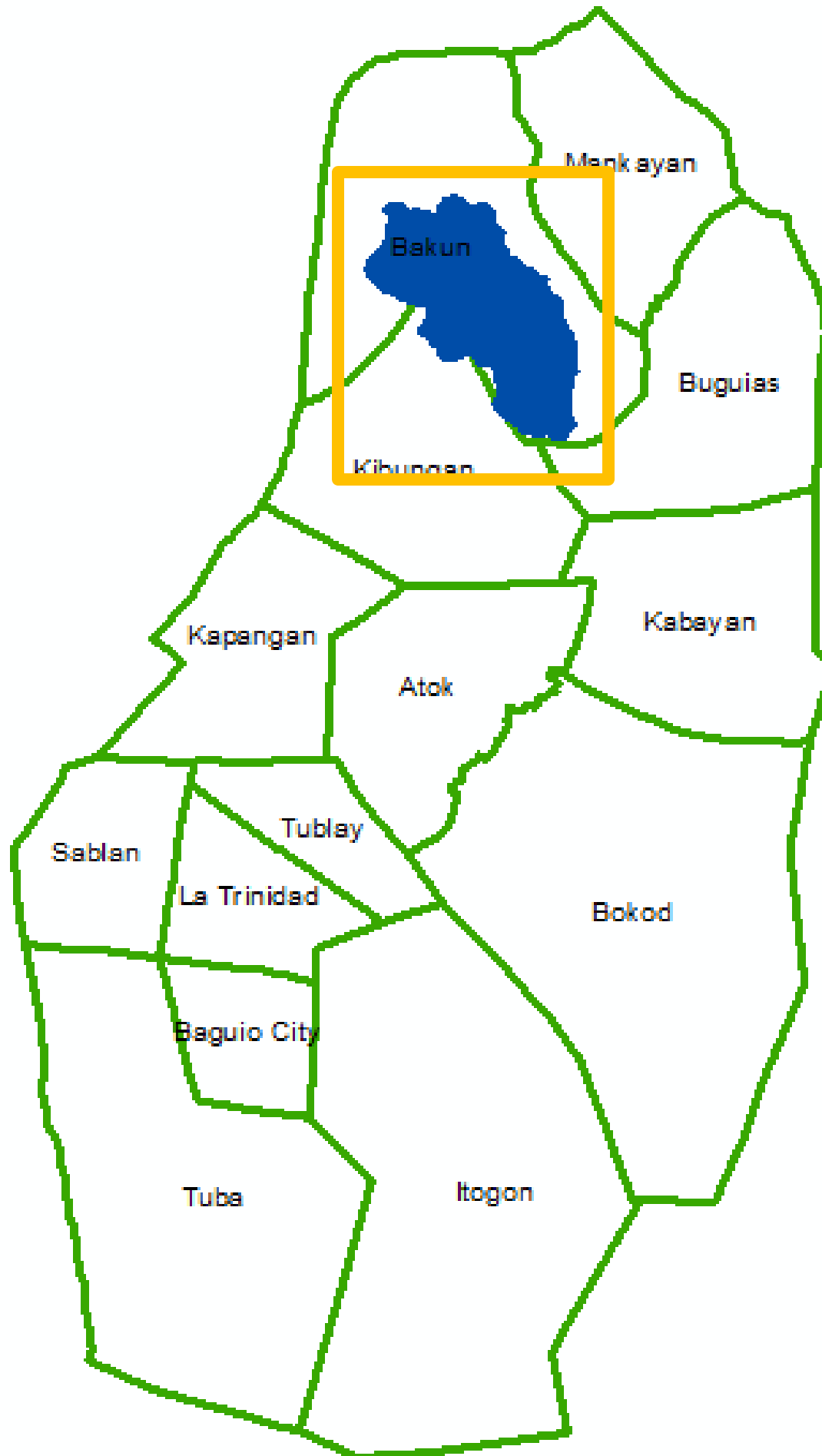
RATIONALE

- **food, livelihood, forest and people are key factors to sustainable development**
- **agriculture intensification is needed to achieved food security**
- **forests are crucial to agriculture and food security, however are threatened**
- **sustainable progress are coherent and integrated**
- **protecting key players and vulnerable people**
- **People engagement to understand problems at the local setting**





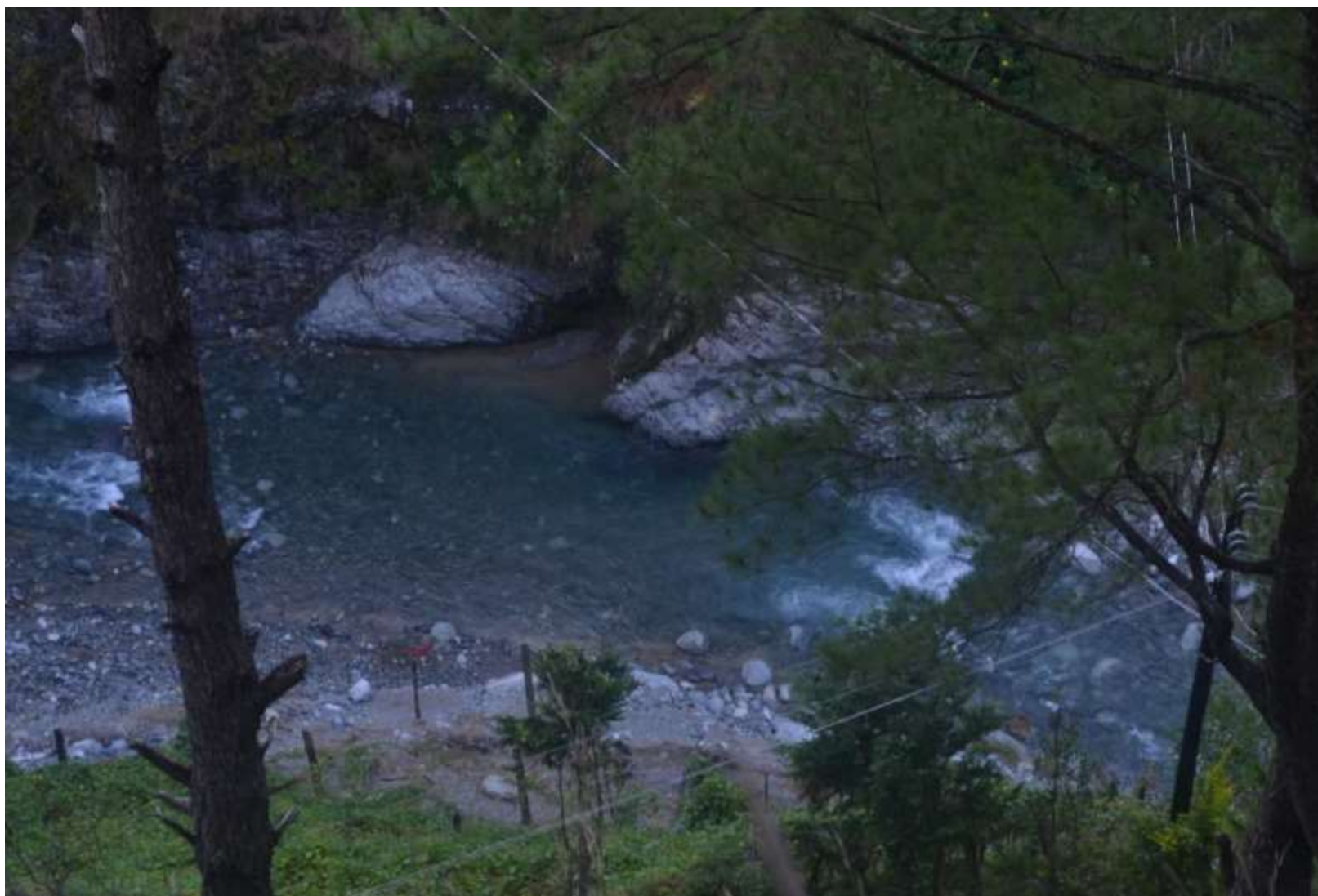




Tropical Lower Montane Rainforest











FOOD



Photo Courtesy of baquioheraldexpress.com

SECURITY

<http://foodevolution.com.ph/2016/02/government-eyeing-cut-palay-production-cost->

Edible mushrooms





Edible fresh water species



https://www.google.com.ph/search?q=C RABS+IN+BENGUET&espv=2&biw=1366&bih=638&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjK6ZzS7p_SAhUNNpQKHUgLD5QQ_AUIBigB#tbm=isch&q=FRESH+WATER+CRABS+IN+BENGUET&imgsrc=wgDYojd1uwyX2M:

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**Watershed forests are cultivated
from headwaters going down**



**Forest in some headwaters are
almost gone**





CHALLENGE???

...a need of conserving the forest to safeguard watershed services while sustaining agriculture...

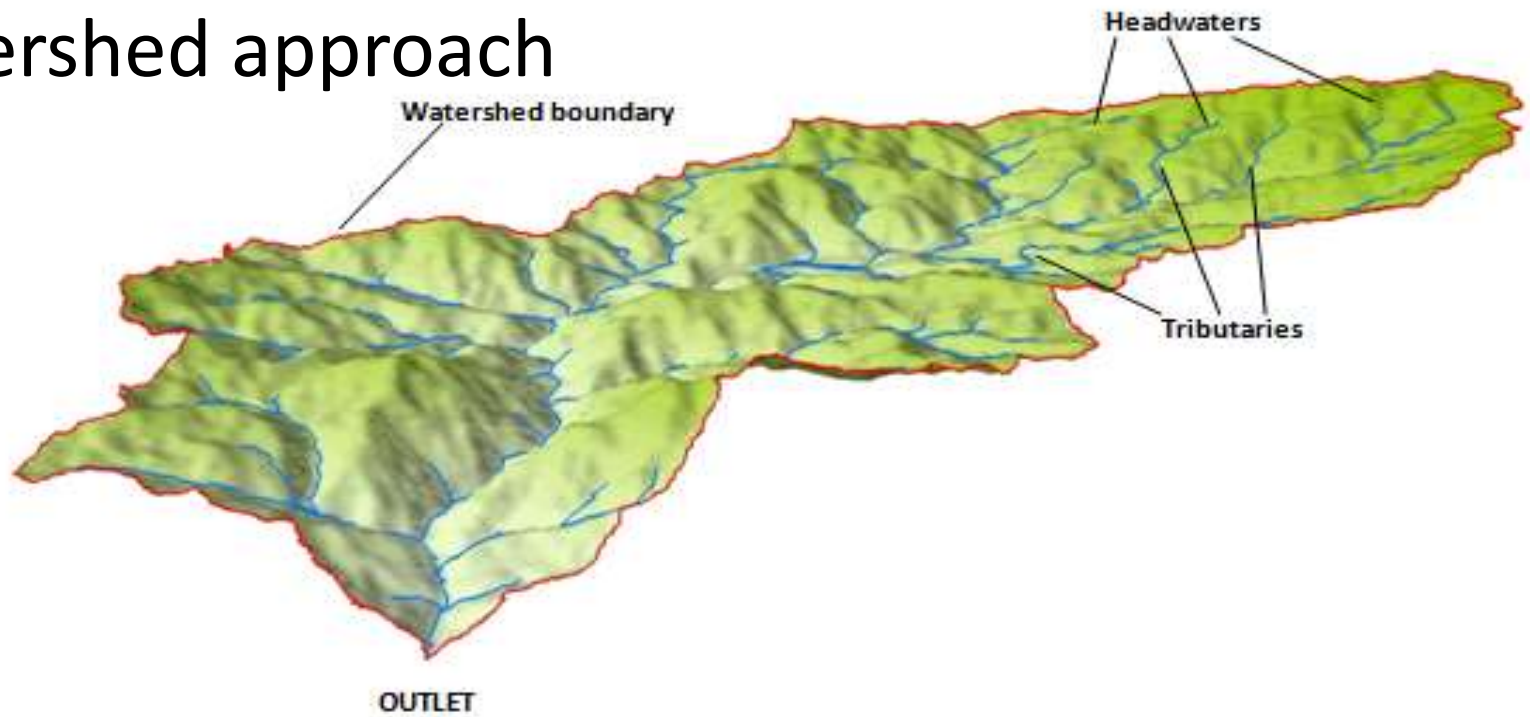
OBJECTIVE

Understanding the reasons of agriculture expansion in forested areas

Aide in developing better planning, policy making and management

METHODOLOGY

- **Systems theory** using the landscape or watershed approach



- KII and Household survey based on **Central Limit Theorem (CLT)**



- Statistical data analysis (IBM SPSS Version 20 program)

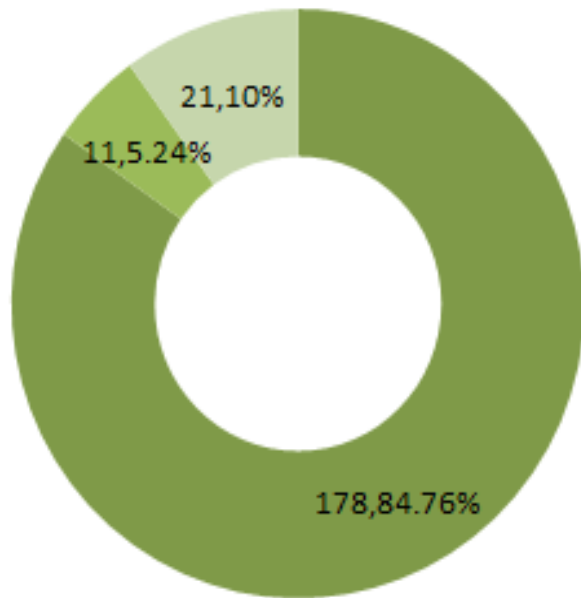
Purpose	Statistical Method
Test for independence for categorical data	Chi-square test (χ^2), and Fishers' Exact Test
degree of relationship/correlation of two variables	Pearson Correlation Analysis
compare the means of two or more samples for numerical data	One-Way ANOVA
determine specific significant relationship	Tukey Post Hoc Tests

KEY FINDINGS

LIVELIHOOD DISTRIBUTION

Respondents (N=210)

■ Farming ■ Non-farming ■ Both



BAKUN

Ampusongan, Poblacion, Gambang, Sinacbat, Dalipey

KIBUNGAN

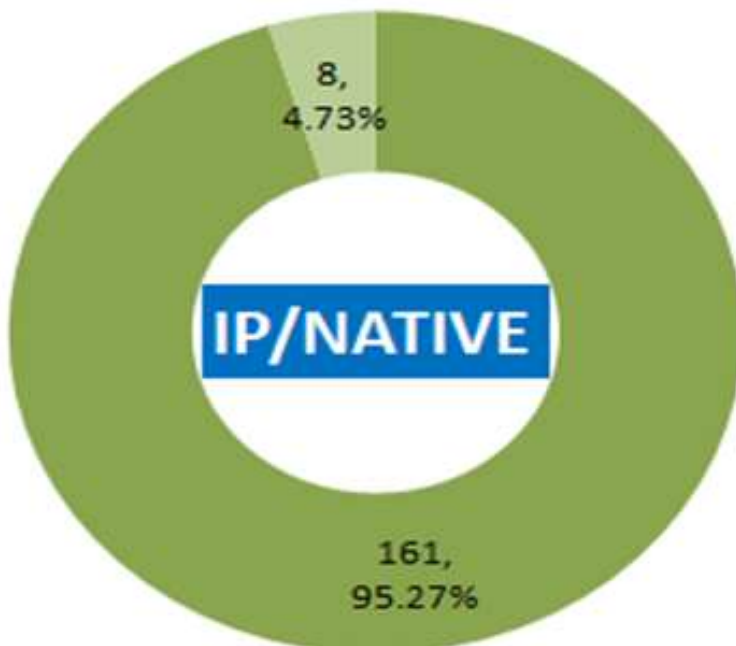
Madaymen, Palina

More than 90% are farming

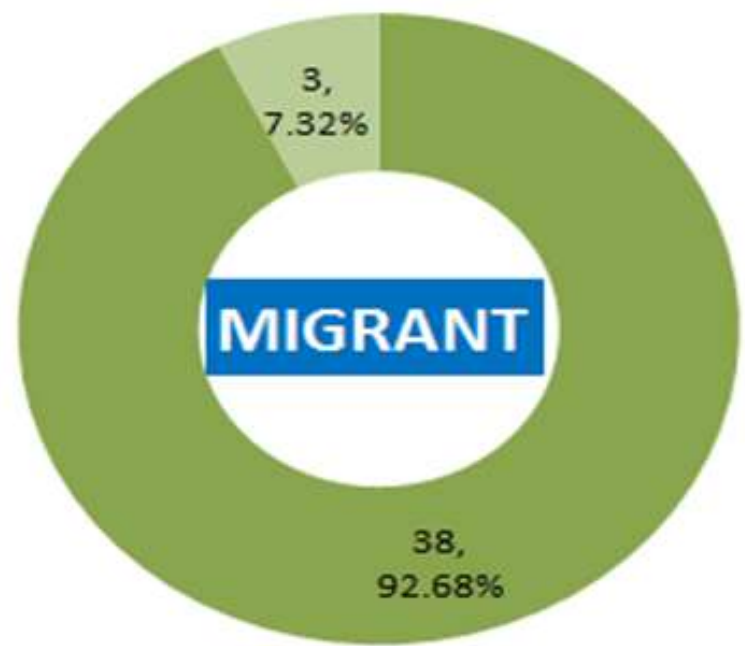
ETHNICITY INFLUENCE

Respondents (N=210)

■ Farming ■ Non-farming



IP/NATIVE



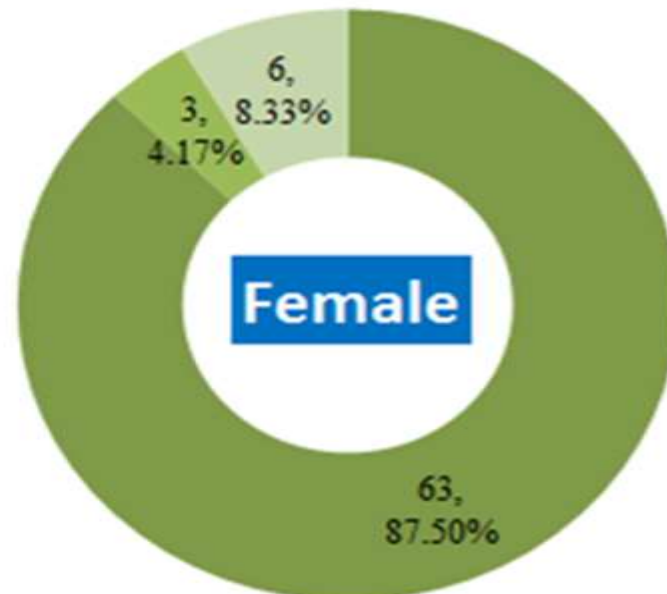
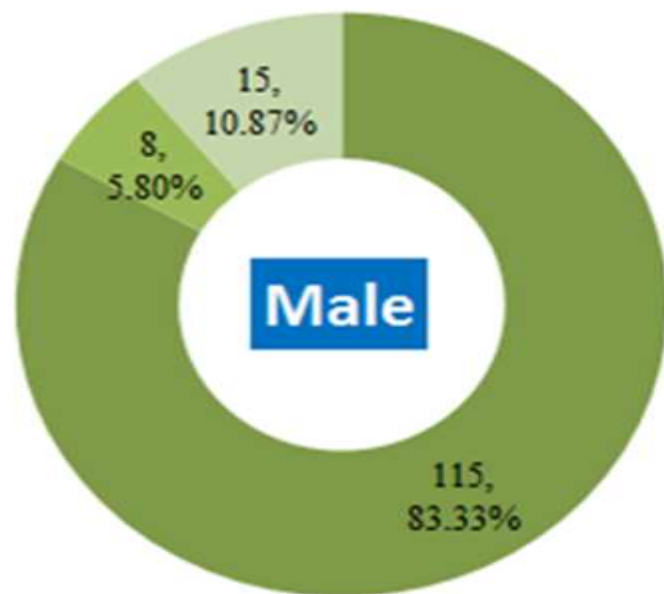
MIGRANT

Both natives and migrants are actively engaged

GENDER INFLUENCE

Respondents (N=210)

Farming Non farming Both

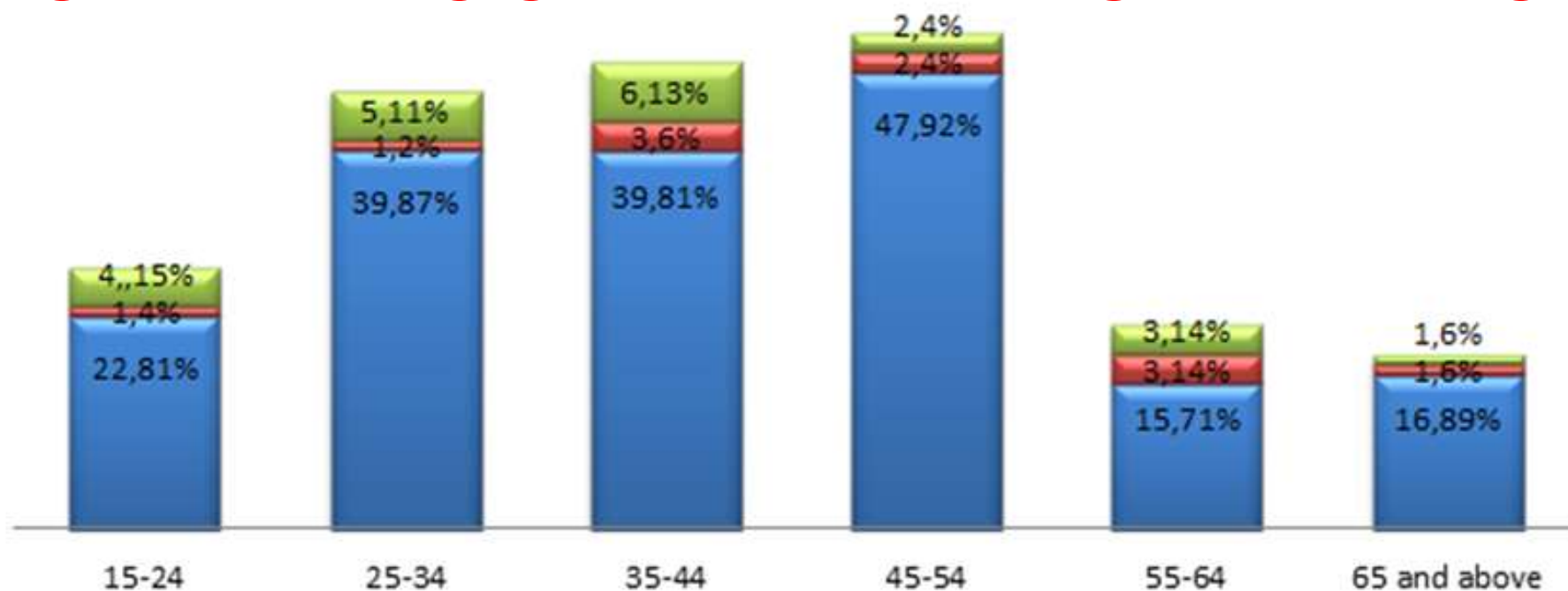


AGE INFLUENCE

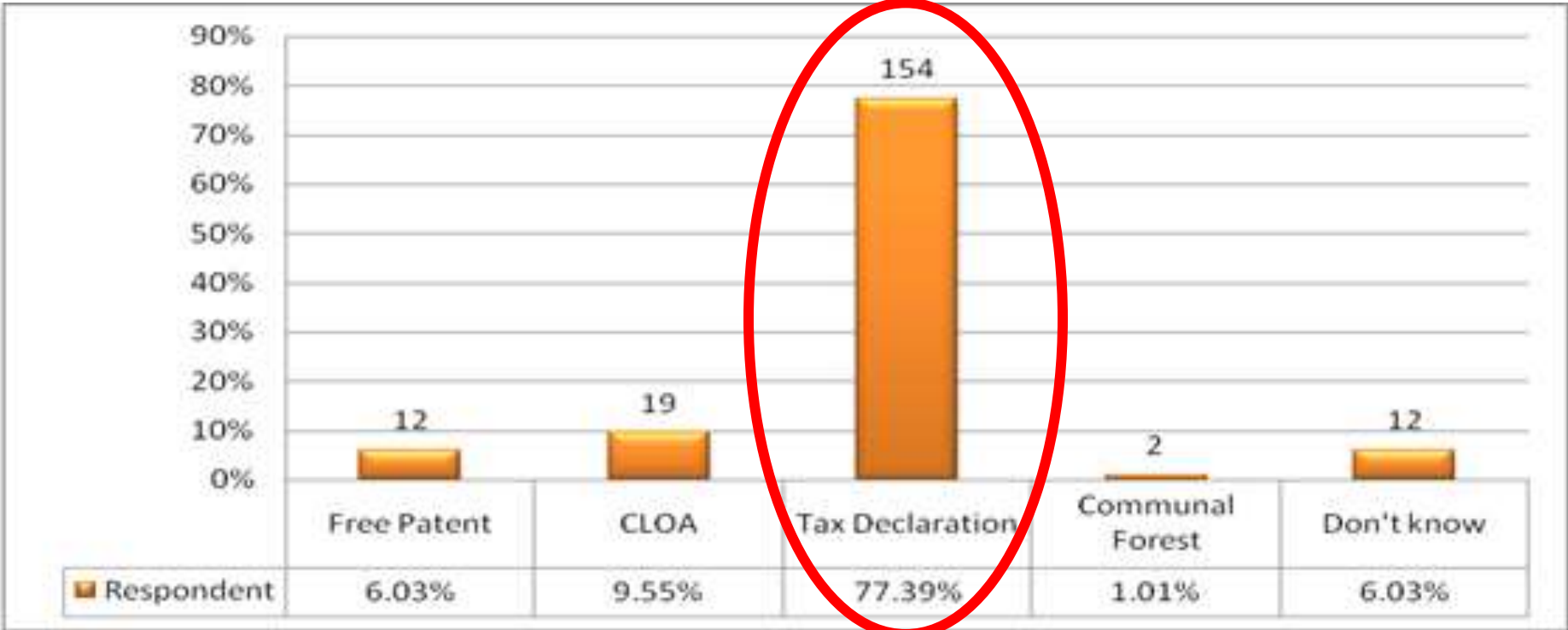
Respondents (N=210)

Farming Non farming Both

Agriculture engagement cut across gender and ages

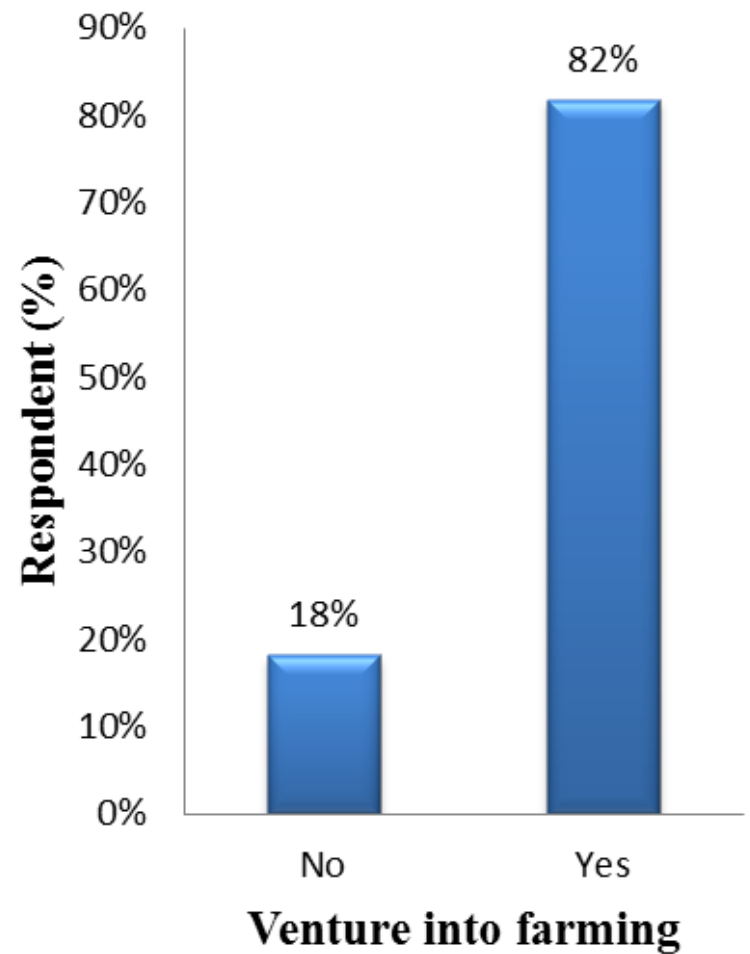
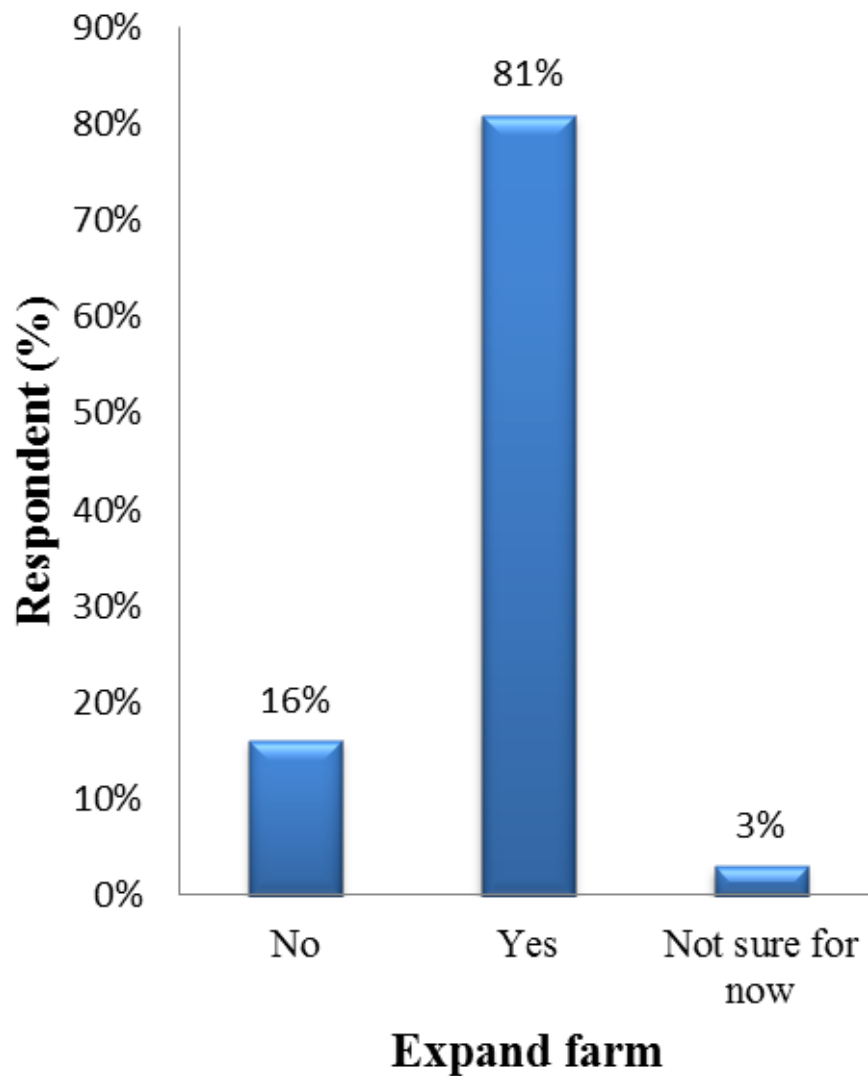


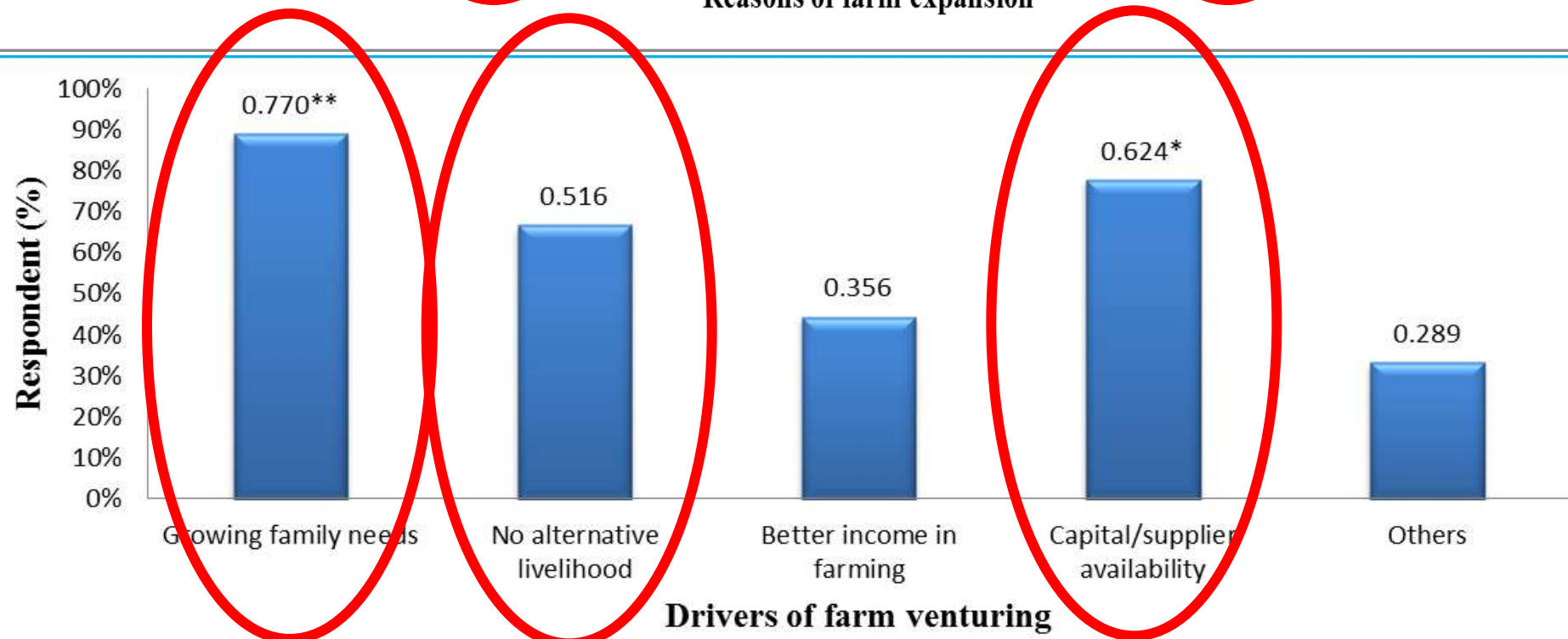
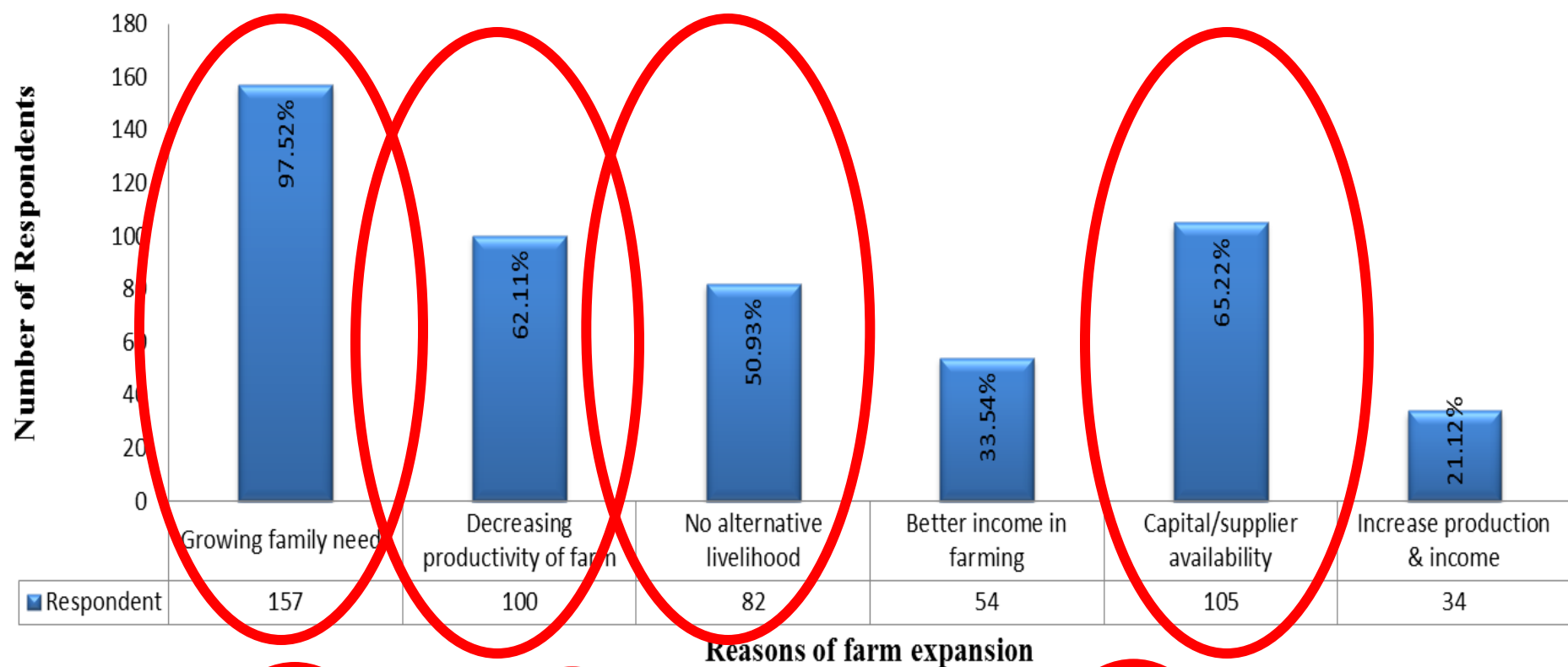
LAND TENURE STATUS?



Farm tenure distribution in the Ampusongan watershed

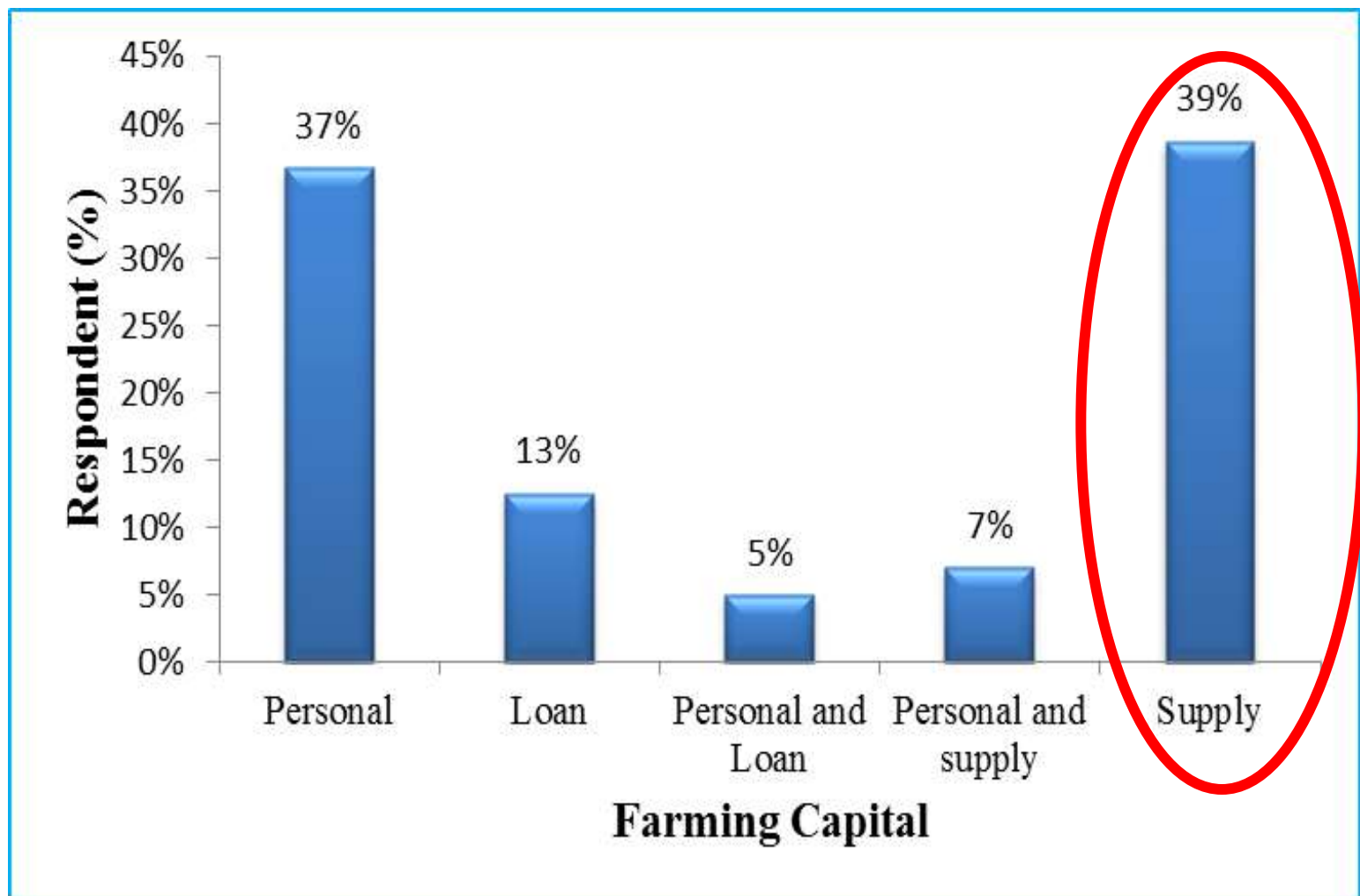
High percentage of wanting to expand farms And engage in farming



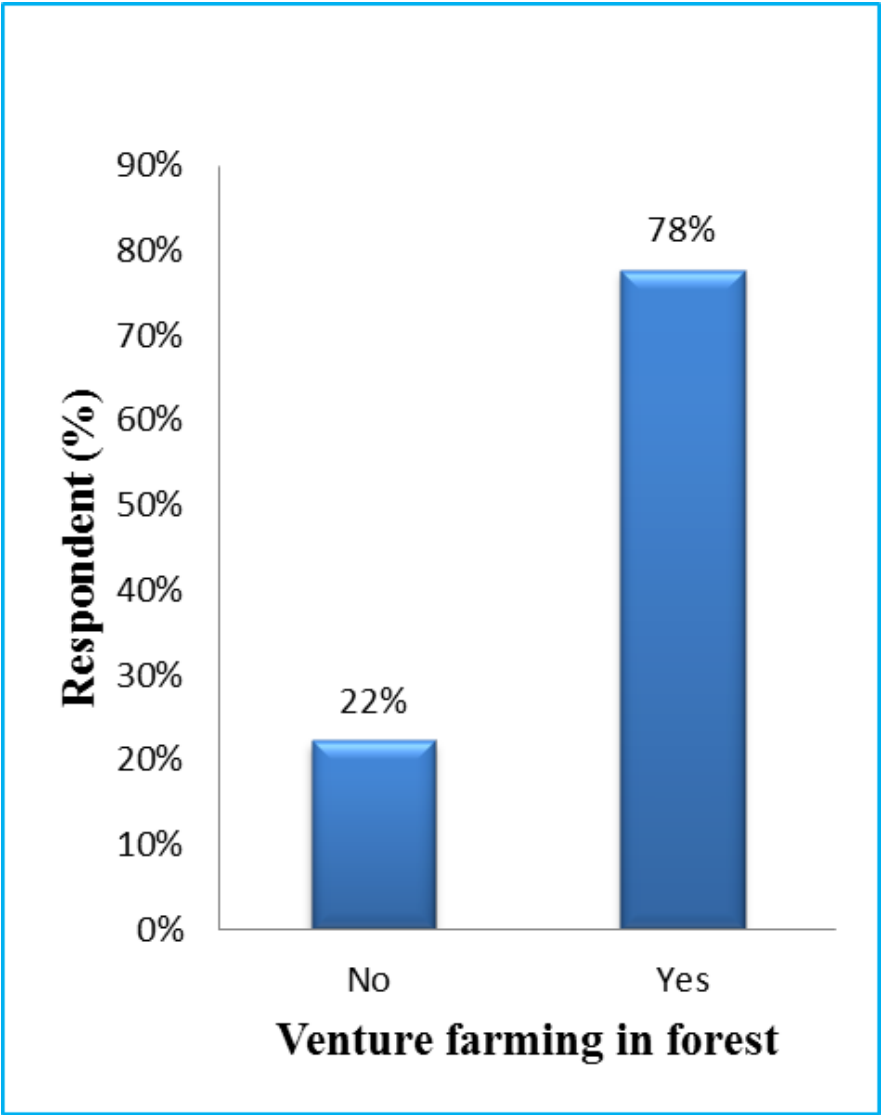
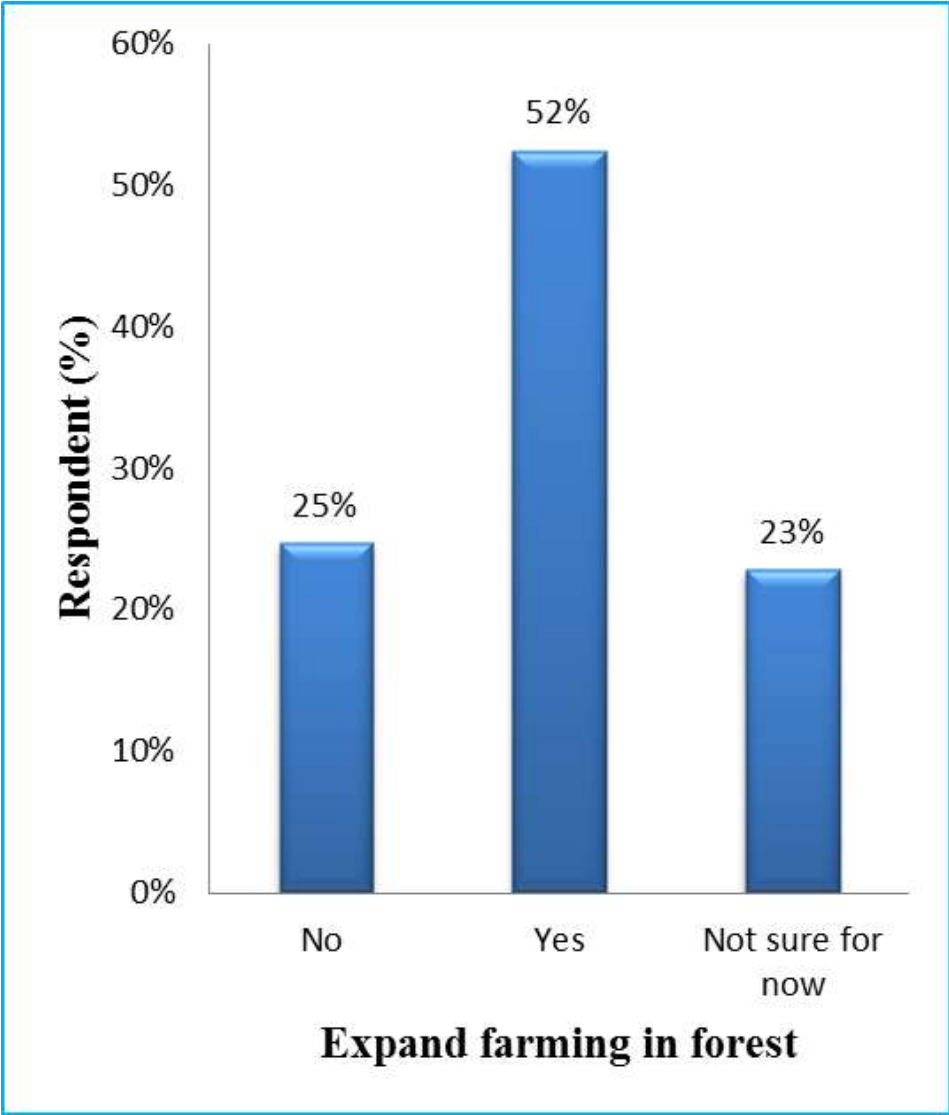


Socio-economic reasons of farm expansion

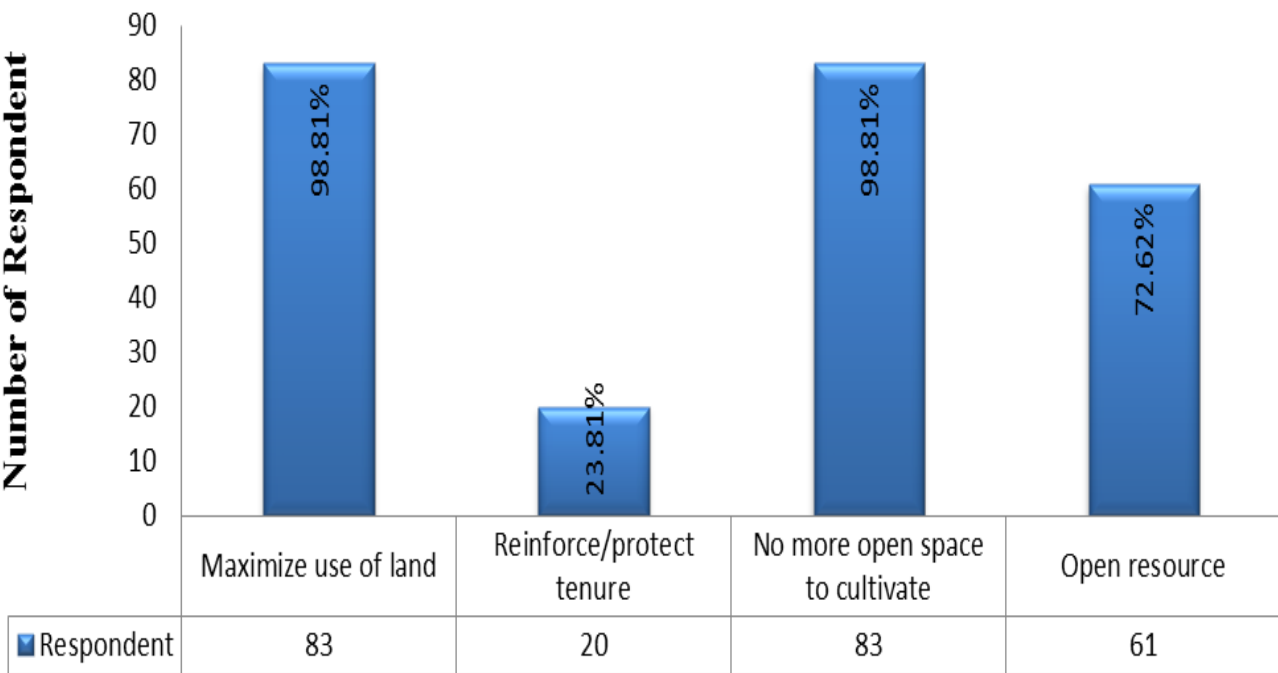
Farmers source of capital in farming



High percentage of wanting to expand farms and engage in farming

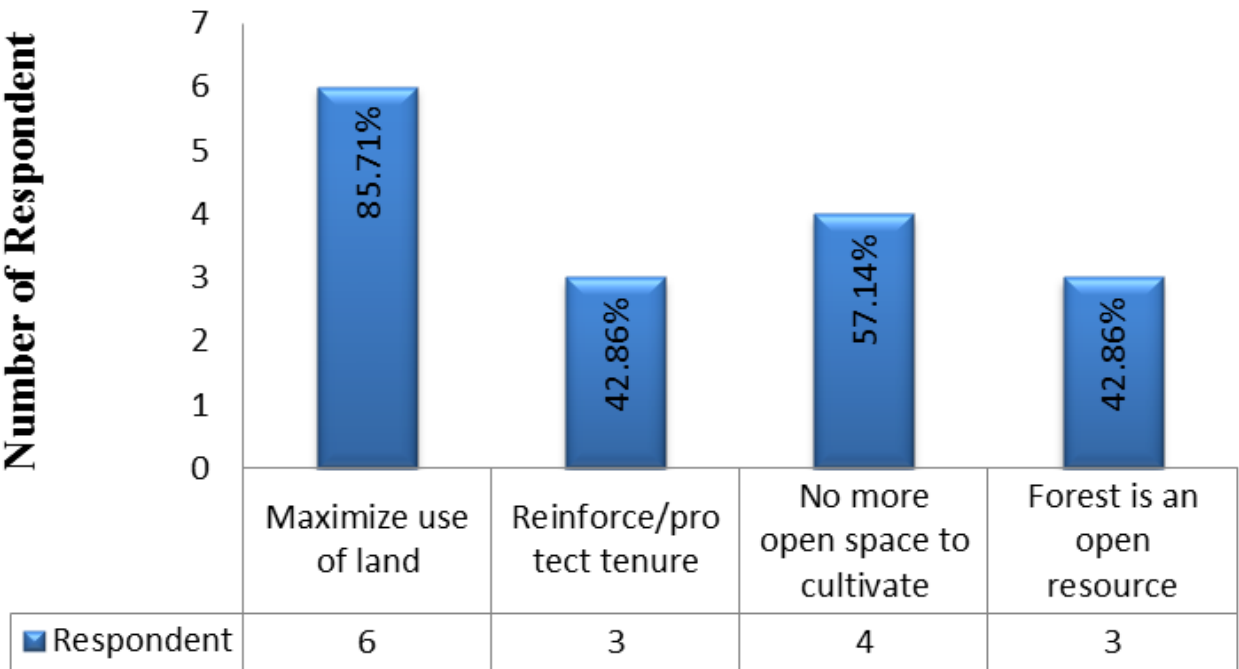


Number of Respondent



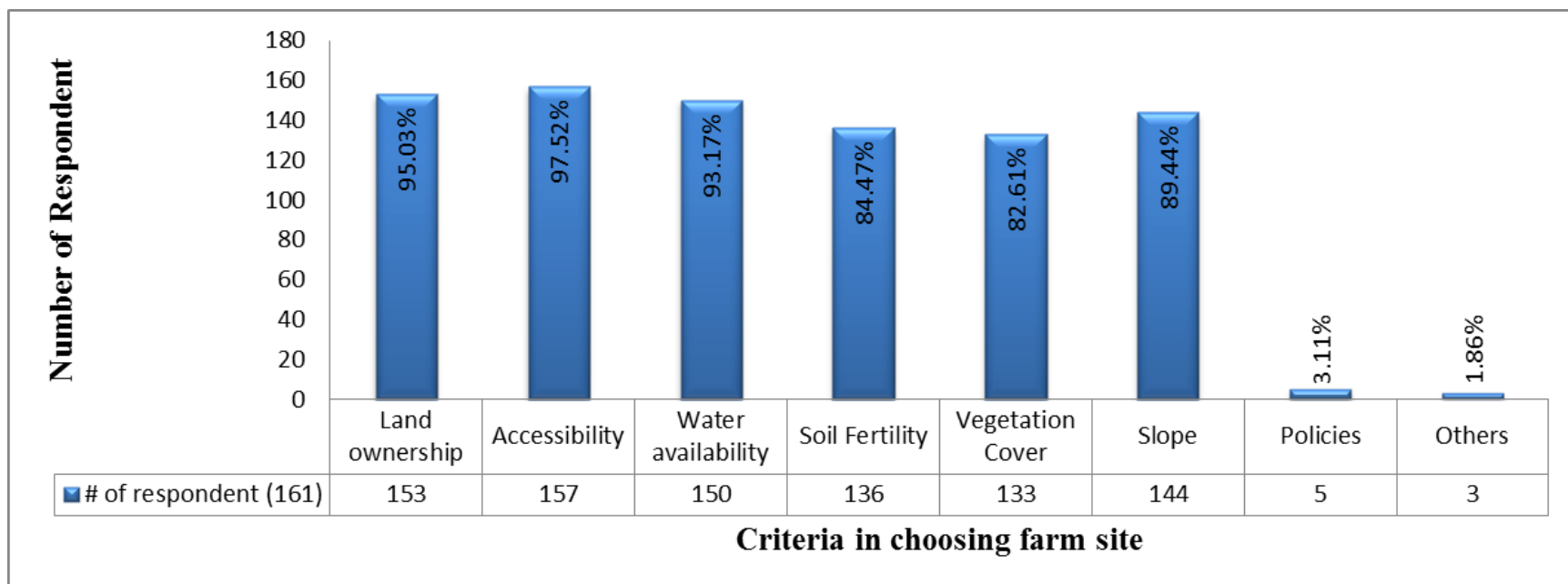
Reasons of farm expansion into the forest

Number of Respondent

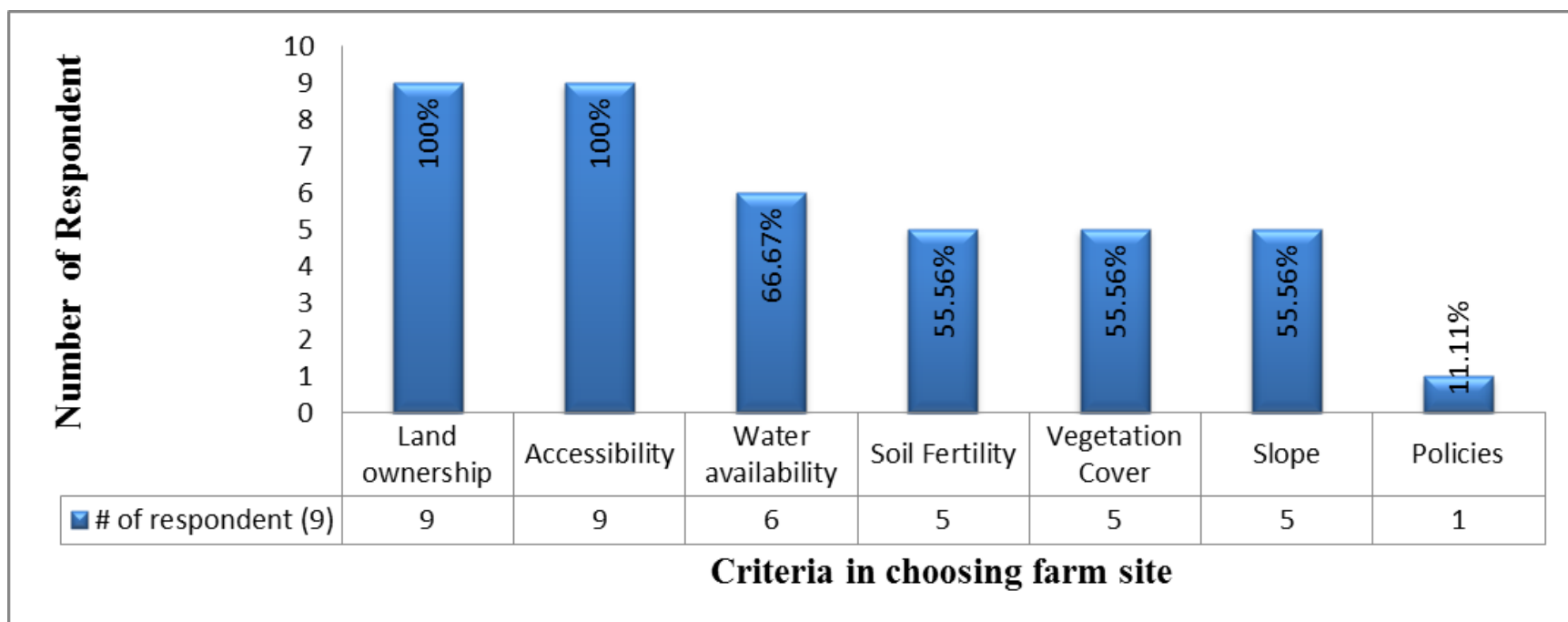


Reasons why venture farm in forested areas

Reasons of farm expansion into forested areas



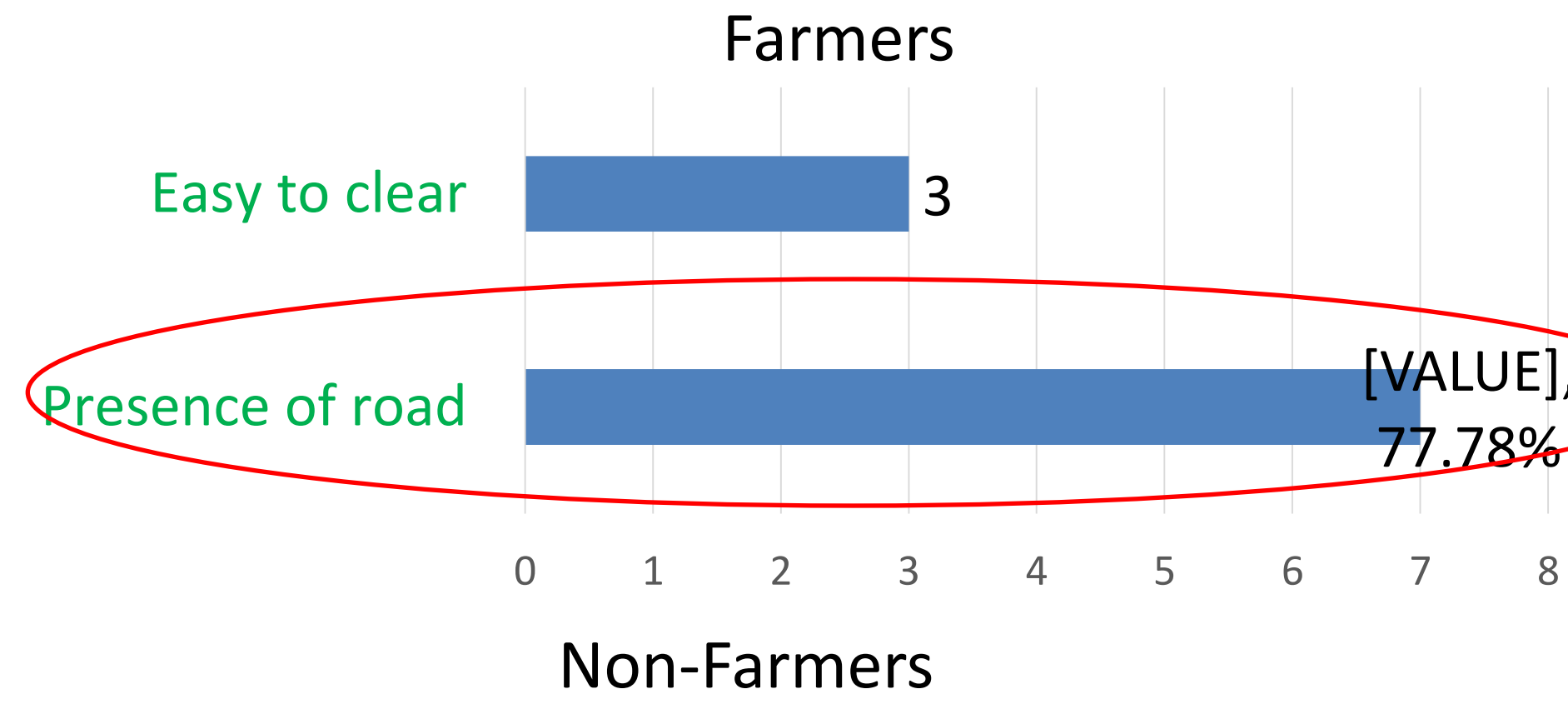
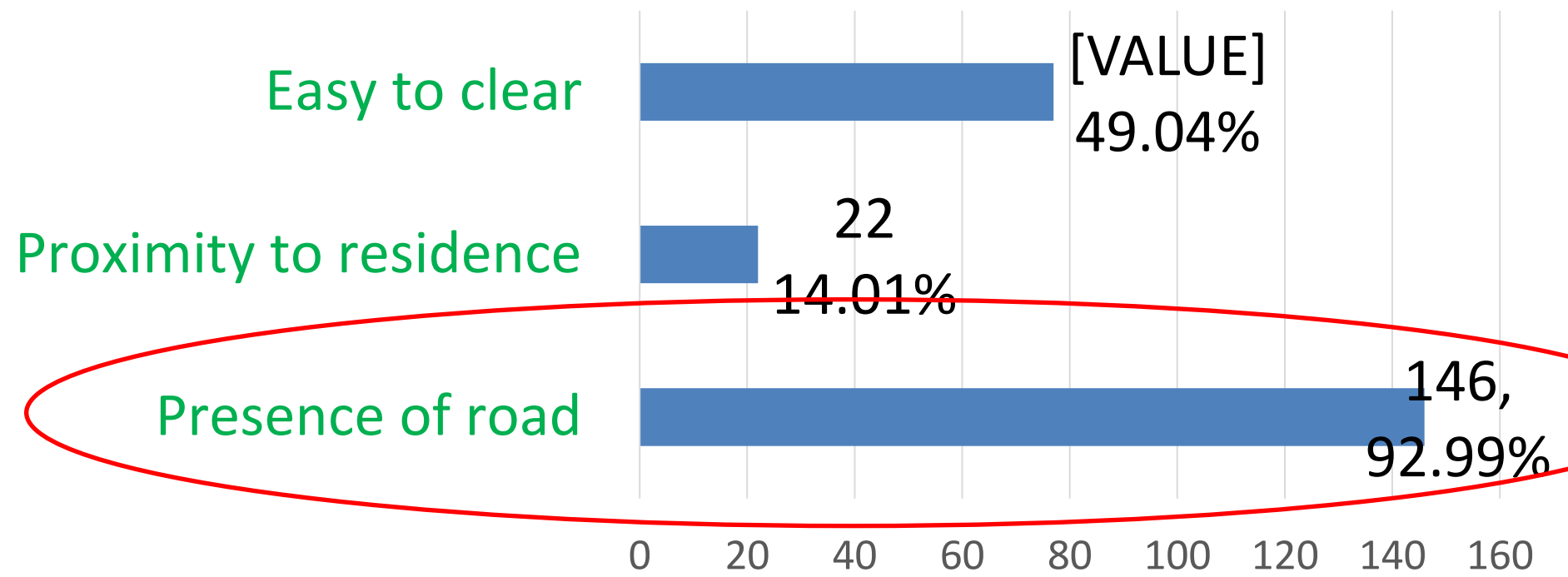
a



b

Different criteria in selecting farm sites

High percentage prefer to farm close to road system



Agricultural areas are closest to road system

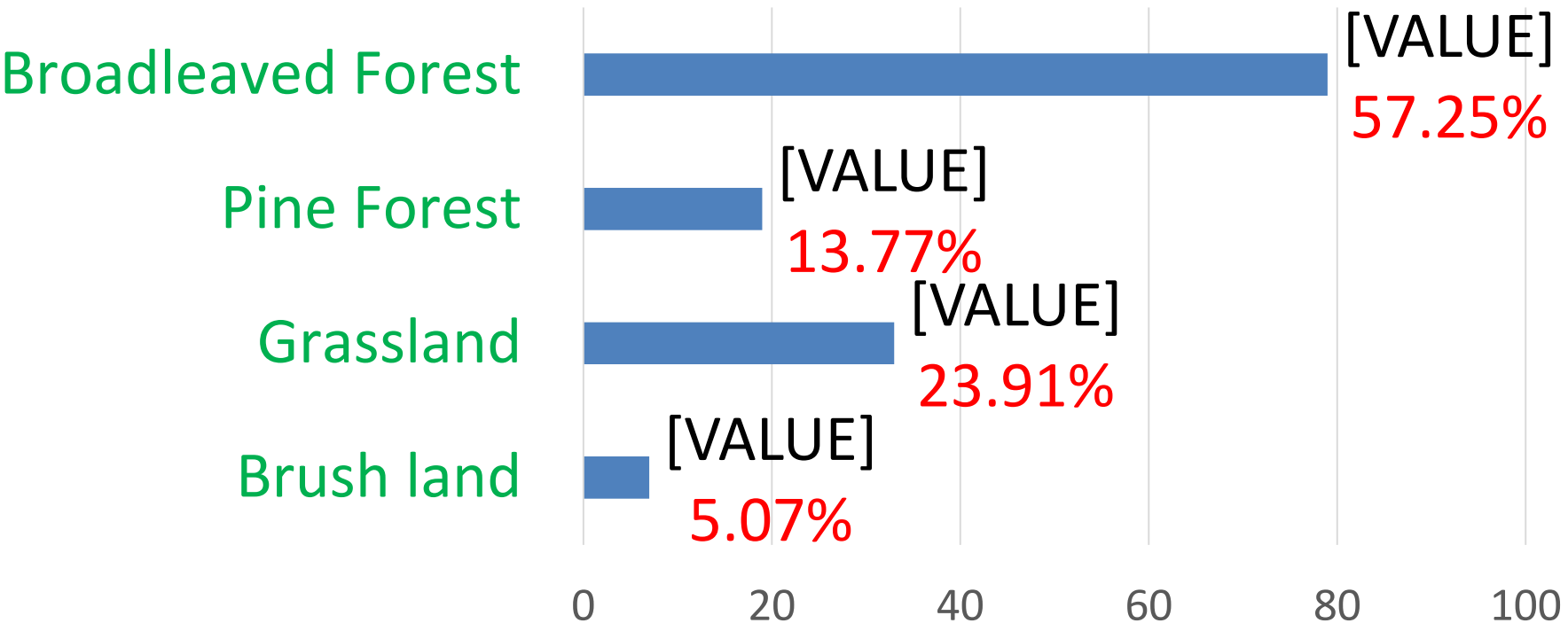
Land Cover within the 200m Road Buffer

LEGEND:

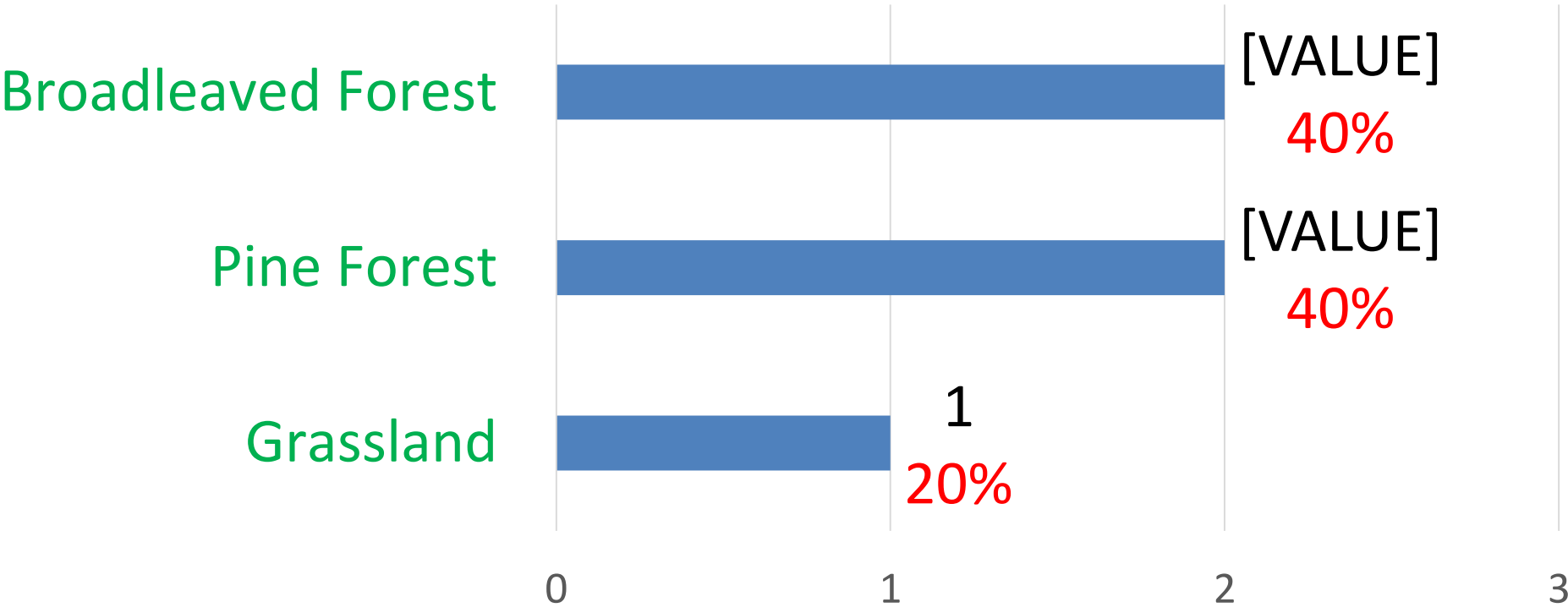
- Broadleaved forest: 685.35ha (27.11%)
- Farm & residential areas: 973.98ha (74.60%)
- Grassland: 328.68ha (32.83%)
- Benguet pine forest: 1,203.84ha (38.39%)
- Rice field: 80.10ha (46.35%)
- Watershed boundary
- Road network

0 0.5 1 2 3 4 Kilometers

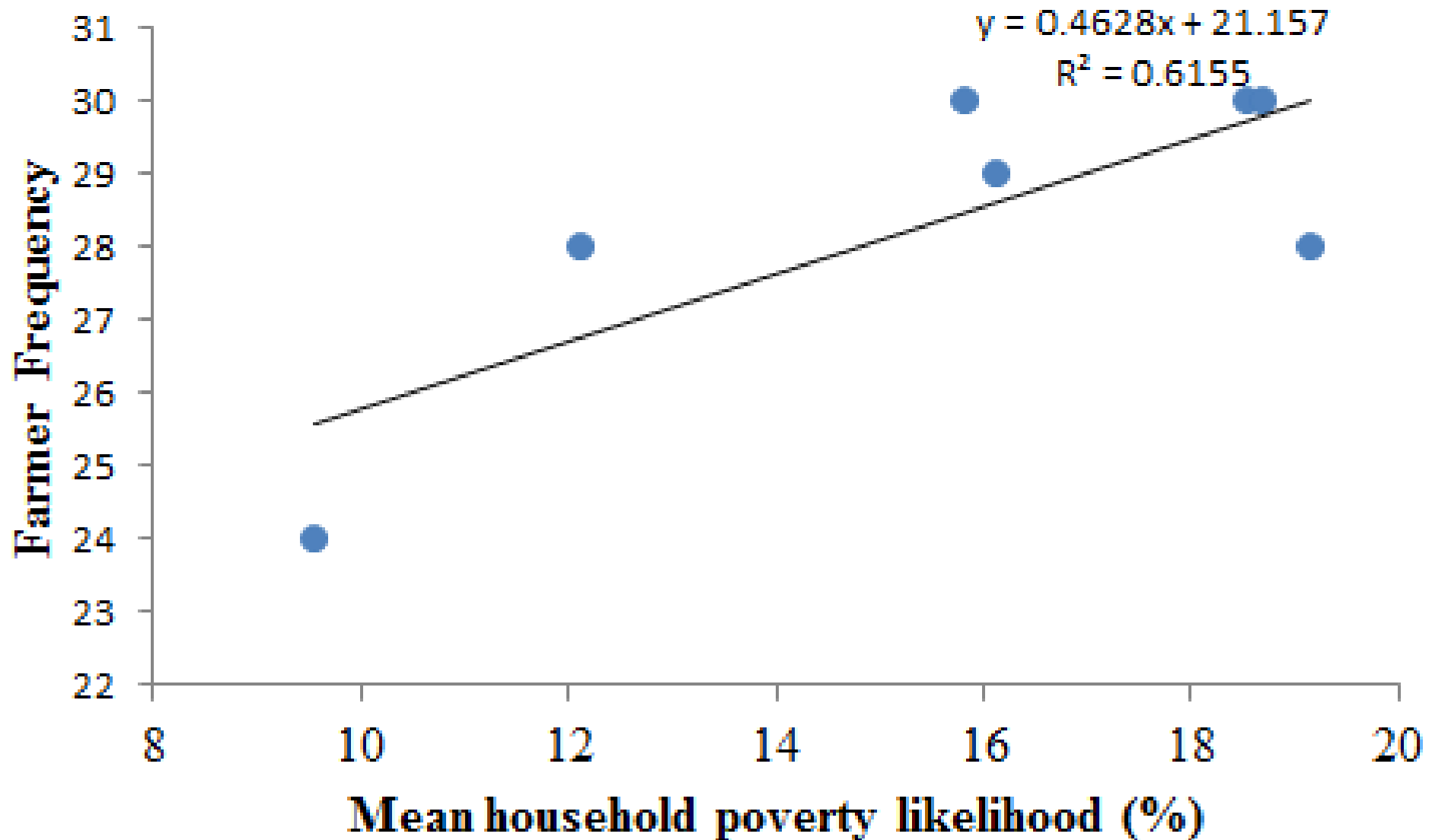
Forest are most preferred in farming



Farmers



Non-Farmers



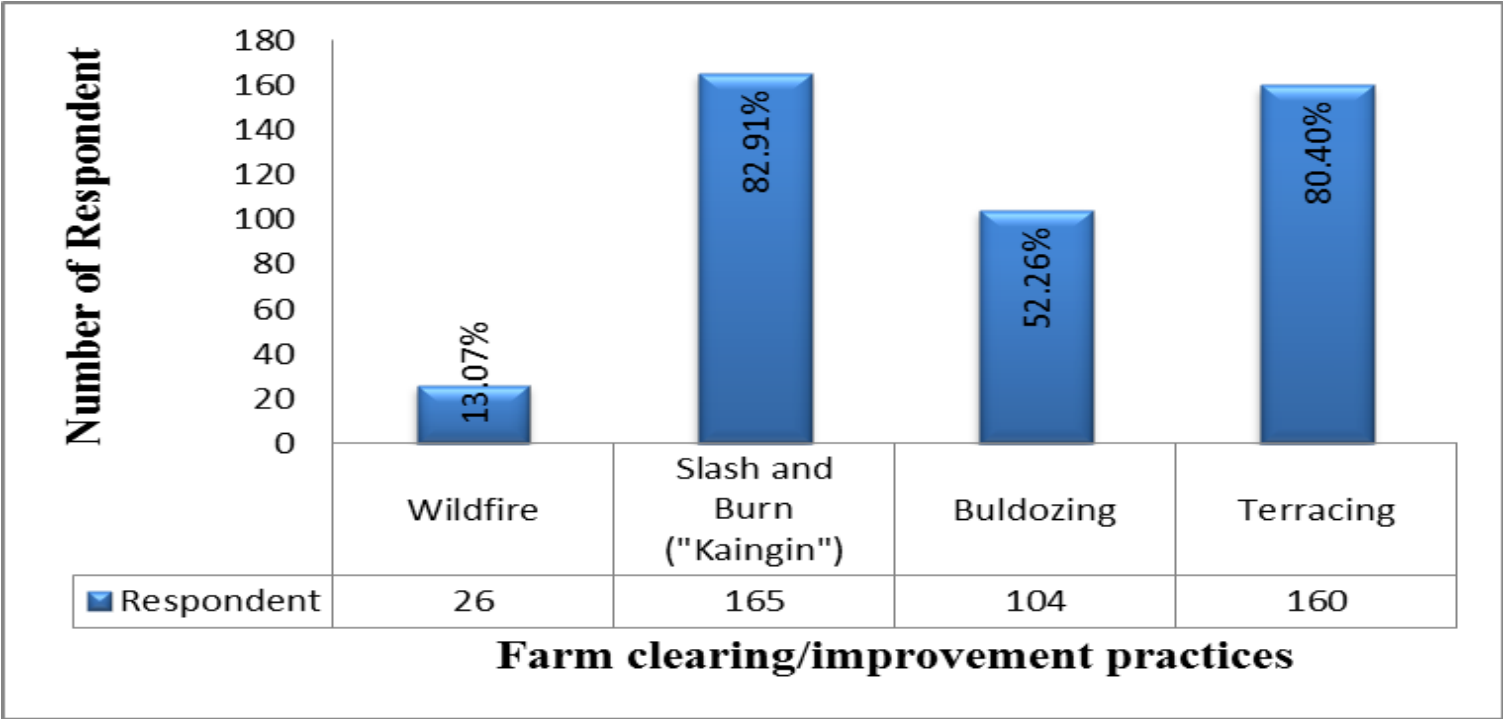
An increase in poverty likelihood will result in increase of farmer frequency

An aerial photograph of a mountain valley. The upper portion of the image shows a hillside with yellowish-green agricultural fields, some of which are rectangular and terraced. The lower portion shows a more densely forested area with green fields. A horizontal line, possibly a road or a power line, runs across the middle of the image. The text '3 YEARS AGO' is in the top left, and 'NOW' is in the bottom right. A large black text block is in the center.

**3 YEARS
AGO**

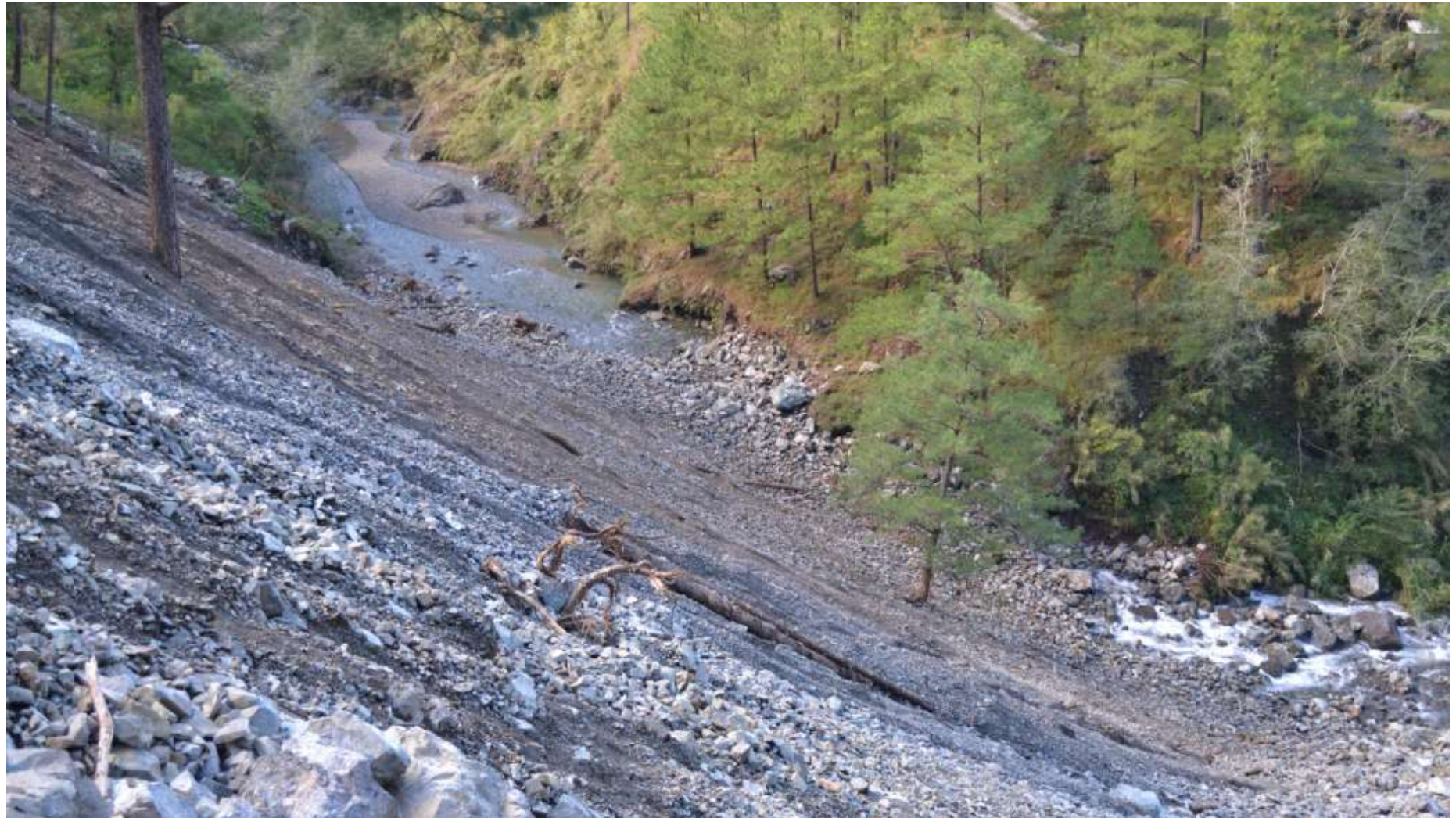
**Changing land use/ crops (agriculture)
as adaptation to increasing financial needs**

NOW



Most preferred clearing or improvement methods

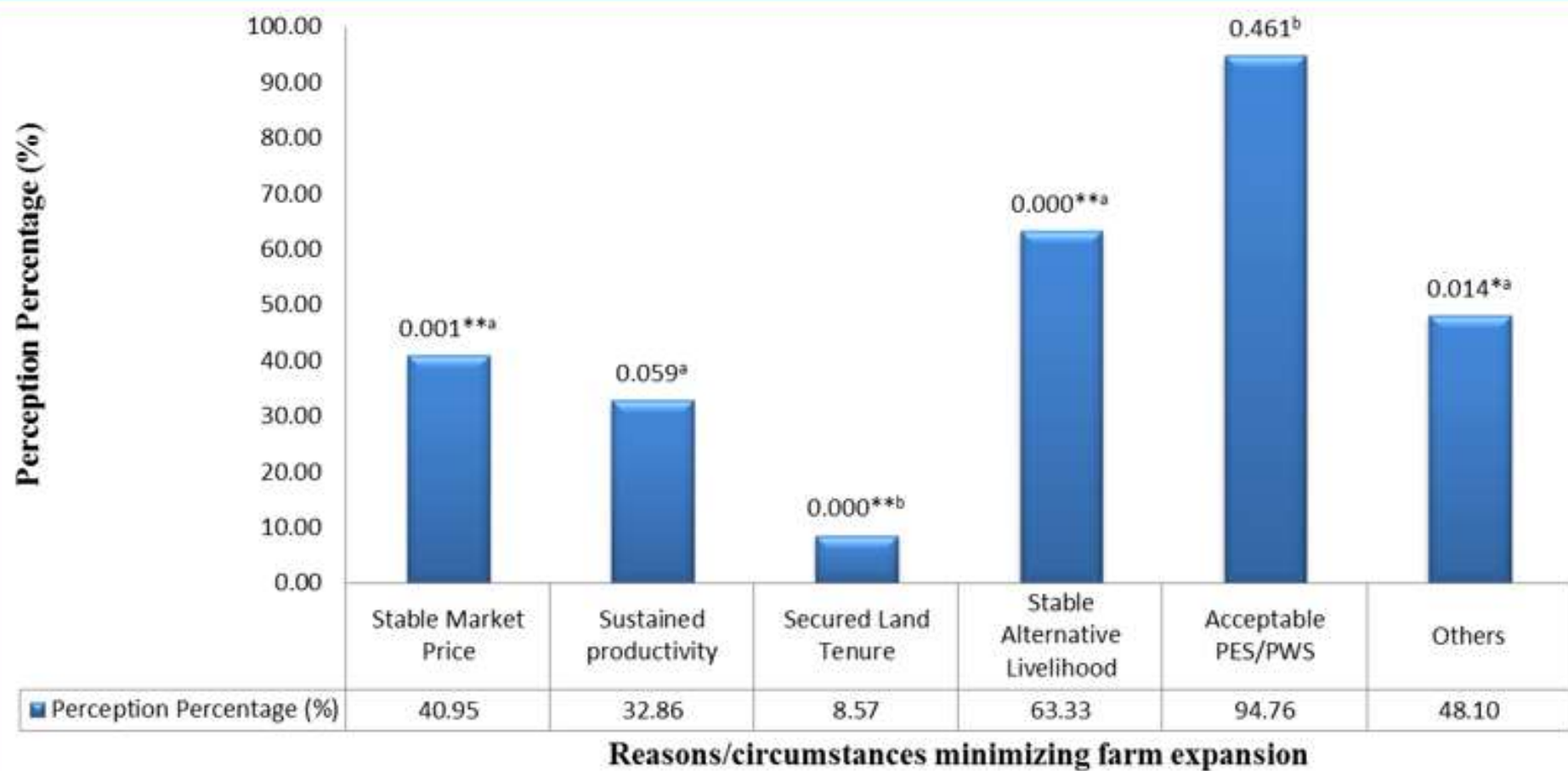
Devastating impacts to unregulated use of heavy equipment in agriculture similar to road construction



Aggravating Factors

- absence of land use policies and poor implementation of laws
- overlapping and conflicting management objectives
- slow and ineffective functioning of stakeholders

Options/circumstances that would minimize farm expansion



RECOMMENDATIONS

- institutionalizing reward mechanisms for sustainable land use
- promotion of forest conservation associated livelihoods
- strengthening and accelerating individual land titling
- strengthening land use regulation, policy implementation and monitoring
- strengthening and localizing information, education, campaign (IEC)
- suitability assessments to guide conservation, production and restoration
- policies to stop unsustainable land use and unproductive lands

TAKE AWAYS

1. Social-protection through actions based primarily on societal needs and interest
2. Accelerated integrated land-use planning and implementation
3. Collaboration and harmonization among stakeholders



**“THINK GLOBALLY, ACT
LOCALLY”**

Thank you so much ☺

