

The Role of Indonesia's Social Forestry in Achieving Net Zero: Impacts on Society, Economy, and Environment

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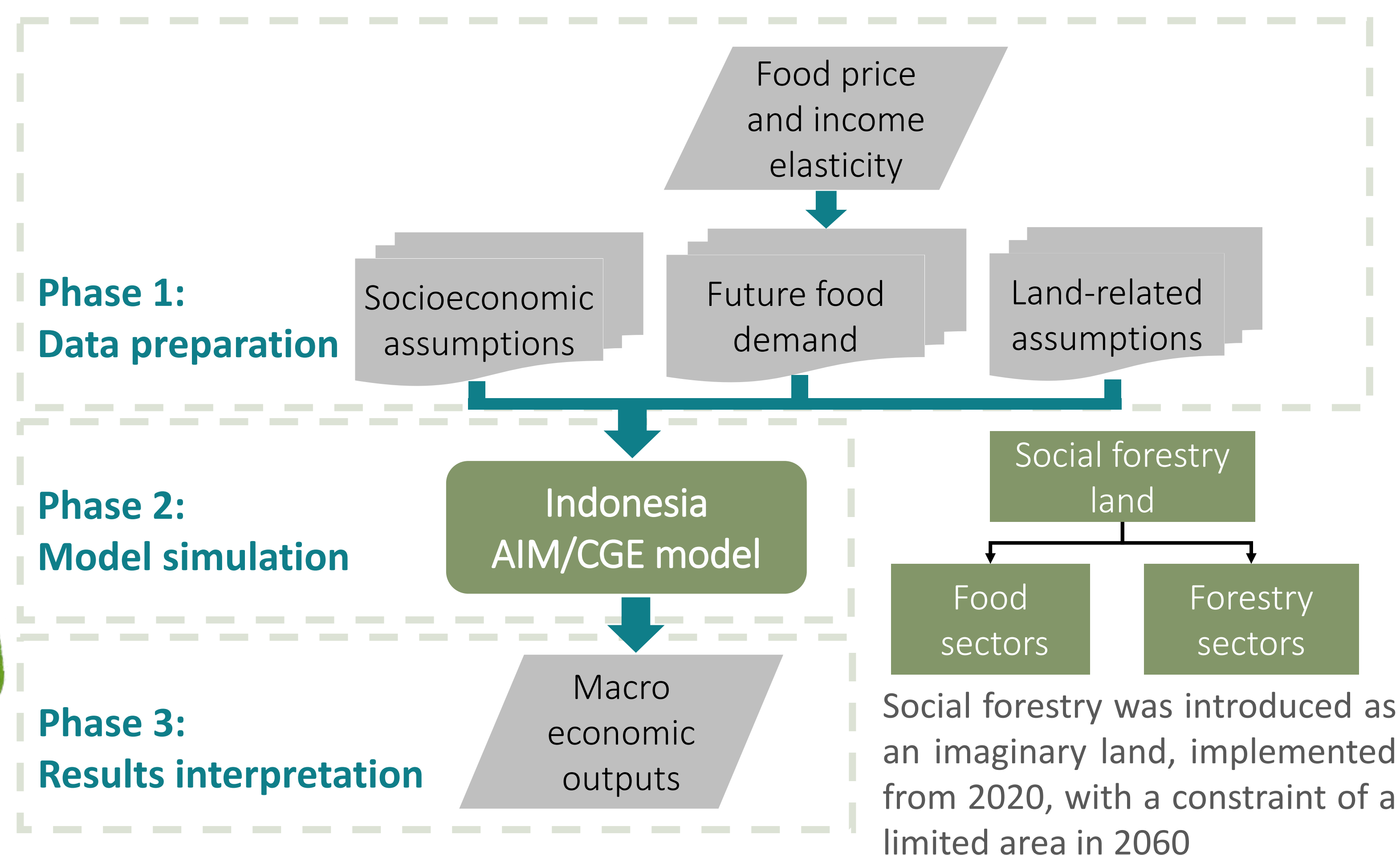
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INTRODUCTION

- Land-based CDR activities are needed to achieve the Paris target, but concerns about conflicting land demand for food security are rising.
- Agroforestry is globally recognized as an ideal land use system that could promote both food security and carbon sink enhancement. In Indonesia, social forestry is one example of community-based agroforestry initiatives that allow for sustainable forest use.
- Using the Indonesia AIM/CGE model, **this study assesses the role of Indonesia's social forestry on socioeconomic, food security, and carbon mitigation, toward the NZE vision.**

METHOD

- This study utilizes the Asia-Pacific Integrated Model/Computable General Equilibrium (AIM/CGE) model, which use the 2016 Indonesia IO table, which we reclassify into 60 sectors, including 2 forestry sector for wood and non-wood products.



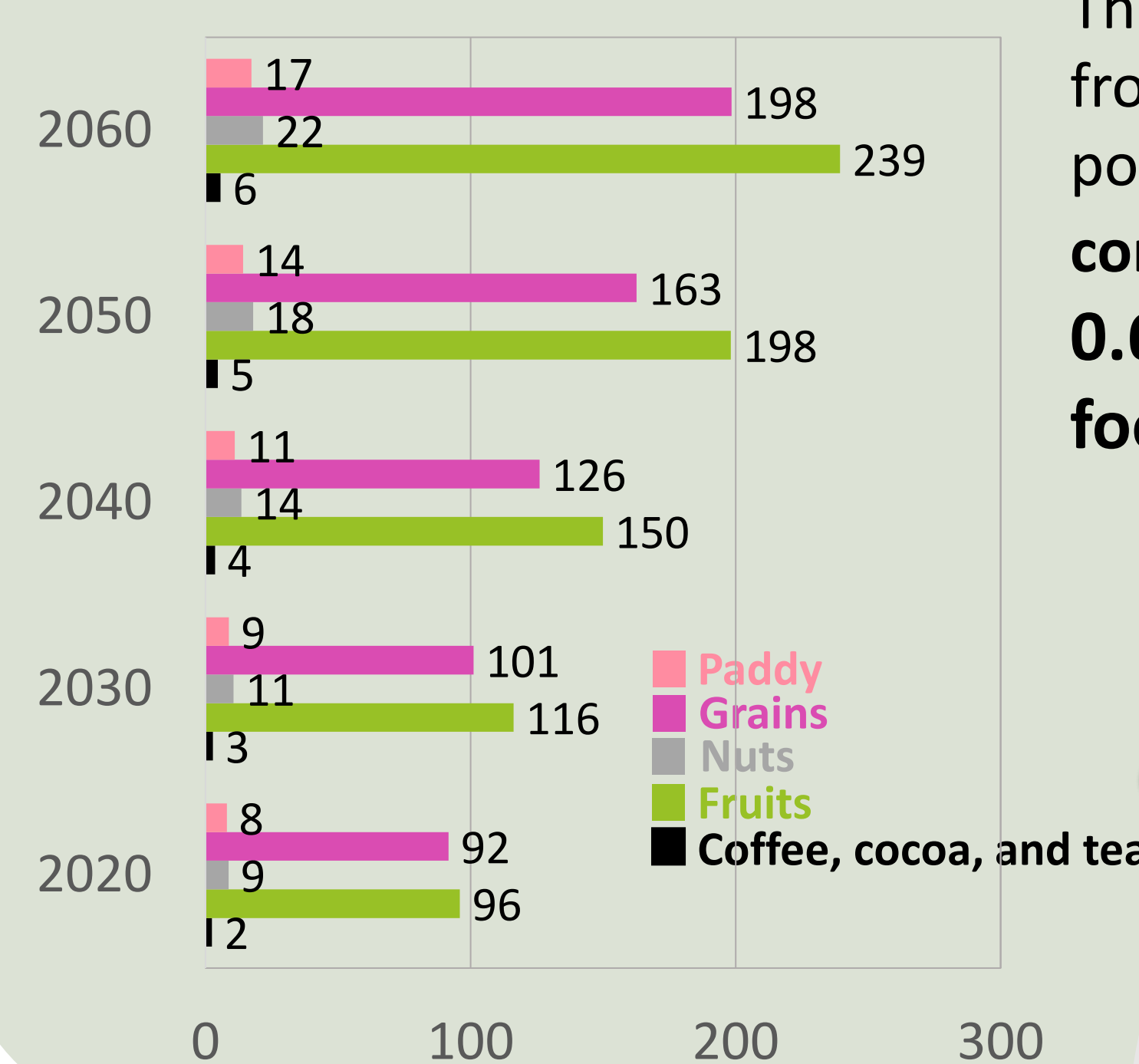
| Features | Business as Usual (BAU) | Social Forestry (SF) | |
|-----------------------|----------------------------|--|---|
| Mitigation activities | n.a | Reforestation with rotation ¹ | Reforestation without rotation ² |
| Forestry products | Wood and non-wood products | Wood products | Non-wood products |
| | | Food crops | Food crops |

¹Intended for production purposes, a mix of wood products (66%), grains (22%), paddy (7%), coffee, cocoa, and tea (5%), with a target area of 97,000 ha in 2060.

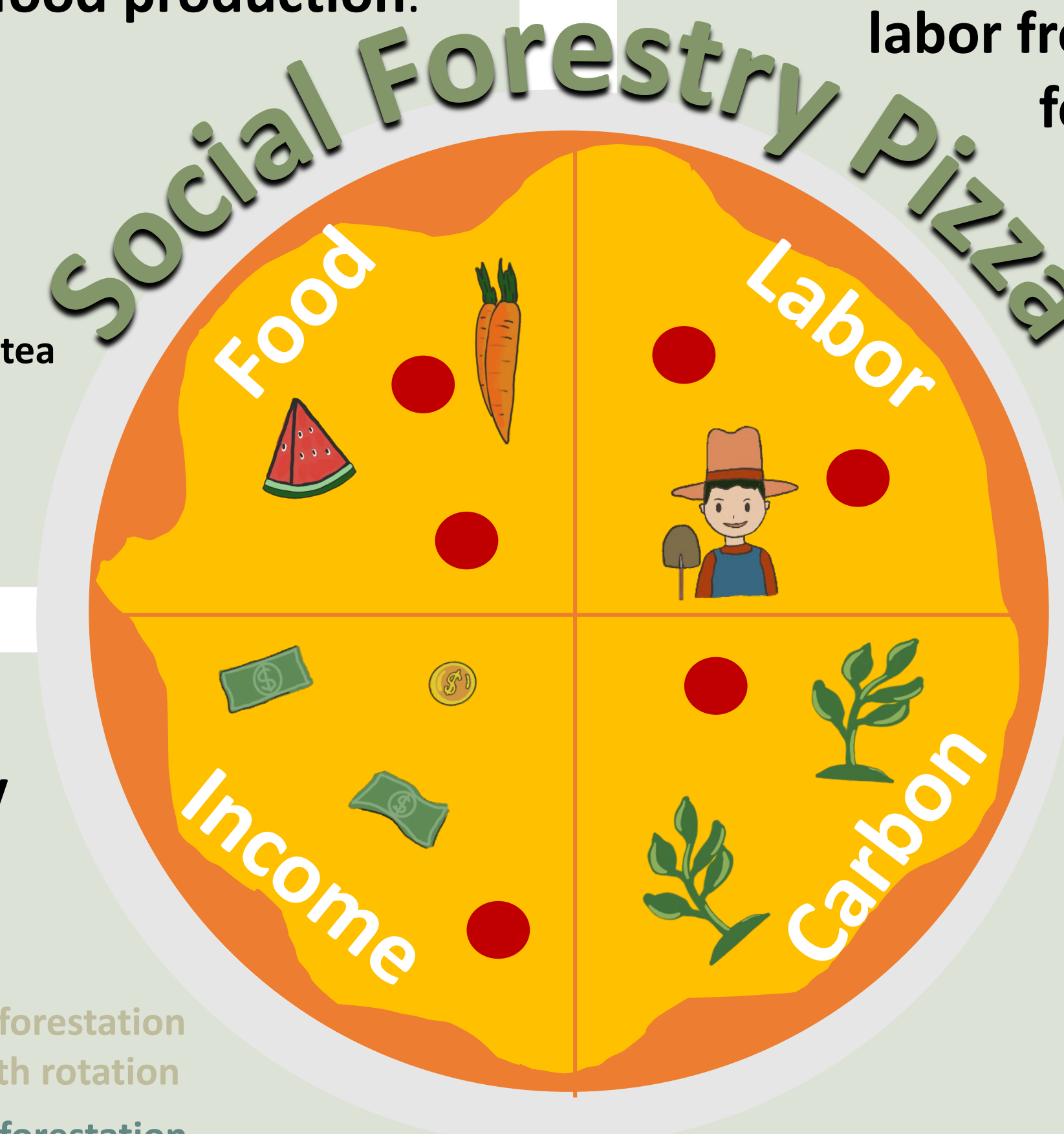
²Intended for conservation purposes, a mix of non-timber products (20%), fruits and nuts (60%), coffee and cocoa (20%), with a target area of 21,000 ha in 2060.

RESULTS AND DISCUSSIONS

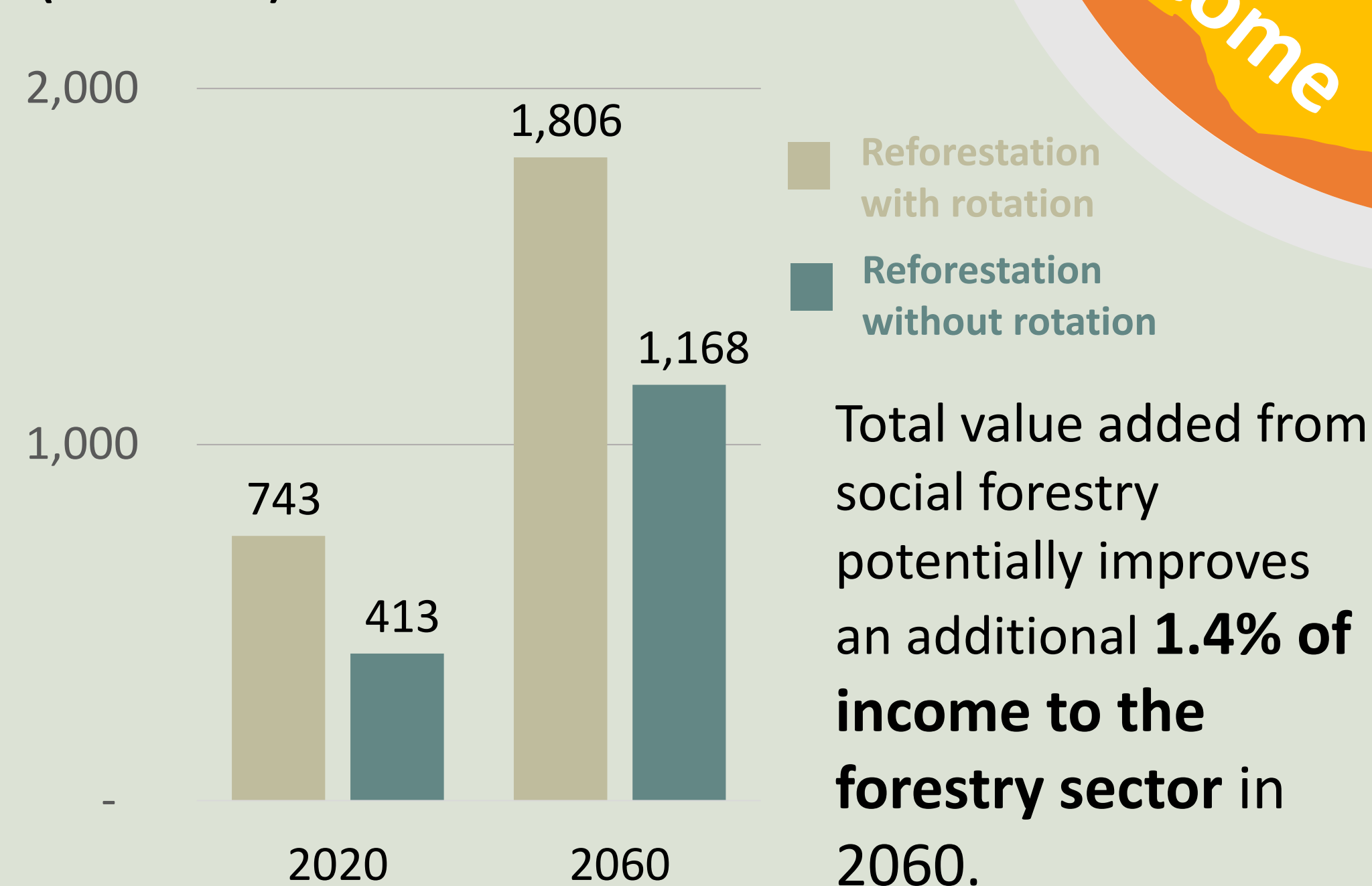
Food production from Social Forestry (000 ton)



The food production from social forestry potentially contributes to **0.1-0.6% of national food production.**

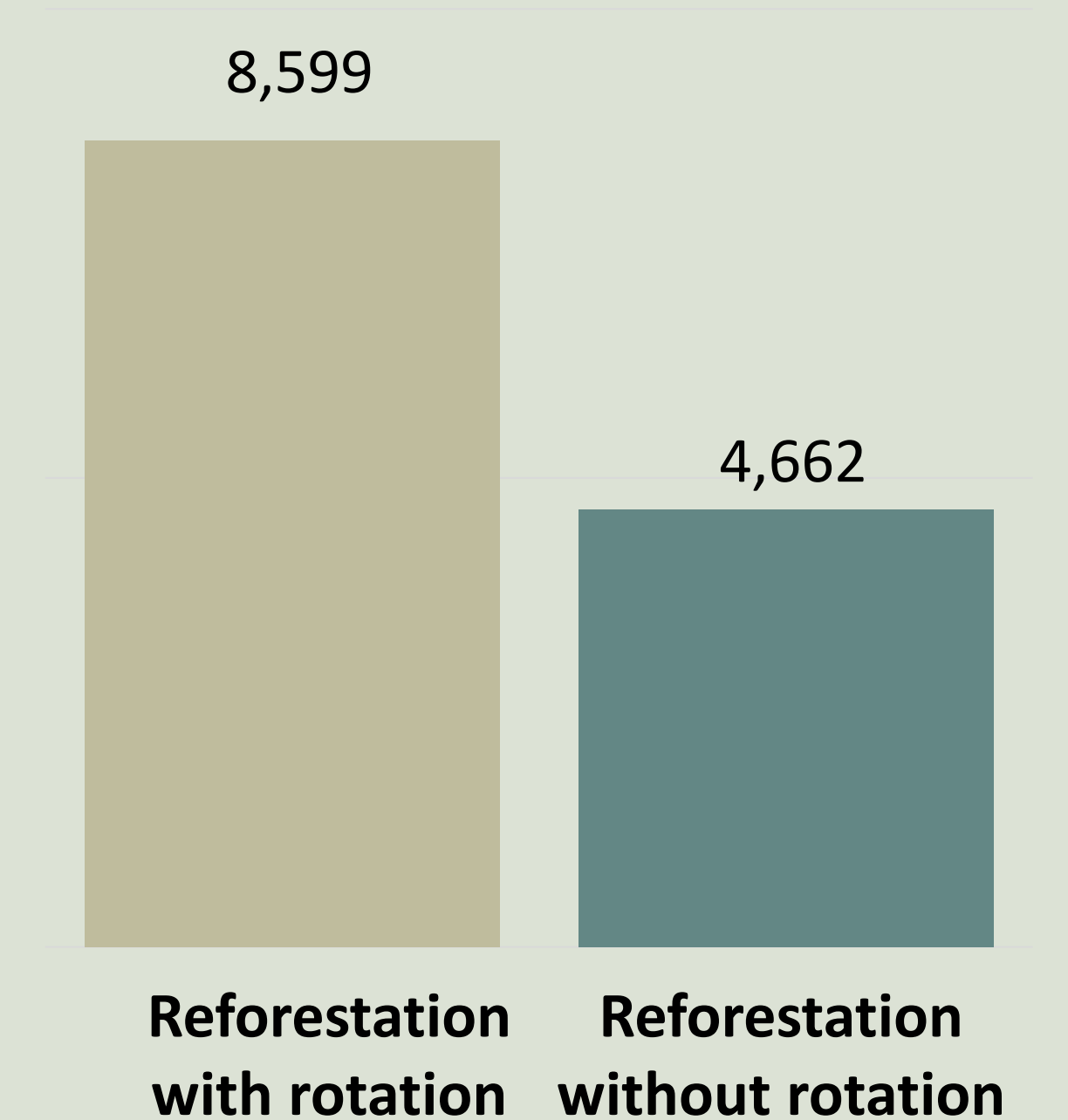


Value added from Social Forestry (billion IDR)



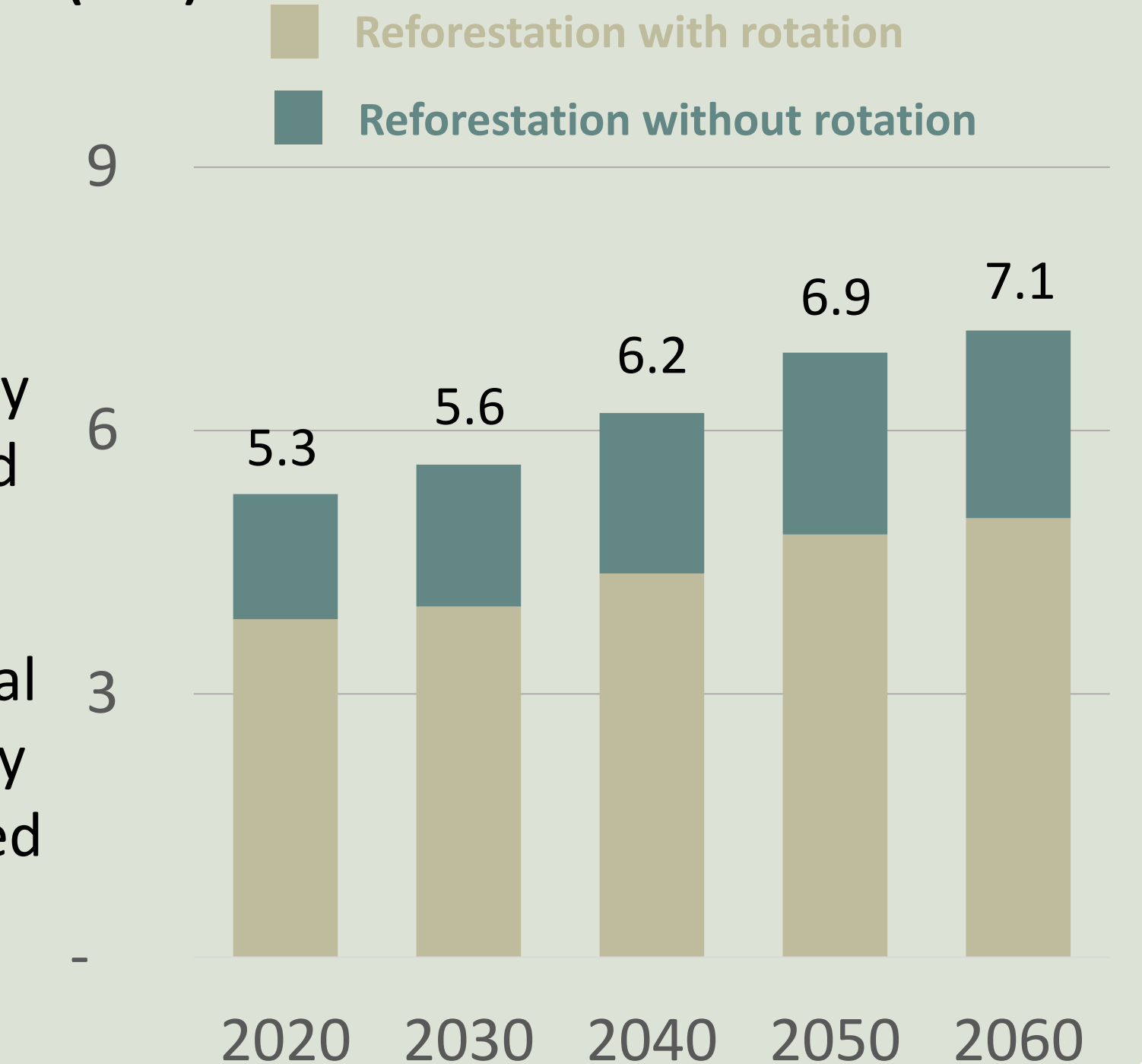
Total value added from social forestry potentially improves an additional **1.4% of income to the forestry sector in 2060.**

Labor from SF in 2060 (persons)



Social forestry potentially creates an additional **13,261 job opportunities** for forest communities, contributing to **0.7% of total labor from the forestry sector.**

Carbon stock potential (MtC)



Assuming a roughly 103 tC/ha of mixed agroforest C-stock (Santhyami et al. 2018), mitigation potential from social forestry is potentially valued at **7.1 MtC in 2060.**

CONCLUSIONS

- During the final implementation year in 2060, social forestry potentially produces nearly 500,000 tons of food products, creates an additional 13,261 job opportunities, contributes to 1.4% of forestry sector value-added, and stores 7 M tons of aboveground carbon stocks.
- Given a greater area of critical land in Indonesia, promoting social forestry for boosting the implementation area will create higher food production, socioeconomic benefits, and carbon sink enhancement.

REFERENCES

Santhyami, Basukriadi A, Patria MP, Abdulhadi R. 2018. The comparison of aboveground C-stock between cacao-based agroforestry system and cacao monoculture practice in West Sumatra, Indonesia.