



# The wood energy value chain - Opportunity for Development -



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## Importance of woodfuel

- 2,7 billion people depend on wood energy worldwide
- Wood-based fuels provide more than 70 % of the total energy consumption in Sub-Saharan Africa
- Increase of energy demand in the future – few alternatives (oil price) for household energies



**A matter of fact: wood energy will for several decades remain an important pillar in the energy mix of developing countries**



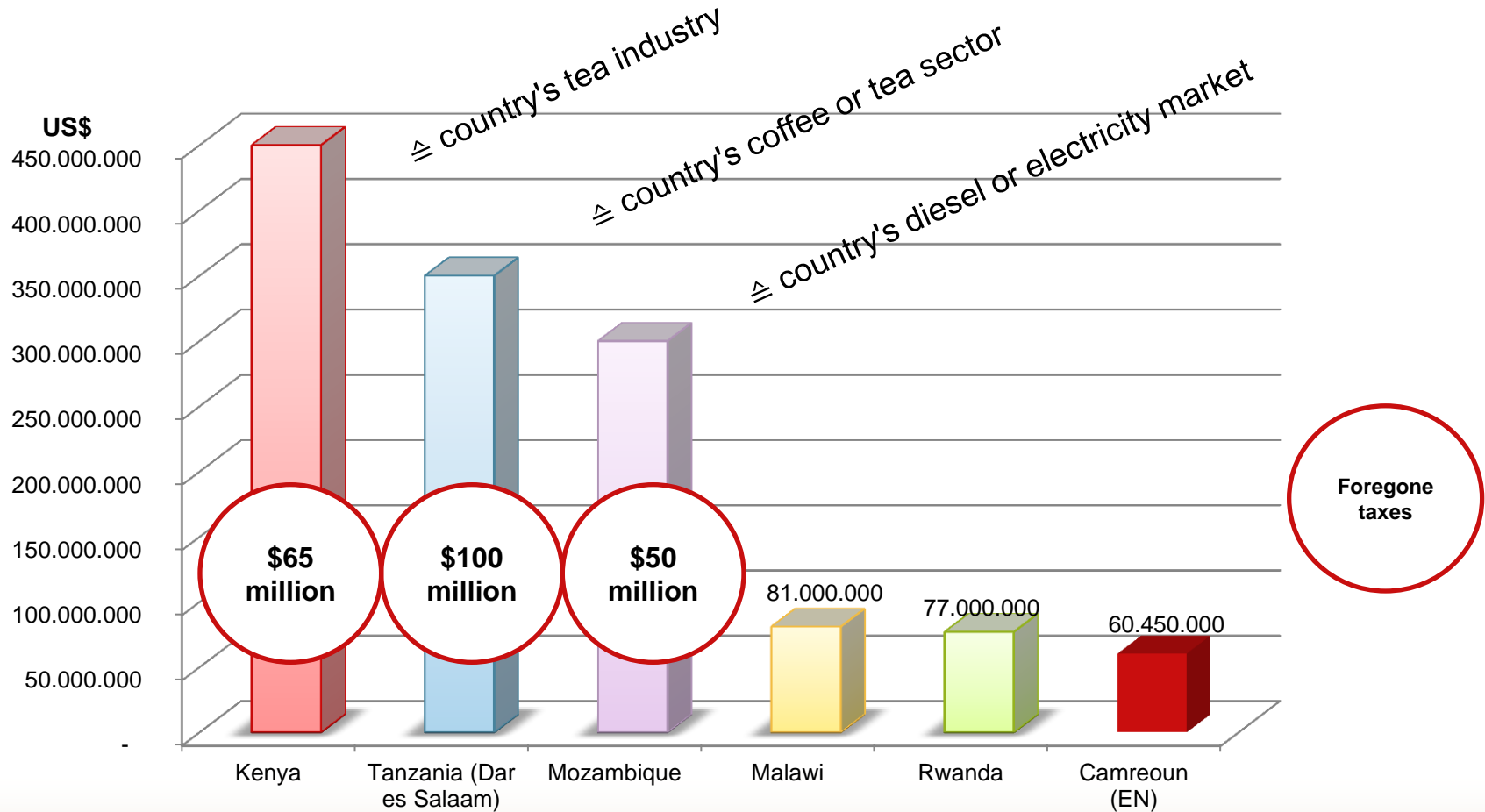
**Nothing to regret because there is a high potential, that:**

- Wood energy is renewable and its sustainable production safeguards forests
- [Wood energy provides employment and income even in remote rural areas](#)
- Wood energy makes a country more independent of energy imports
- Stepwise innovation and modernization of the entire wood energy value chain takes place



# What are we talking about

Revenues generated annually by the wood energy sector





## Problems of the current system

- Unregulated/illegal/unformalized setting & corruption → free access to wood resources → low wood-fuel prices (together with unclear land tenure or use right, demanding technical standards and lack of user organisation) - no incentive for SFM → degradation/deforestation
- Inefficient conversion technologies
- Woodenergy market with oligopolistic structure often exploiting local labour force → no incentive to engage in wood energy business
- Public and decision makers perception that wood energy is “dirty”, economically unattractive and bears environmental risks → not adequately considered neither in energy nor in forest policies → no political support



Vision and holistic approach for a modernization strategy

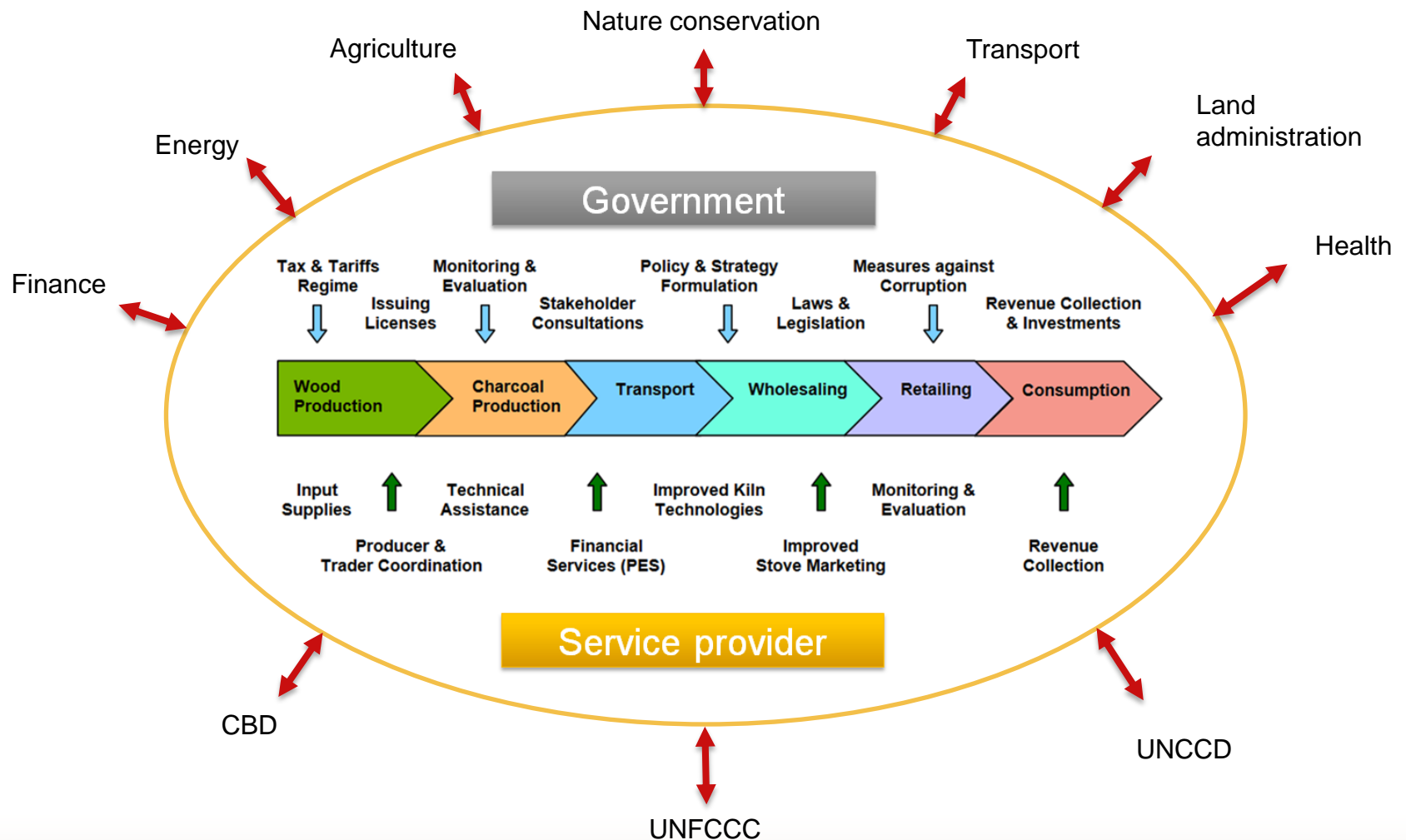


# Promoting wood as a modern source of energy – the vision





# Wood energy value chain – highly interlinked





Production

Increase the sustainability of biomass energy supply

- Law enforcement on open access areas



- Technical support

SFM

Plantations

ToFs

- Secure land tenure/ user rights

- Profitability

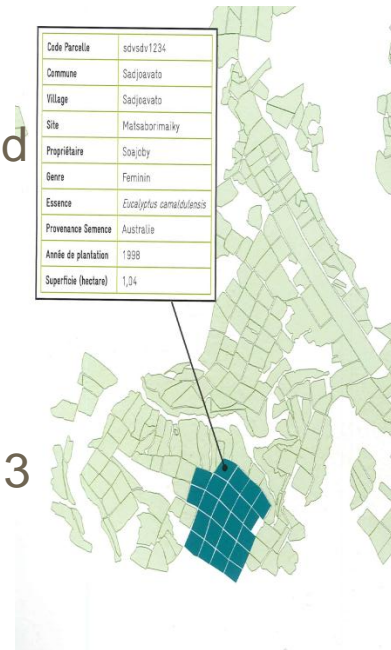
- Self-organization of communities and users

- Efficient management techniques



## Reforestation –Example Madagascar

- **Identification** and **demarkation** of appropriate “waste” land (no land-use conflicts)
- **Allocation** of afforestation plots **to individuals**, attribution of land titles
- **Creation of a formalized** local afforestation group
- Application of approved technical approaches
- Afforestation with **fast growing trees** (rotation period 5-7 years, 3 rotations, afforestation costs 230 €/ha) by plot owners
- GIS based **Impact Monitoring** System







# Natural Forest Management

## – Exampel Senegal

- **Existence of legal provisions** for rural communities (RC) to establish their own community forests and/or to co-manage state forests (FC).
- **Forest User Groups harvest forest products commercially, “unproductive” management activities executed by a separate management structure**
- **Pre-condition for use: approved forest management plans**
- **Relationship, roles and mandates** of different parties are **clarified** in form of agreements/ (Forest Service → Regional Council → Rural Communities → “Inter-Village Organization” →)
- Technical and organisational support by a **permanent forester integrated and paid by the regional**
- **Negotiated “allocation key” of income** from forest management: 20% of the FUG’s income are channeled to: (i) forest management fund; (ii) budget of the RC; (iii) social fund on village level; and (iv) Regional Forest Fund



## Conversion

## Raise conversion efficiencies

- Legal provisions and law enforcement

- New technologies and products (chips & pellets)



- Credit schemes for initial investments

- Technical skills

- Organisation of charcoalers



## « Casamance » Kiln



- Developed in Senegal in the 80ies by FAO
- Improvement of carbonisation efficiency to 22-25% compared to 12-17% (meule traditionnelle)
- Lack of further improved technology
- Little incentive to improve efficiency as wood is for free



## Marketing

### Create commercial networks compliant to rules

- rural and urban charcoal markets

- Depots



- Proof of origin

- Standard packaging

- Introduce fiscal reforms

- Common Transport



## Marketing „Green Charcoal“

- Marketing is the responsibility of “Economic Interest Groups” - mainly women
- Women buy the charcoal from the Forest User Groups
- They assume quality control and are responsible for packaging and labeling
- Marketing is done through rural charcoal depots





## Consumption

### Reduce woodfuel consumption

- Adequate stove models

- PR



- Proof of technical standards

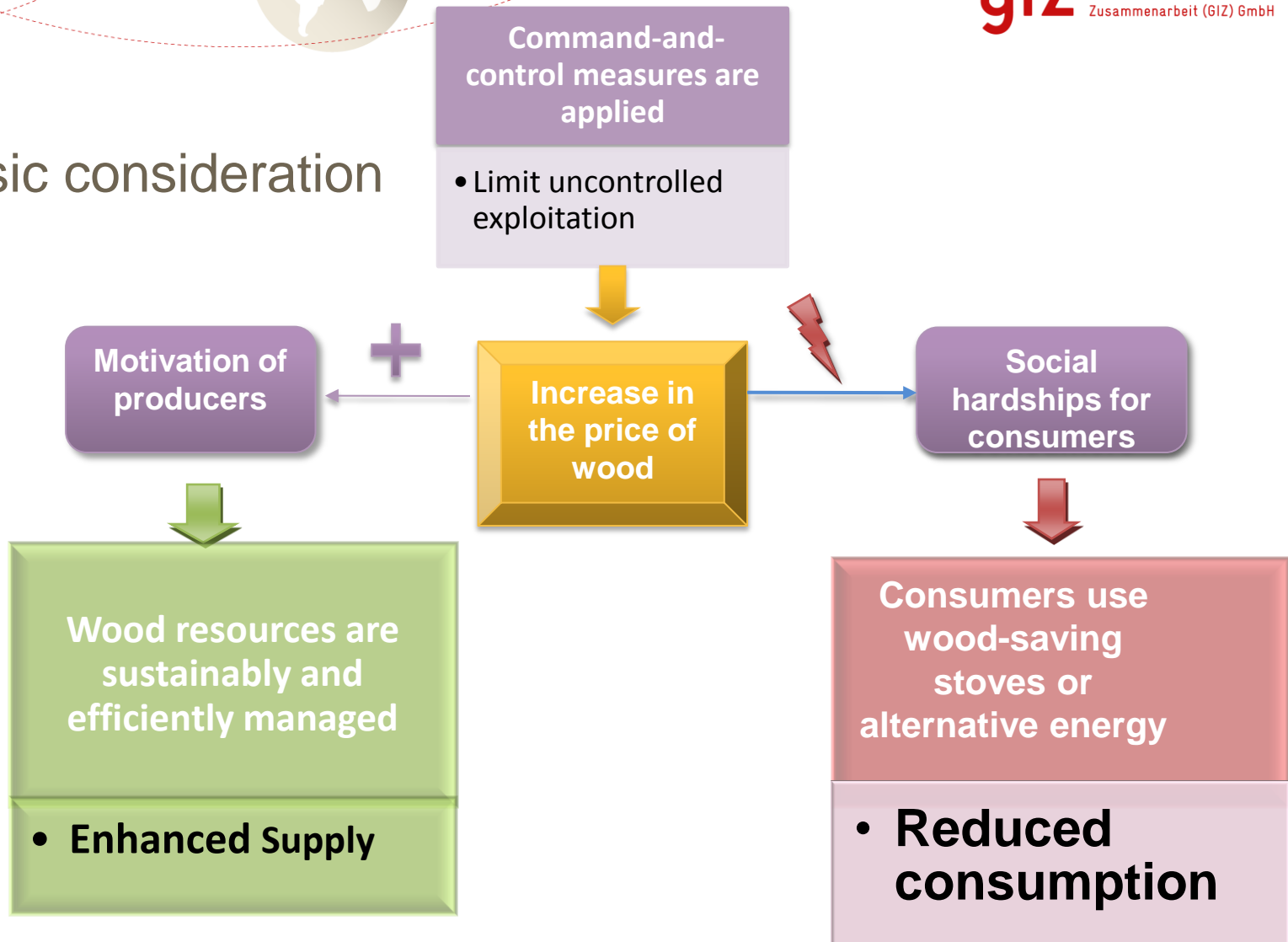
- Information of users

- Skilled stove producers

- Adequate price

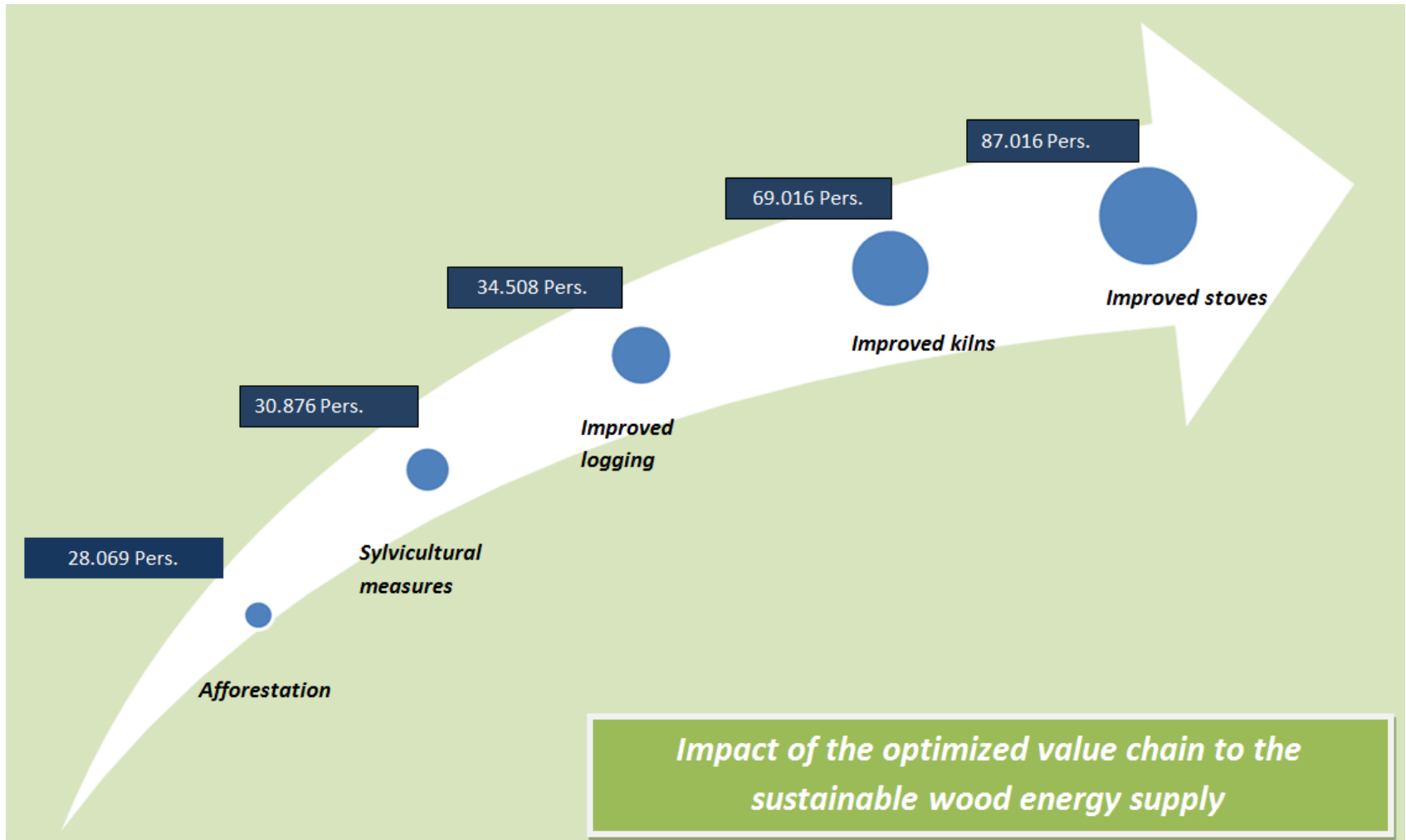


## Basic consideration





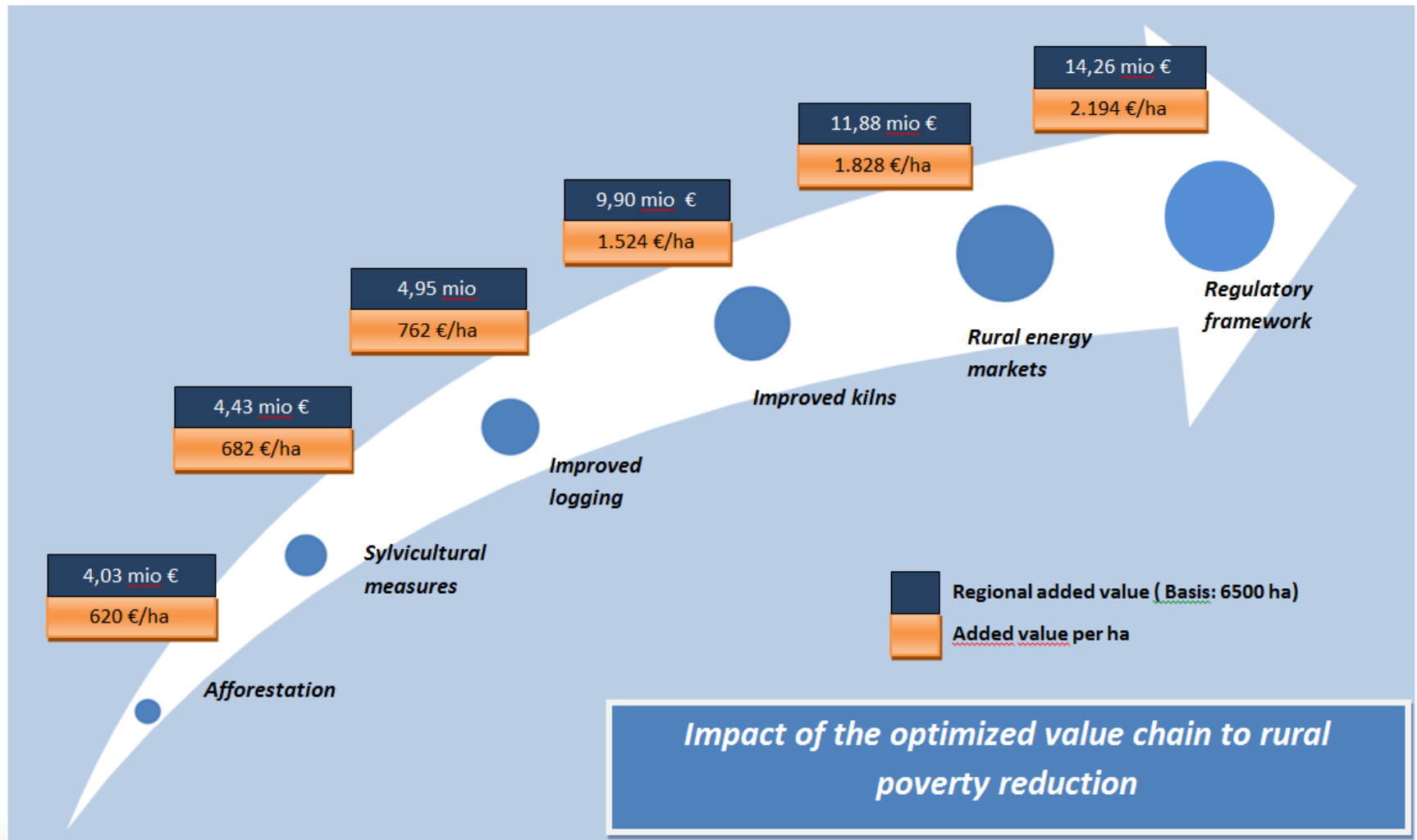
## Impact of holistic value chain management – 6500 ha (2)







# Impact of holistic value chain management – 6500 ha (1)





## Lessons learnt –factors of success

- A shared modernization strategy as a **common regional reference framework**
- **Holistic approach** along the entire value chain
- Secure long term **user rights**
- **Profitable returns distributed between a limited number of people**
- **Proven technical and organizational approaches**
- **Law enforcement to limit open access and impose certain technical standards**
- **Long term support**
- **Financing in the initial phase**
- **Political support**

