

Can bioenergies improve employment quality in SMEs?

Evidence from Shea, Mango, Groundnuts, Cashew processing SMEs in Burkina Faso and Senegal

Porgo Mohamed, Barry Mamadou Bobo, Girard Pierre et al.



Bionergy for local production
International Conference
Montpellier, 28-30 january 2025

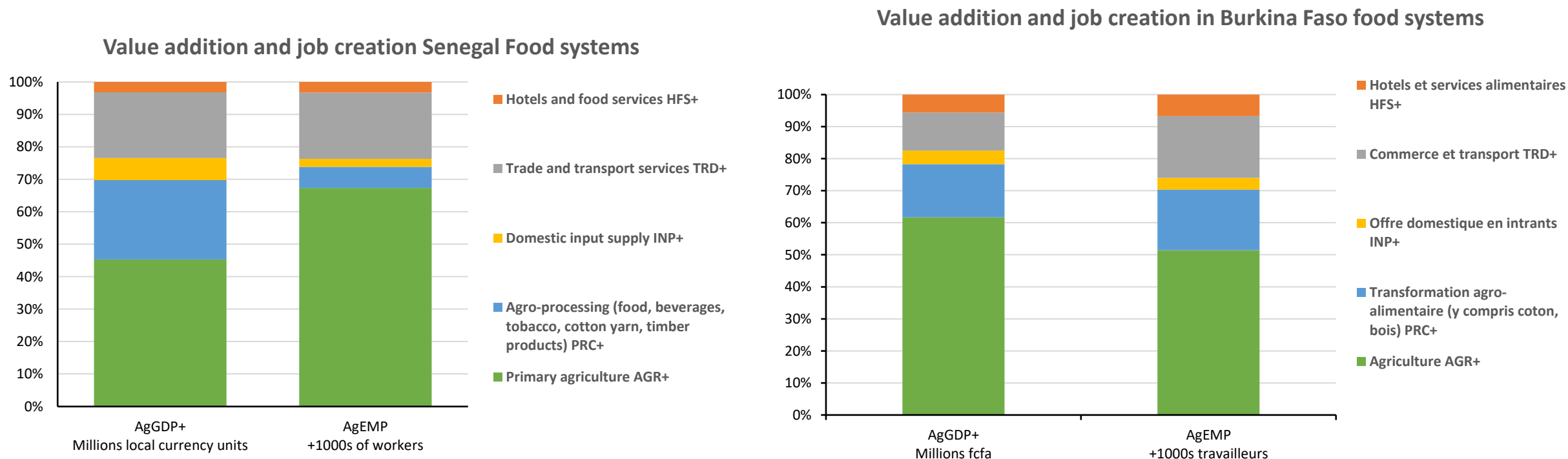


Outline of the presentation

- ☐ Context and issues
- ☐ Main issue of presentation
- ☐ Methods
- ☐ Primary results
- ☐ Conclusion and impact evaluation perspective

Context and issues

- **A strategic role of food processing in local economy**
 - ✓ Incomes and employments for rural and urban population
 - ✓ Added value to local agricultural products: BFA => 5.6% GDP in 2024 (INSD, 2024) and SEN => 7.2% of DGP in 2023 (ANSD, 2024).

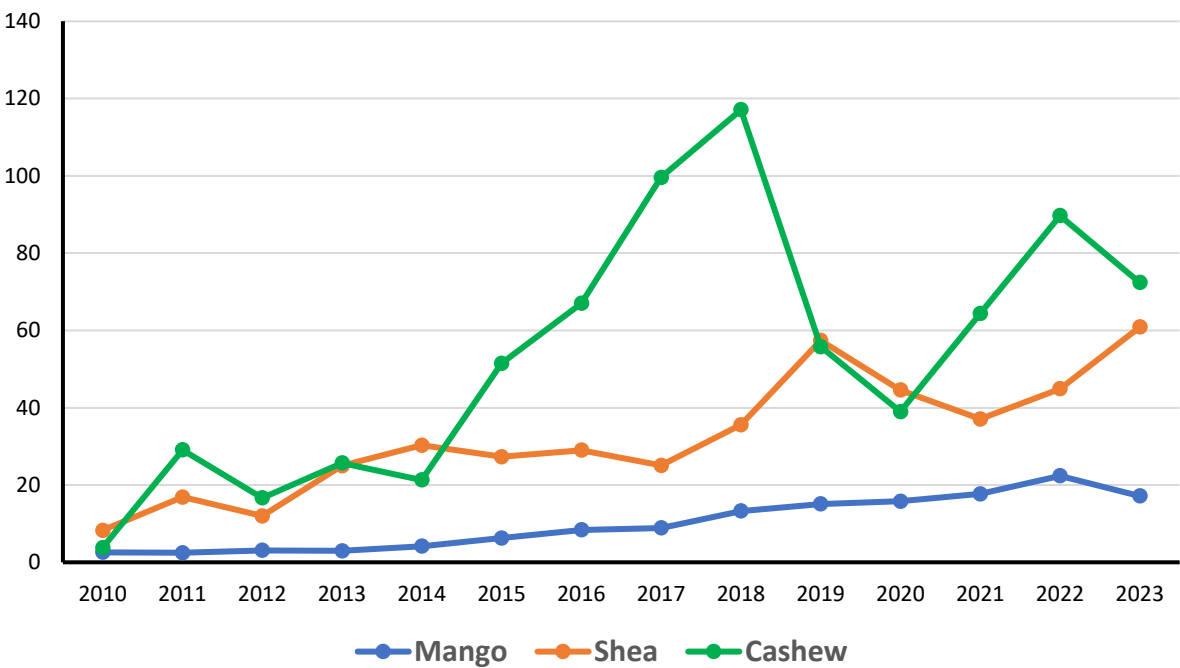


Data source : Thurlow et al. 2021

Context and issues

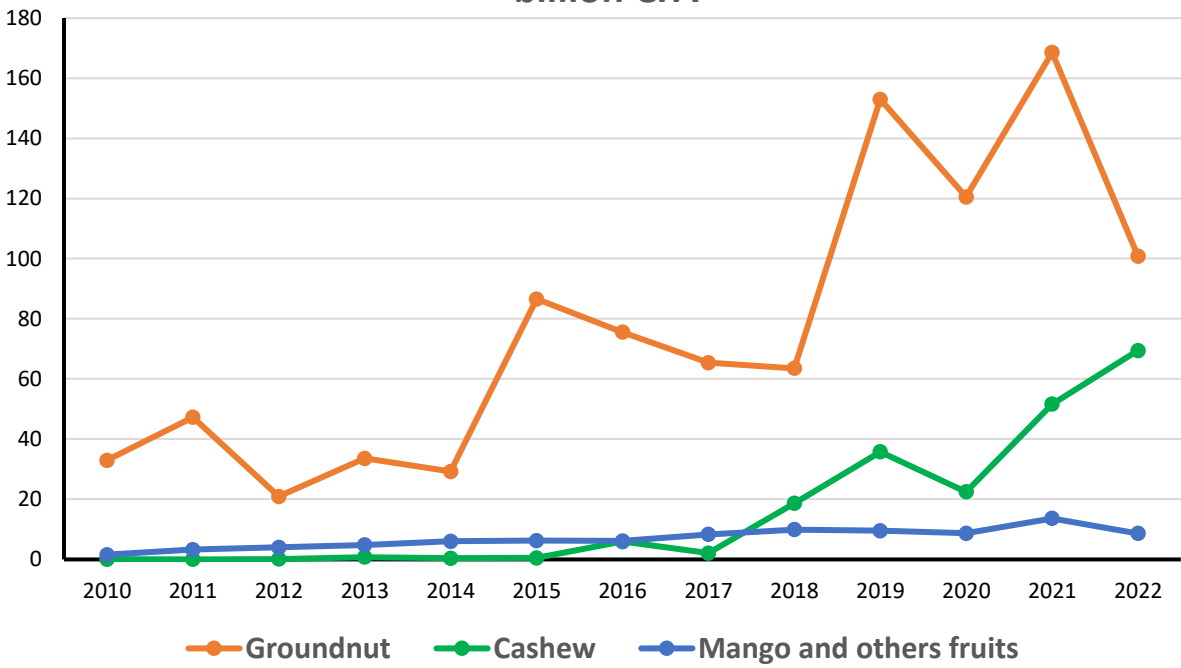
- Strategic export value chain in Burkina Faso and Senegal

Trend of Mango, Cashew and Shea export revenues in Burkina Faso over the period 2010 - 2023 in billion F CFA



Data source: INSD/MDICAPME, 2024

Trend of Mango, Cashew and Groundnut export revenues in Senegal over the period 2010 - 2022 in billion CFA



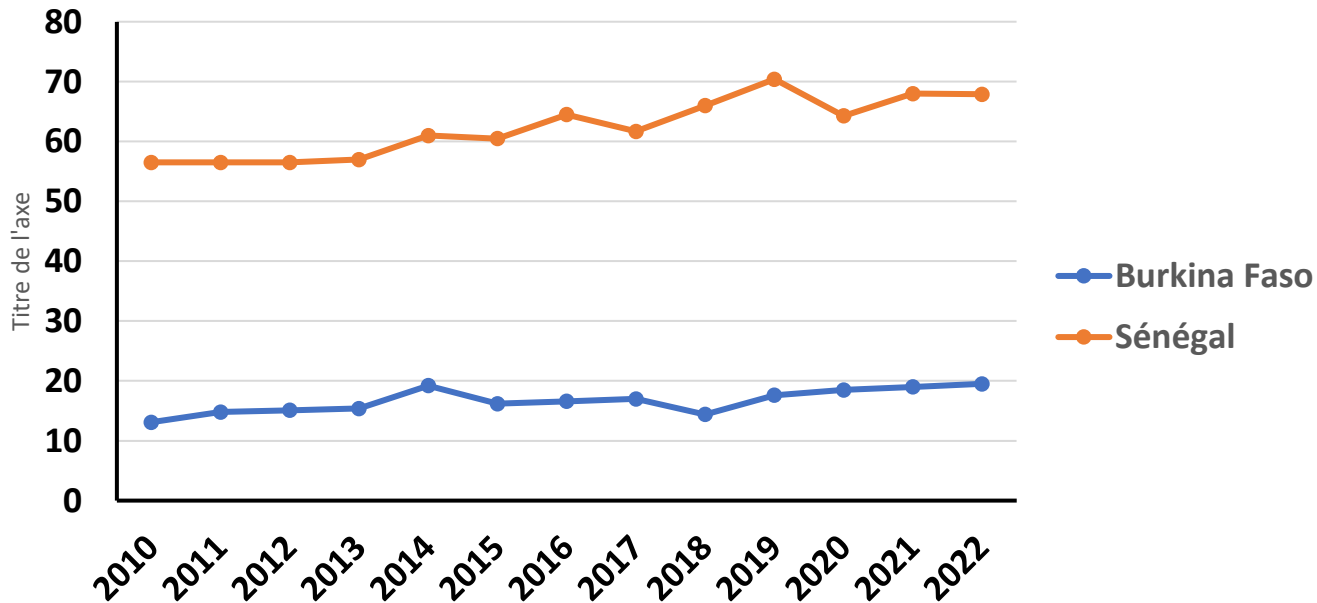
Data source: ANSD/BCEAO/ITC, 2024

Context and issues

- **Major structural challenges for food processing SMEs**

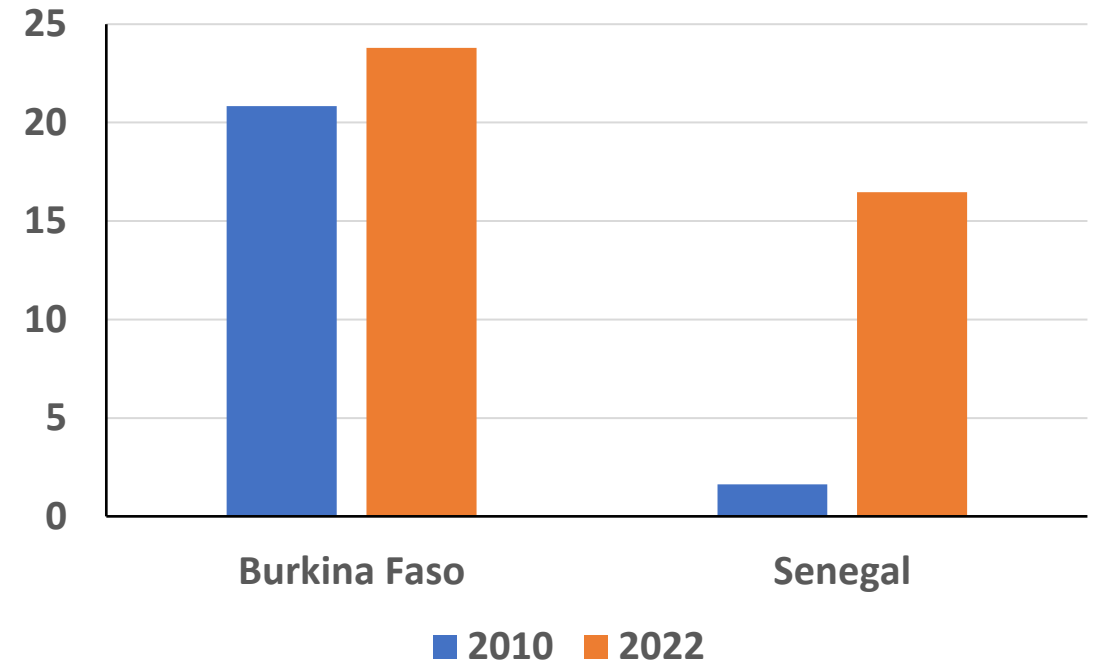
- ✓ Cost and access to energy
- ✓ Lack of mechanization
- ✓ International markets volatility
- ✓ Limited access to finance (CIRAD, 2019)

Access to electricity (% of population)



Data source: World Bank , 2024

Share of renewable energy in electricity capacity and production (%)



Data source: International Renewable Energy Agency, 2025

Context and issues

- **Employment issues in SMEs**

- ✓ Seasonality, precarity and low remunerated jobs (Fox and Sohnesen, 2016; Stoian et al., 2018)
- ✓ Absence of social protection (ILO, 2021)
- ✓ Inequalities between men and women in access jobs
- ✓ Low safety and health conditions

Main issue of the presentation

- Few research on the diversity of jobs in food processing SMEs in West Africa and existing research on working conditions mainly focus on agricultural production
- Few knowledge on the capacity of bioenergies to improve employment quality
- **Can bioenergies improve employment quality in SMEs?**
- BioStar project aims to promote bioenergies to improve energy efficiency and SMEs productivity in Burkina Faso and Senegal on cashew, mango, groundnut and shea

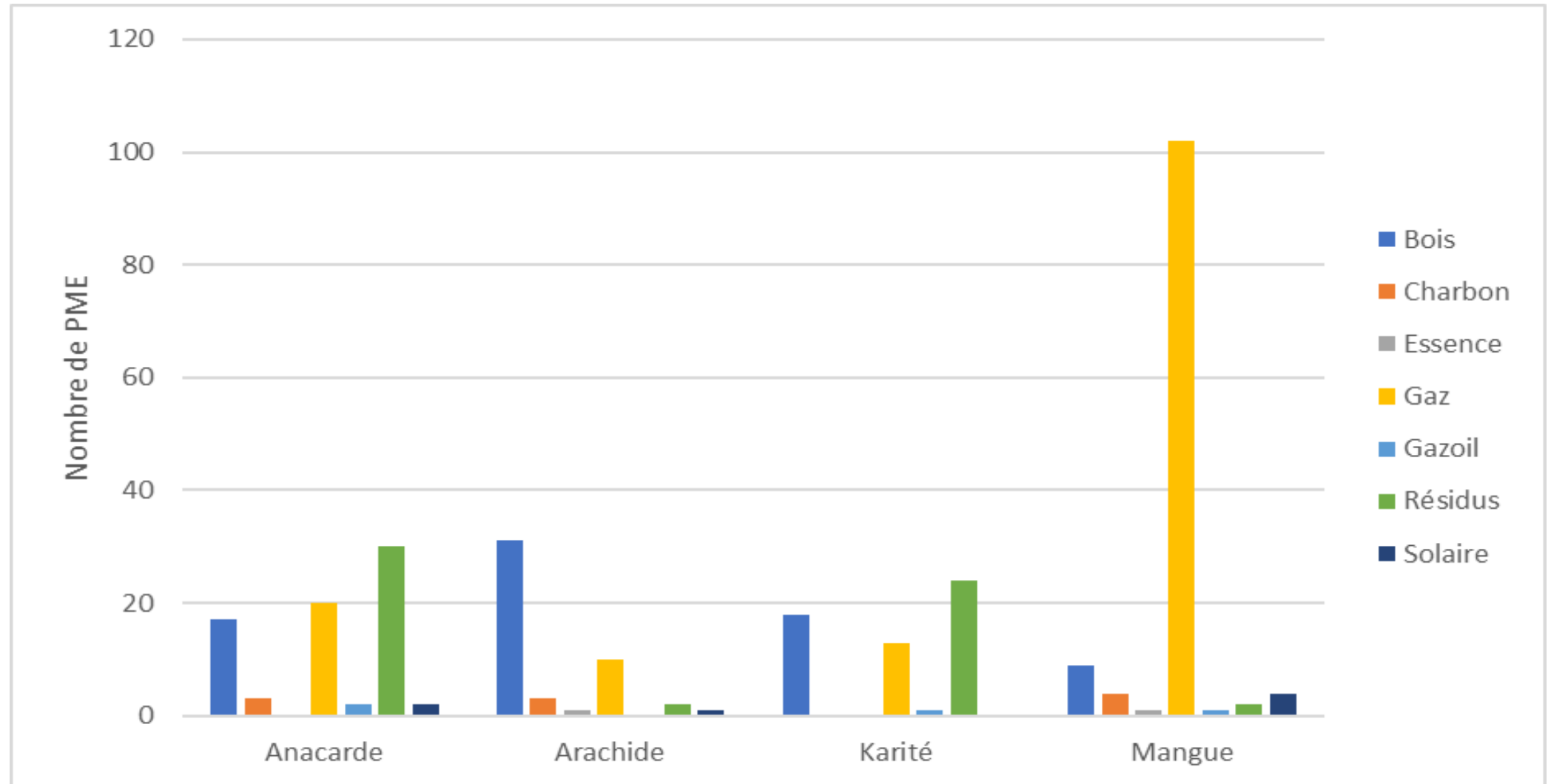
Method: localization of SMEs



- **Burkina Faso:** localization in Peri-urban areas
- **Senegal:** rural and urban areas

Sources of energy used for processing in SMEs

Mango SMEs : Gas | **Cashew SMEs :** Residual biomass, gas and firewood | **Groundnut SMEs:** firewood and gas | **Shea SMEs:** Residual biomass, firewood and gas



Method: Sampling for the baseline survey

Sampling strategy

- Low number of **permanent workers**: Exhaustive sampling
- **Temporary workers**:
 - ✓ Random sampling in Burkina Faso
 - ✓ Exhaustive sampling in Senegal

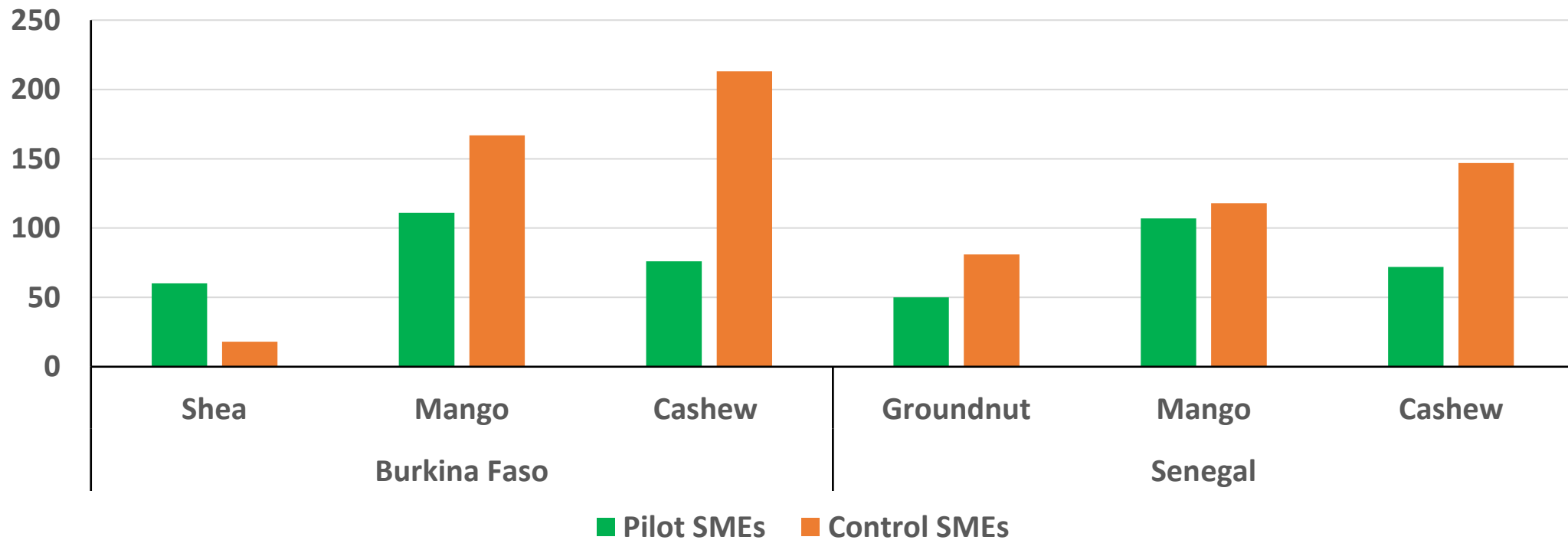
Sampling distribution of workers according to country and value chain

Country	Value chain	Total
Burkina Faso	Shea	78
	Mango	278
	Cashew	289
Senegal	Mango	225
	Cashew	219
	Groundnut	131
TOTAL		1220 1217 used in data analysis

Method : Number of workers accross SMEs treatment status

- 476 workers in pilot SMEs (BFA : 247 & SEN : 229)
- 744 workers in controls SME (BFA : 398 & SEN: 346)

Distribution of workers accross SMEs treatment status

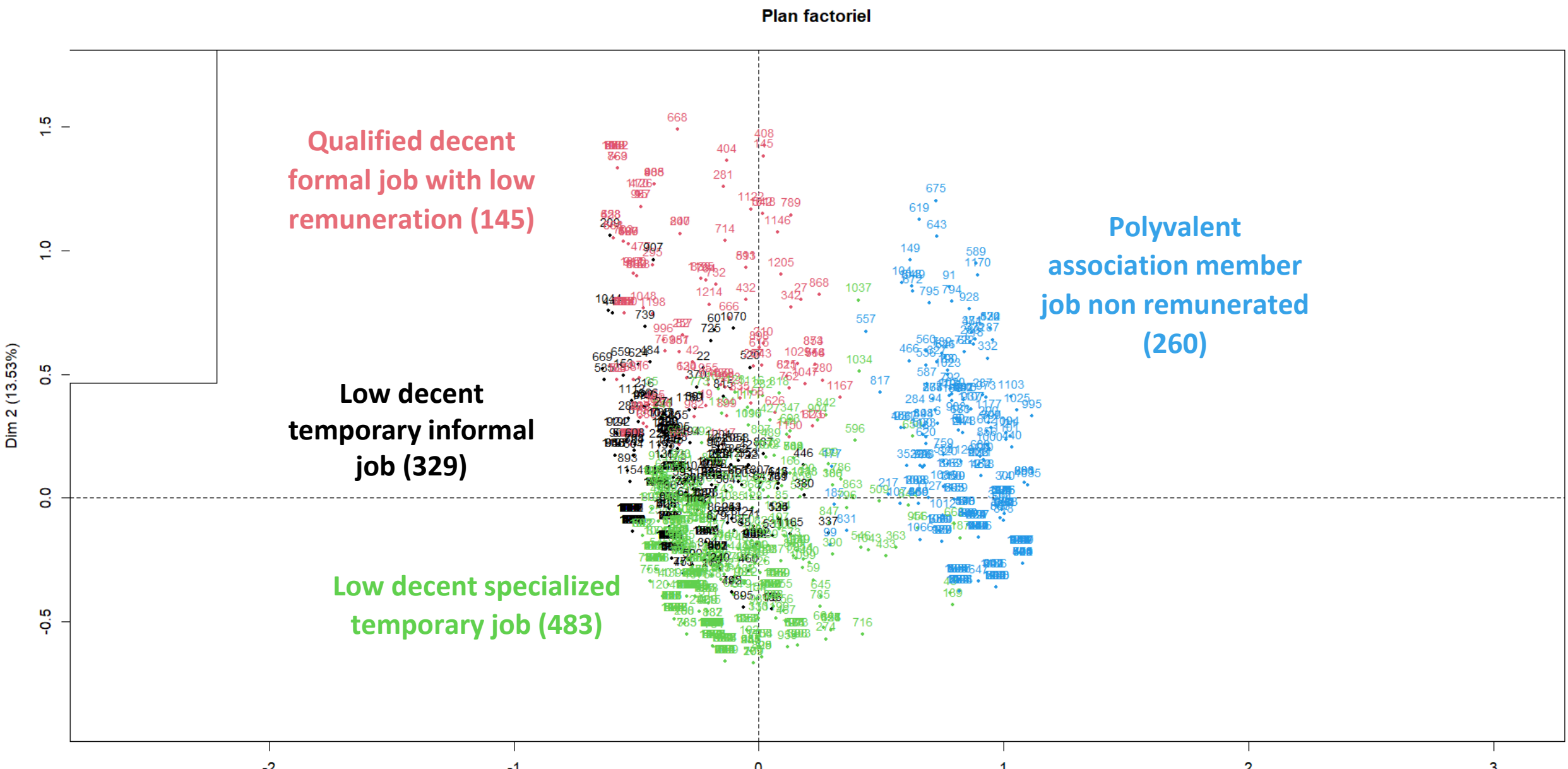


Method : From definition to proxies of decent work (MCA)

- ILO definition of decent work as “**productive work for women and men in conditions of freedom, equity, security and human dignity**”

Dimension	Indicators used
Employment creation	<ul style="list-style-type: none">- Daily remuneration (less than agric minimum wage, twice, more than twice)- Contract: wage no contract, wage contract, member- Job requires know-how (yes/no)- Number of tasks performed by the worker (polyvalent job vs. specialized)- Workers’status (permanent/temporary)
Rights at work	<ul style="list-style-type: none">- Verbal injuries (yes/no)- Drudgery perception (yes/no)- Health risk perception (yes/no)- Work accident (yes/no)
Social protection	<ul style="list-style-type: none">- Contribution of the employer to health expenses (yes/no)
Social dialogue	<ul style="list-style-type: none">- Did you already negotiate your remuneration (yes/no)- Workers’ union membership (yes/no)

Results of MCA : 4 types of jobs

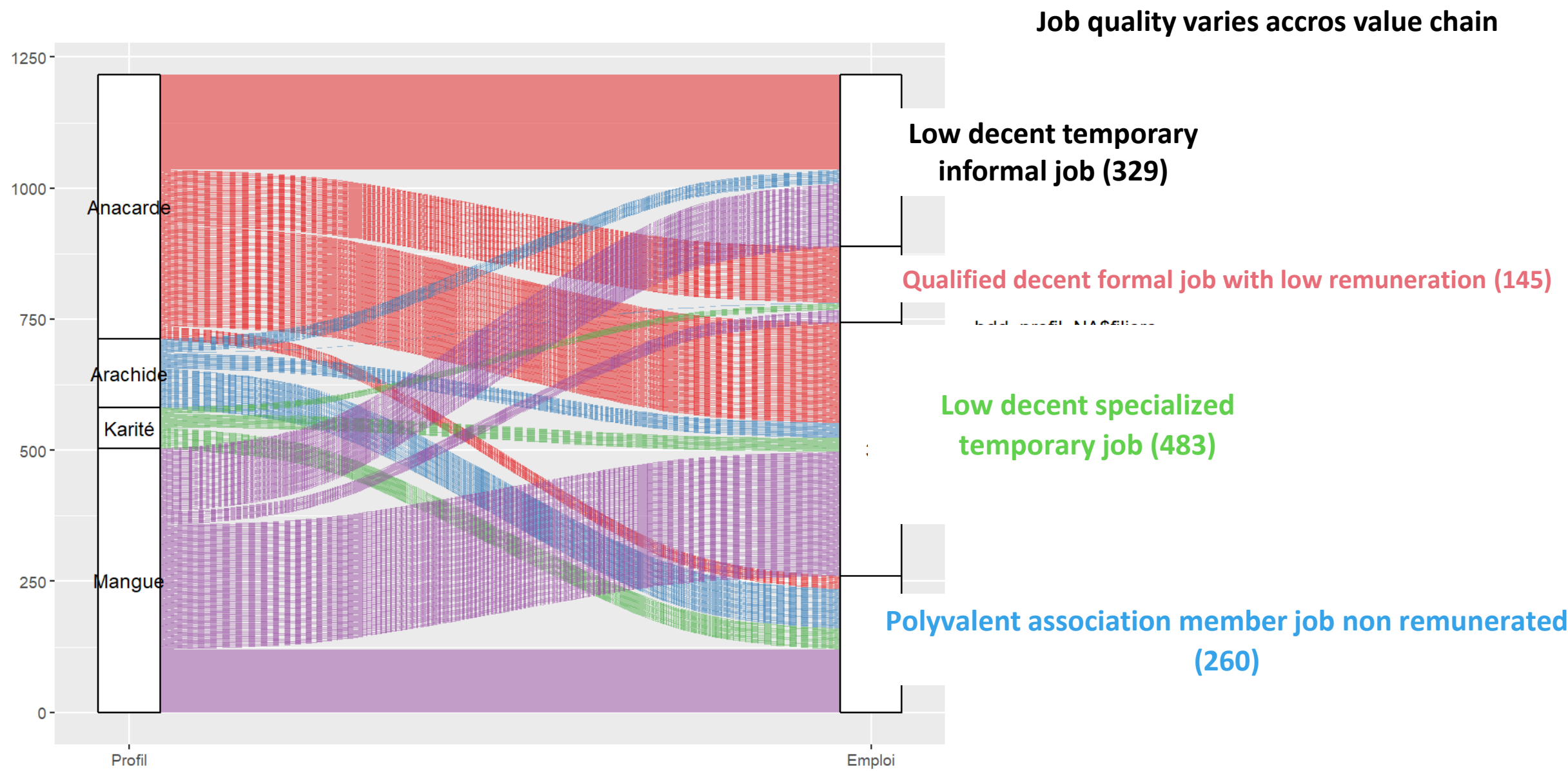


Results of MCA : 4 types of jobs

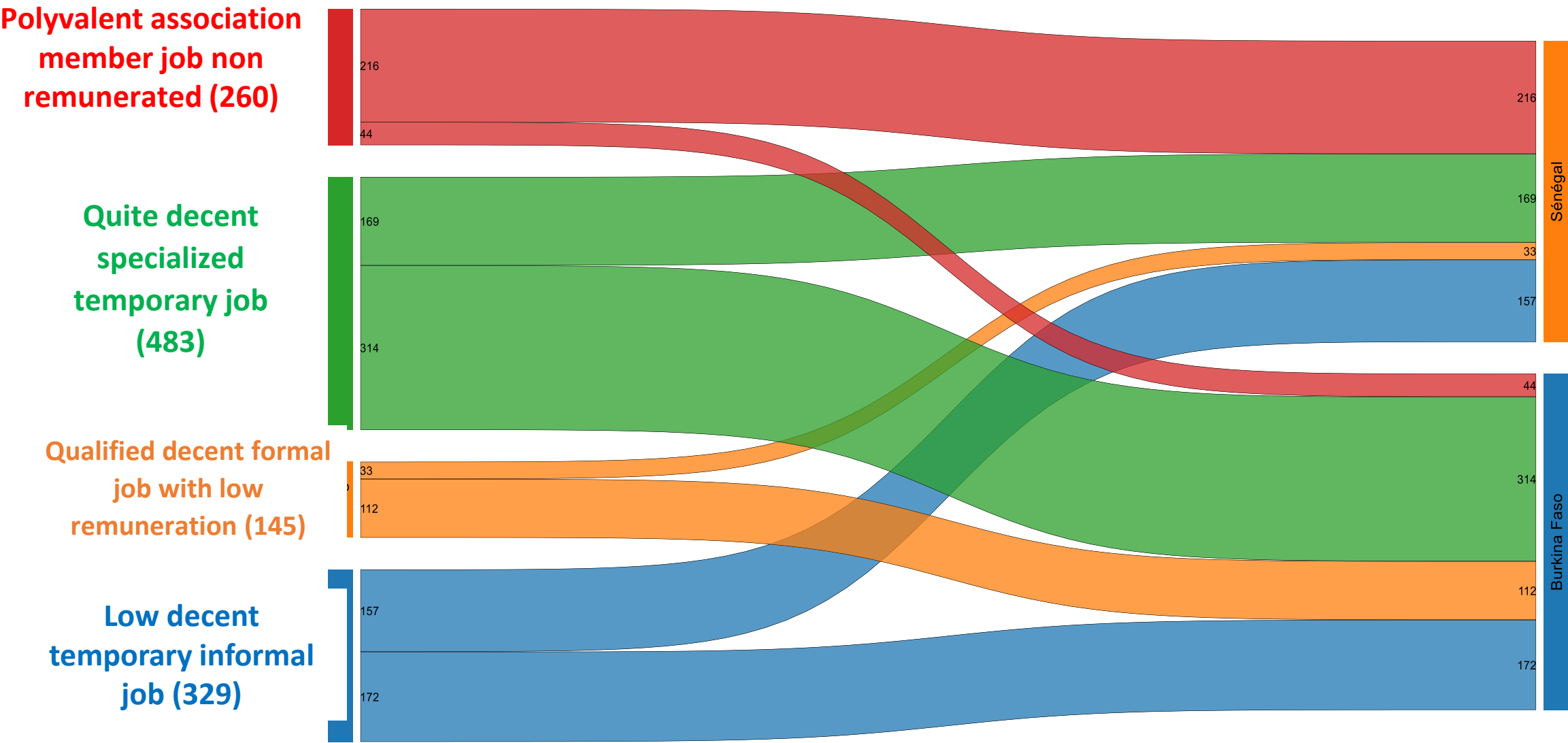
		Low decent temporary informal job (329)	Qualified decent formal job with low remuneration (145)	Quite decent specialized temporary job (483)	Polyvalent association member job non remunerated (260)
Decent jobs and full and productive employment	Temporary	95	68	82	1
	No contract wage	96	60	81	2
	No qualification	39	22	29	38
	Only 1 task (specialization)	68	74	84	29
	Low remuneration (less than GMW)	83	87	58	1
Rights at work	Drudgery	98	97	35	62
	Health	90	74	12	32
	Accident	15	40	6	18
	Verbal injury	42	60	33	10
Social and labour protection	No social protection	95	26	81	71
Social dialogue	No negotiation	71	31	98	81
	No union membership	88	62	98	90

Percentage of workers in each type
(grey: no signifactive)

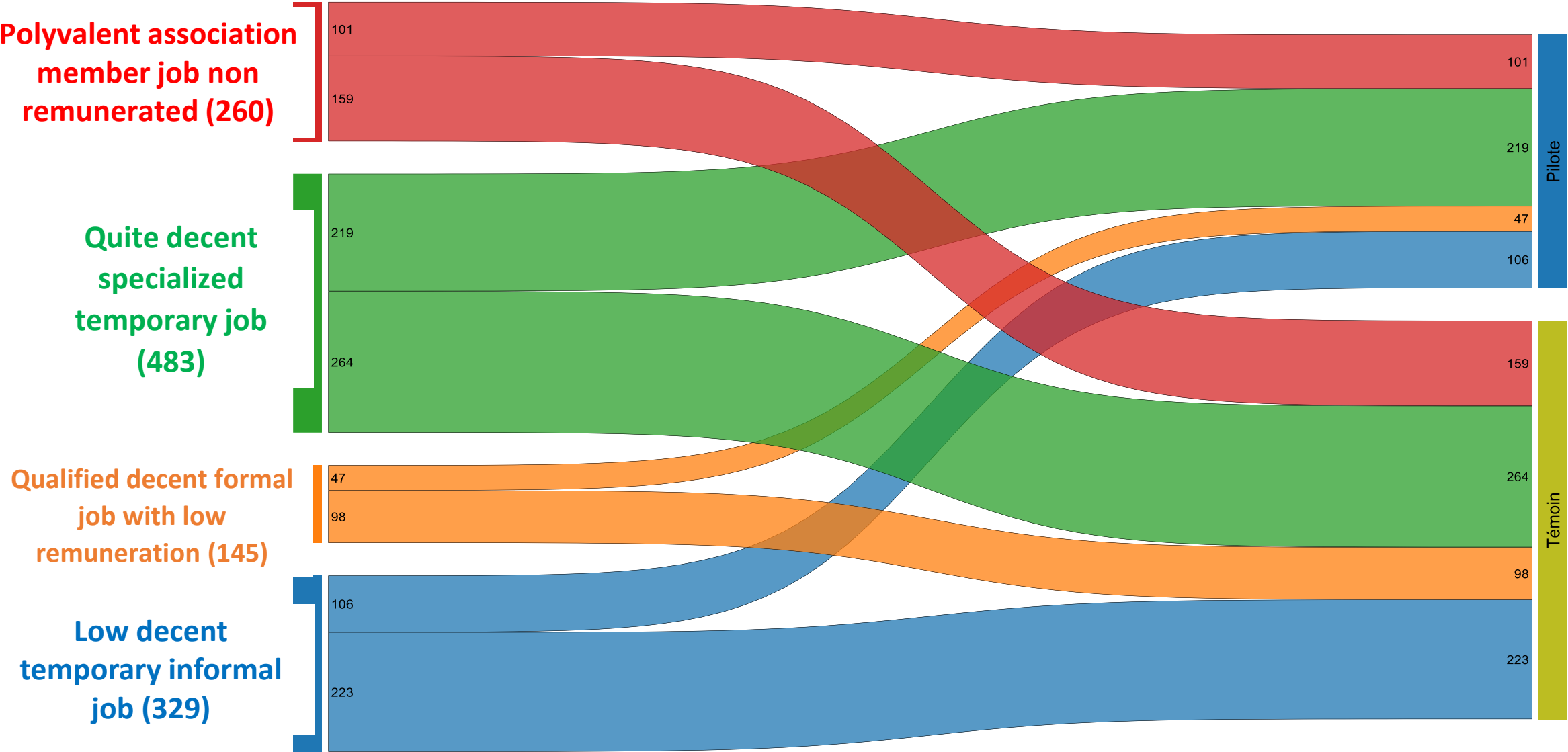
Results of sankey diagram : Jobs quality and value chains



Results of sankey diagram: Jobs quality accross Burkina Faso and Senegal

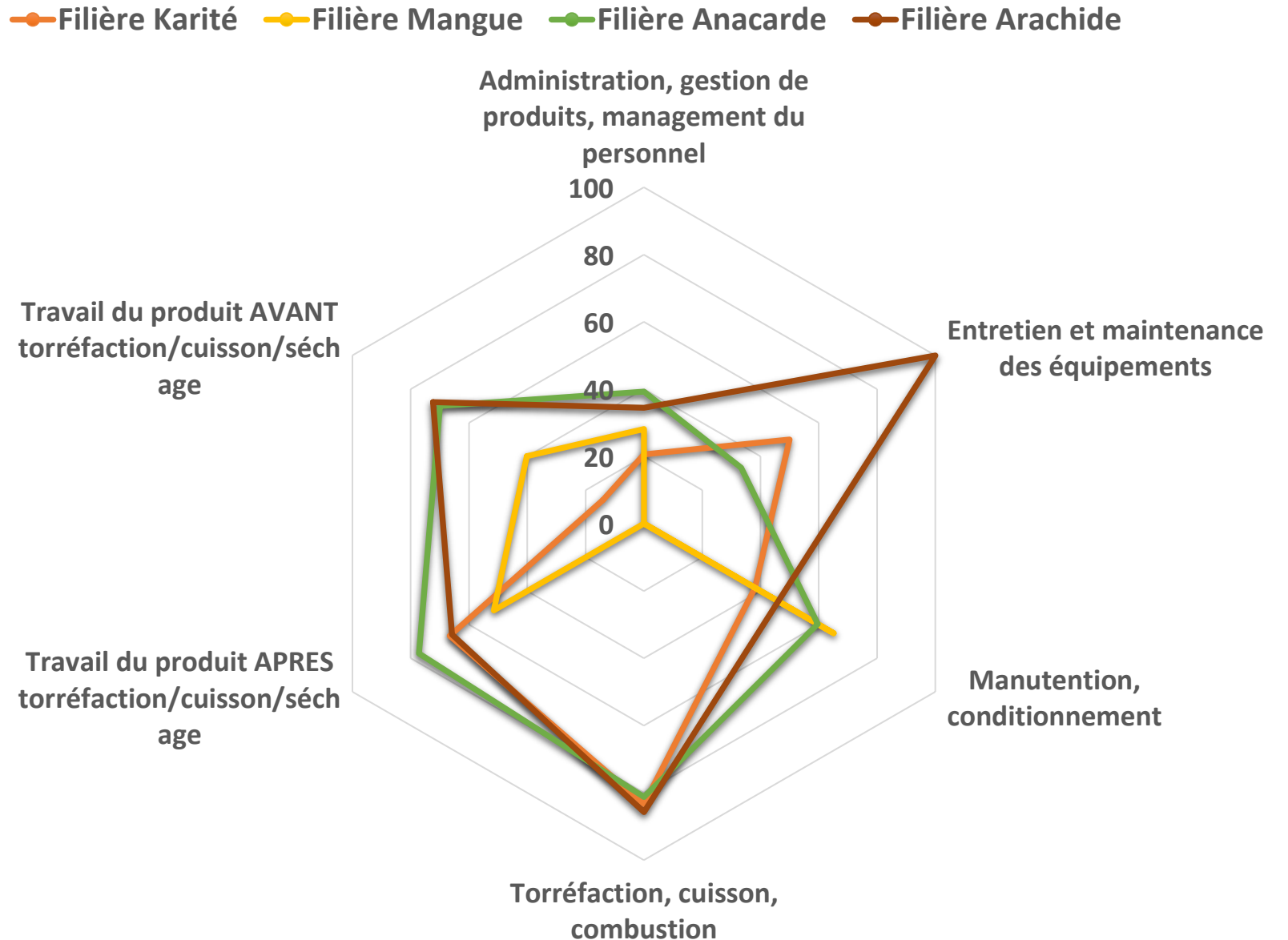


Results of sankey diagram: Jobs quality and accross SMEs treatment status



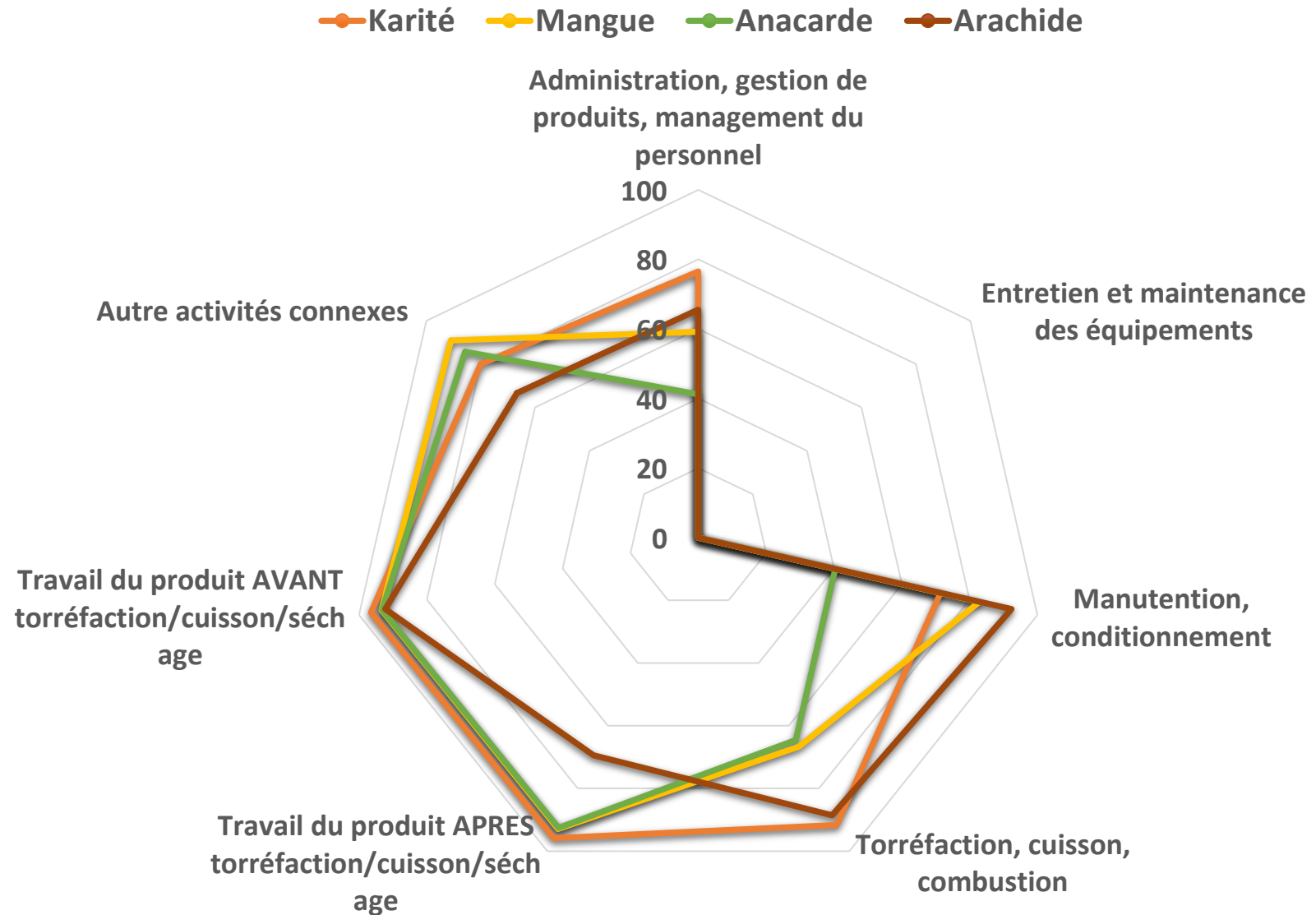
Results of perception analysis: drudgery tasks

- Roasting/cooking/burning work are perceived as the most drudgery tasks in the shea, cashew and Groundnut SMEs
- Handling and packaging are perceived as the most drudgery tasks in mango SMEs.



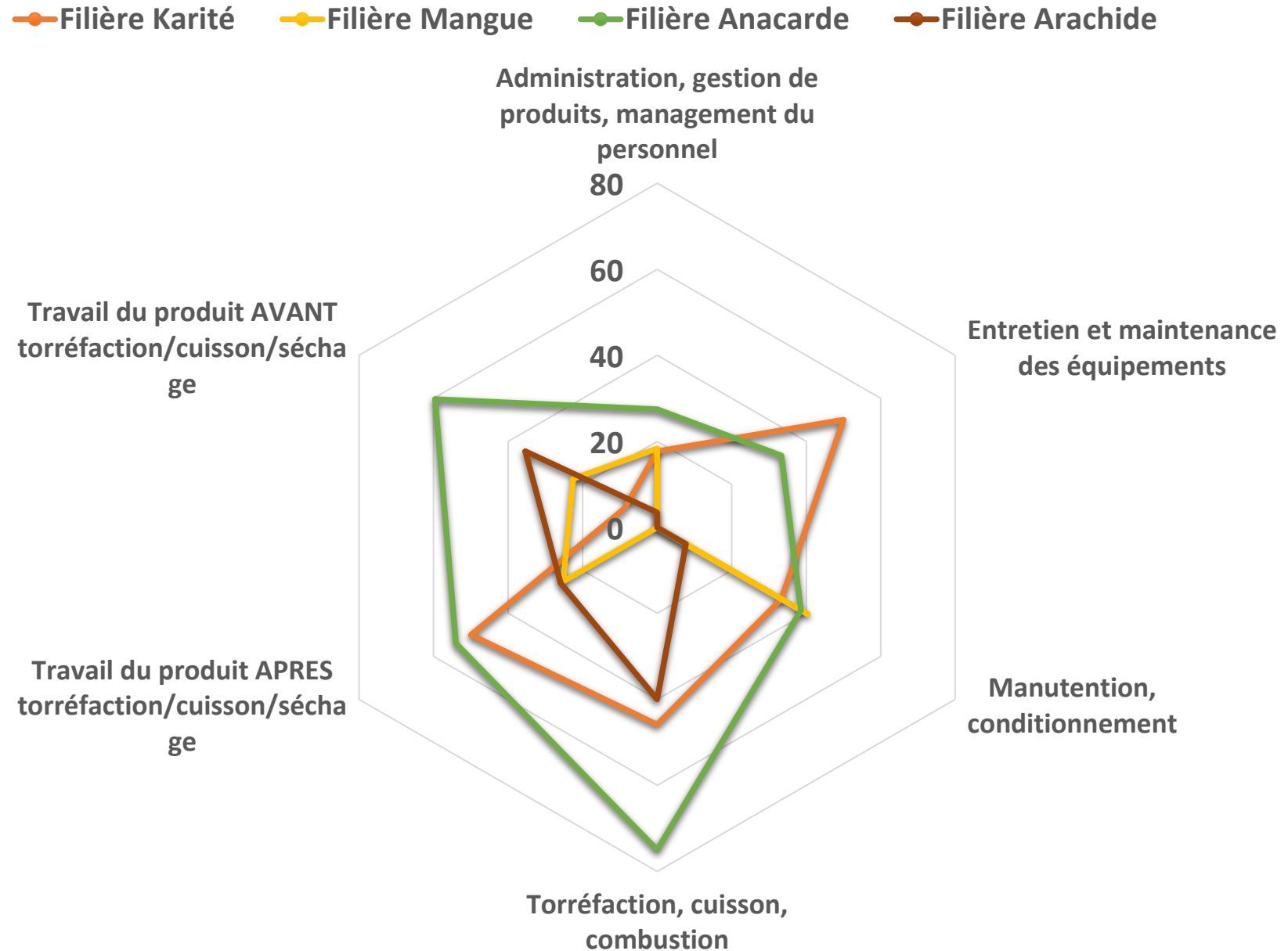
Task and gender

- Women perform manual tasks and male perform equipment maintenance and repairs tasks



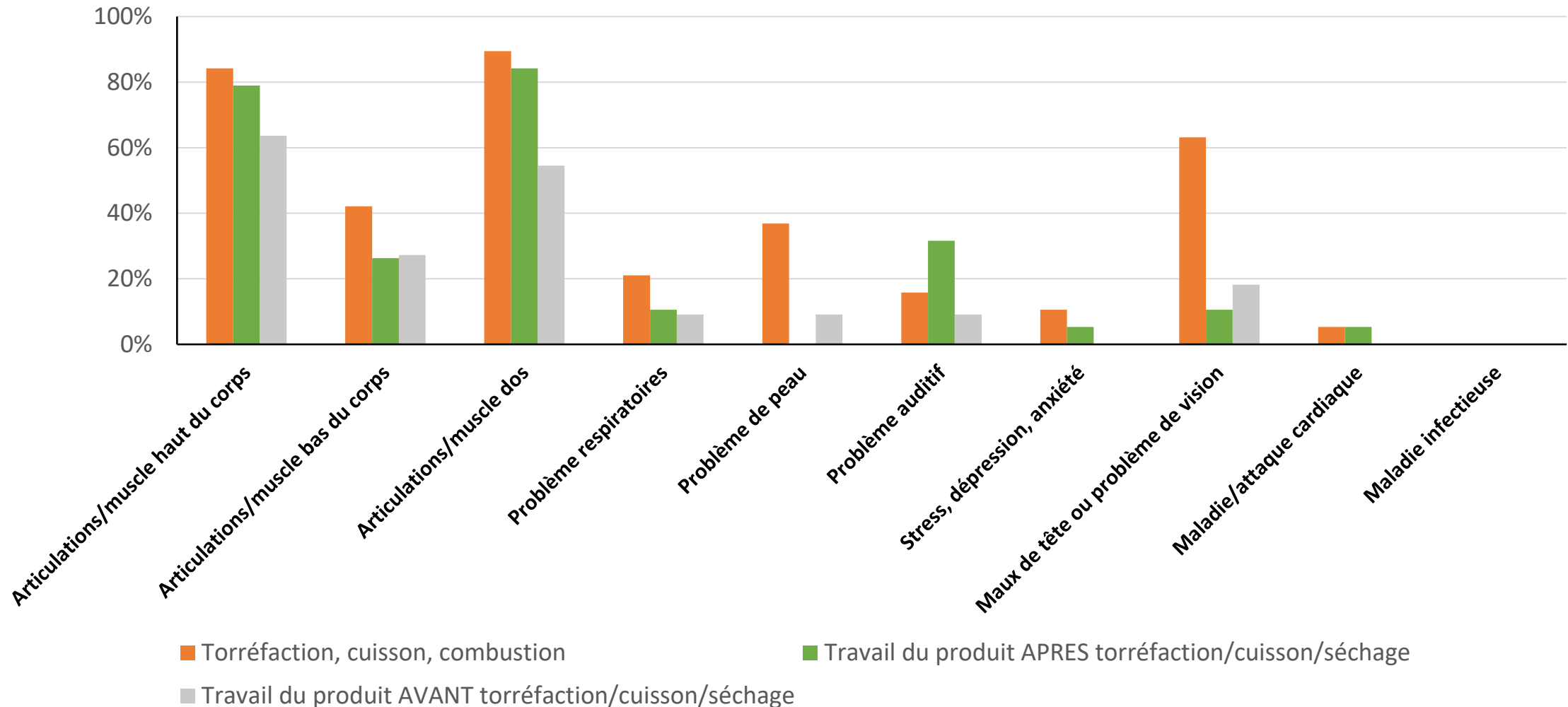
Results of perception analysis : Health risk

- Workers in mango SMEs consider that the tasks they undertake have a relatively lower risk on their health compared to cashew, groundnut or shea SMEs workers.



Results of perception analysis: Health problem

- Recurrence of upper body and back muscle joint problems according to workers' perception
- Breathing problems are rarely mentioned by workers



Conclusion and impact evaluation perspective

- Job quality in agro-processing SMEs in Burkina Faso can be classified into four groups.
- **Most of polyvalent association member jobs are in Senegal agro-processing SMEs**
- **The proportion of workers having decent jobs is relatively high in Burkina Faso agro-processing SMEs**
- **Job quality distribution is almost the same in both pilot and control SMEs**
- The tasks targeted by BioStar in SMEs processing chains are perceived as drudgery by the workers
- Women execute the most drudgery tasks in the processing chain.
- **Potential impact: Can BioStar reverse the situation ?**

THANK YOU !