

Valorization of **cashew apple** in Africa

Why did we start?

- **Cashew apple** is 90% of weight of cashew fruit (*ca.* **42m tones**), only 1.3m tones is used into commercial products, mainly in Brazil as a beverage [1].
- **Most of fruit is left on the ground** [2].
- **Netherlands is the largest importer** of cashew kernel in EU [3].

Living income for farmers



[1] Full article: From food waste to functional component: Cashew apple pomace (tandfonline.com)

[2] Biotechnological valorisation of cashew apple: Prospects and challenges in synthesising wide spectrum of products with market value – ScienceDirect

[3] Factsheet-Cashew_UCN-NL-2022_Guide-for-value-chain-management-in-the-protein-transition.pdf

SMP – Objectives, consortium, approach

- The aim of this SMP project is to **support Dutch SMEs in their goals of sustainable operations** and to **maximize value of cashew** in Africa, through building industrial and academic collaborations on implementation and/or development of new valorization routes for cashew apple in Africa.



Cashew2Carbon
(prev: FUEGO BV)



Rijksoverheid



Results (1): Information search



- Most scientific research on Brazilian and Asian cashew apple
 - Is African variety different?
- Processing:
 - Mainly juice extraction as commercial output (Brazil)
 - Modern technologies have been tested by researchers
 - Status of implementation in Africa?
- Applications:
 - Cashew apple as a raw material (e.g., flour, biomass for fermentation)
 - Extracted/separated value-added ingredients (bioactive: carotenes, vitamins)
 - How to manage variation in cashew apple quality post-harvest?



Results (2): PPP – TotallyCashew submitted

- Rhumveld Winter & Konijn B.V.
- Johnny Cashew Nederland B.V.
- Cashew2carbon B.V.
- Mimi Moto BV
- Mama Cashew
- Pamoja Moçambique LDA
- Julius Berger Nigeria Plc
- JJ Growers Tanzania
- Neste
- Eni
- Solidaridad Network
- C.B.L. Centraal Bureau Levensmiddelenhand
- TACP, Tanzanian Association of Cashew Processors



PPP proposal title: **TotallyCashew - Total use of cashew residues: apple and shell**

WP 1: Project management and communication

WP 2: CASHEW APPLE

- 2.1: Upstream processing (farm)
- 2.2: Downstream processing (industrial)
- 2.3: Application testing



WP 3: CASHEW SHELL

- 3.1: Shell pressing + extraction
- 3.2: Shell applications
- 3.3: CSNL (oil) processing + applications



WP 4: Impact and implementation

- 4.1: Techno-economic analysis
- 4.2: Environmental and social impact
- 4.3: Legal and regulatory aspects

Results (3): Field visit October 2024

- Cashew processors
- Cashew farms
- Tanzanian Agricultural Research Institute (TARI)
- Clean cooking solutions
- Tanzanian Cashew Board
- Dutch Embassy in Dar es Salaam



Conclusions and Next steps

- Cashew apple is NOT processed in Tanzania
- Cashew apple has high potential value:

- Low-Value Scenario (Minimal Processing, Raw Use)

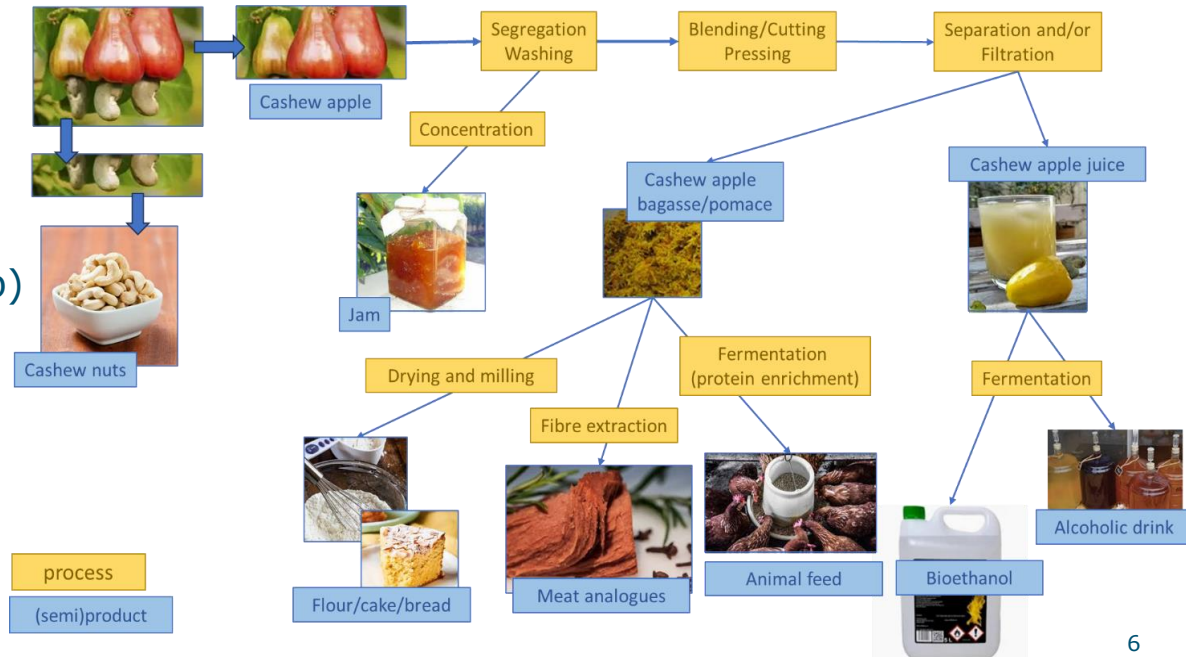
- €1bn

- Moderate Processing (Juice, Pulp)

- €10bn

- High-Value Processing (Alcohol, Bioethanol)

- €30bn



Lead Partner's feedback

'WUR provided us detailed insights into potential applications for cashew apples and the challenges within its supply chain.

This has set the foundation for the next phase, which involves conducting further exploration and lab research to validate and refine these applications.

Advancing this research will help Rhumveld move closer to its goal of ensuring a living income for its smallholder cashew farmers by creating additional income opportunities through the collection of cashew apples.'

Please reach out!

Contact:

Aleksandra Pawlik

aleksandra.pawlik@wur.nl

+31(0)317 485 2918

