



World Bioenergy Association

Webinar Optimizing Industrial Supply Chains: Building bioenergy trade

# **The biomass supply chains sweet spot**

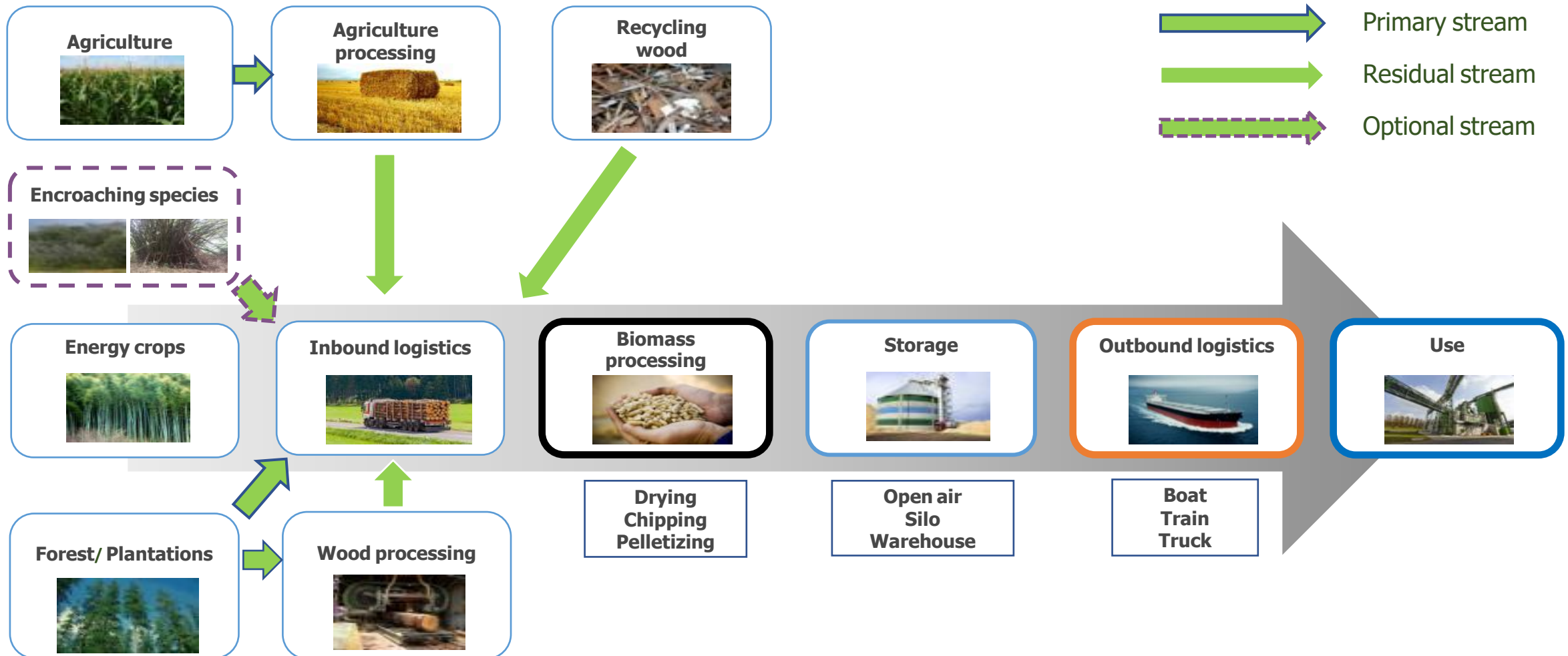
11 November 2024

The logo graphic for Hinterland features two stylized, overlapping green mountain peaks. The word "Hinterland" is written in a green serif font, positioned below the peaks.

Hinterland

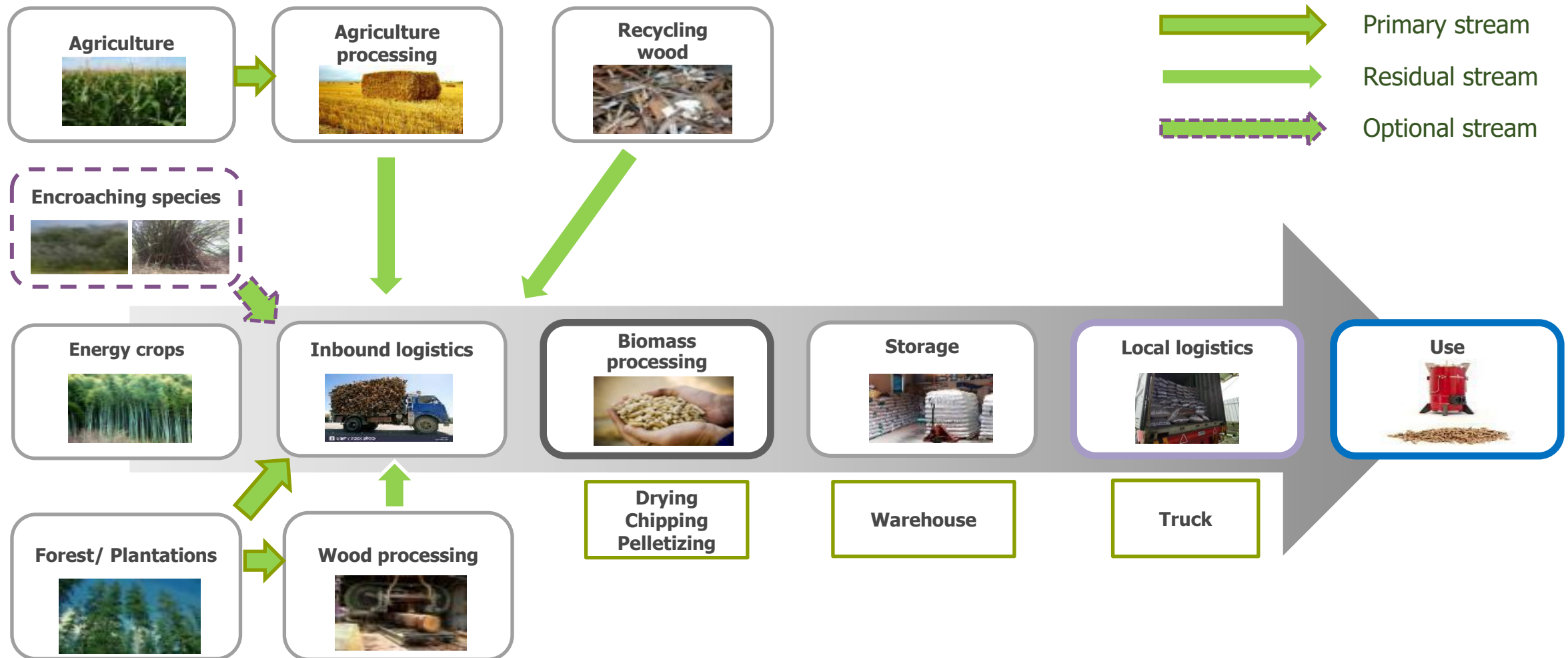
# The various steps in the biomass supply chain

Perspective : European utility looking for LT security of supply



# The various steps in the biomass supply chain

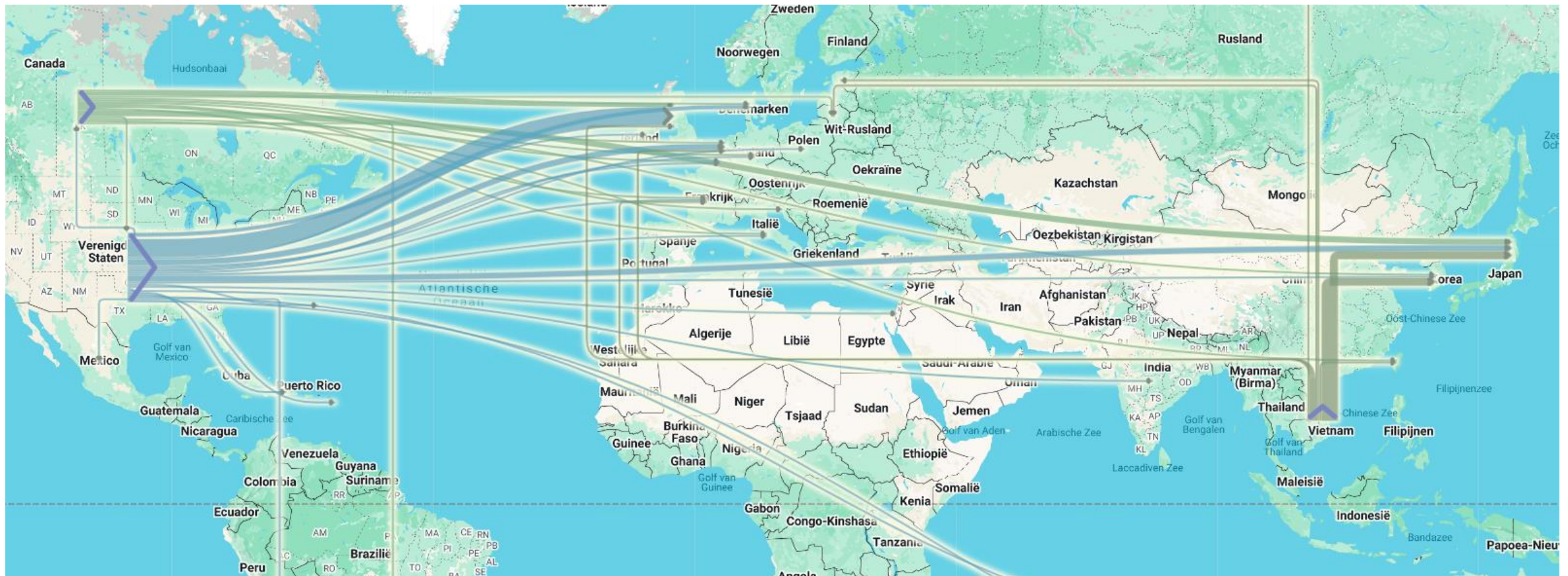
## Perspective : African all-inclusive clean cooking and biomass fuel





# Global wood pellet supply chains

## Global annual wood pellet trade Top 3 countries (interactive online sankey map 2023 trade data)

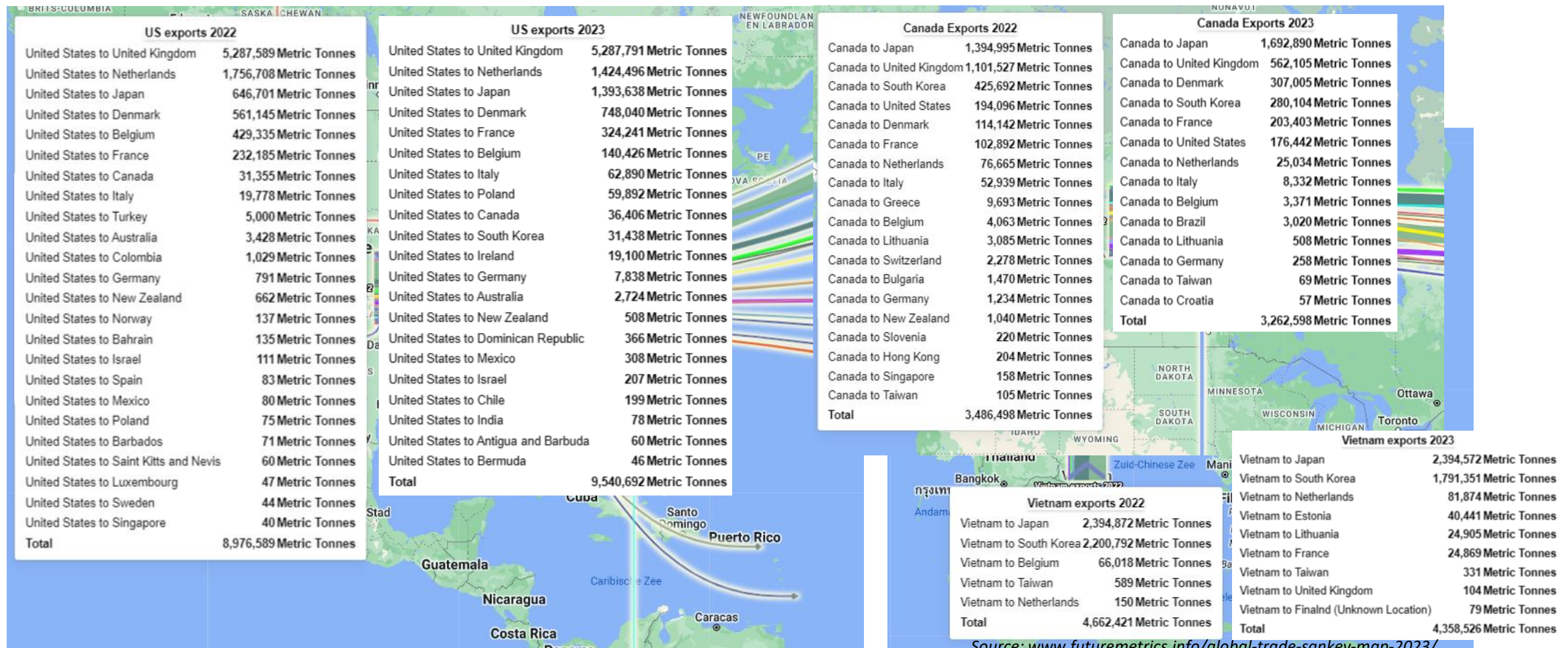


Source: [www.futuremetrics.info/global-trade-sankey-map-2023/](http://www.futuremetrics.info/global-trade-sankey-map-2023/)

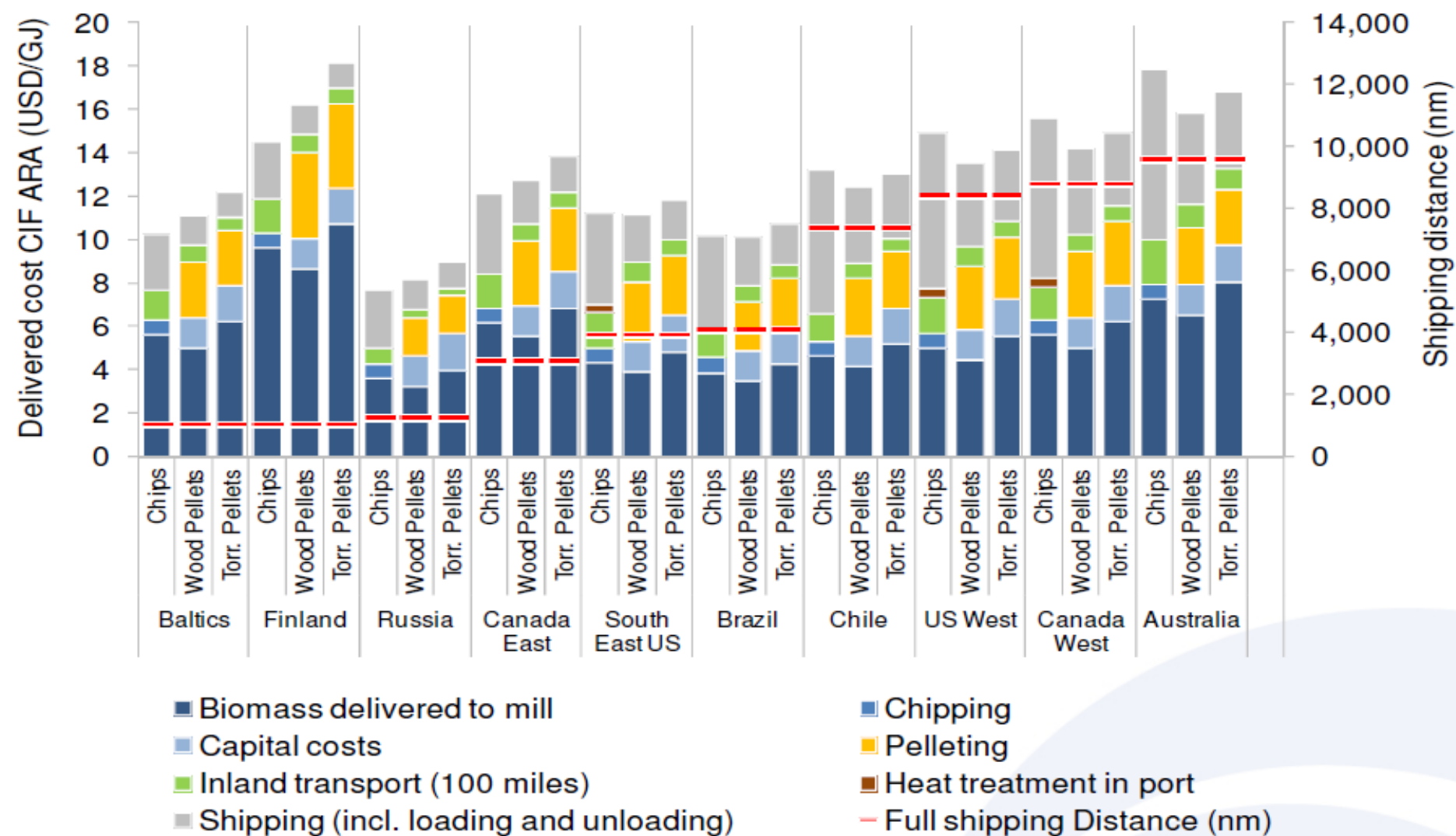


# Global wood pellet supply volumes

## Global annual wood pellet supply of Top 3 countries (interactive online sankey map 2023 trade data)



# Global supply of wood pellet CIF ARA breakdown



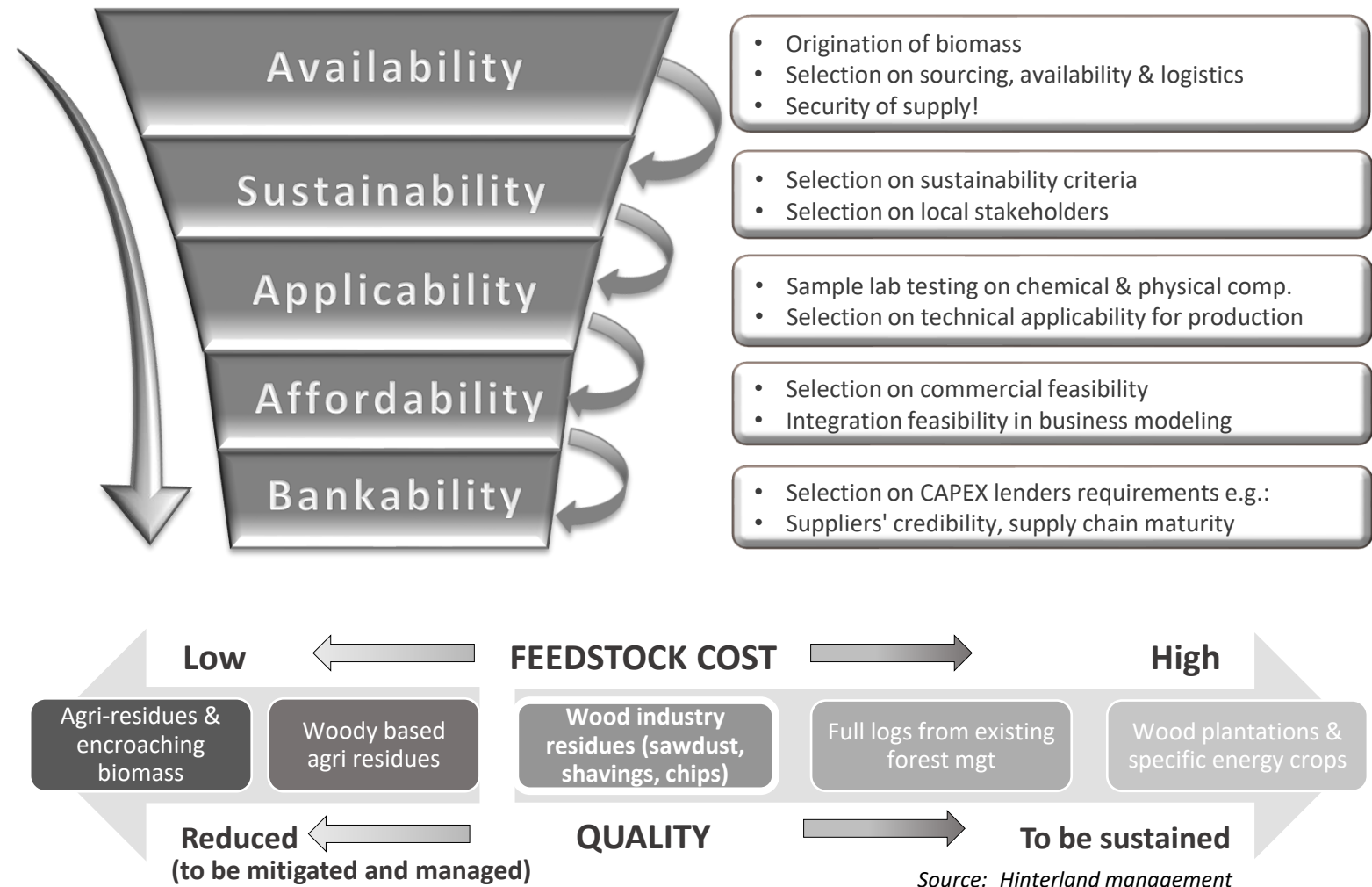
Source: Pöyry

# Biomass supply chain assessment

## Fuel supply approach and assessment biomass and bioenergy production:

- One of the main important selection criteria for a biomass / bioenergy plant will be the biomass (local or imported) availability, sustainability, applicability, affordability and bankability
- Biomass feedstock choice will be determined on local availability, needed pre-processing and related supply and pricing risks
- Local supply and control over feedstock is to be favoured to control pricing and supply
- Various biomass feedstocks can be used where there is a correlation between applicable feedstock quality and feedstock cost
- For project investment attractiveness, driving down feedstock costs (Affordability), while ensuring sufficient security of supply (Availability) and quality (Applicability) and are key (“sweet spot”)
- Per project / investment and its related location, this unique “sweet spot” is to be defined

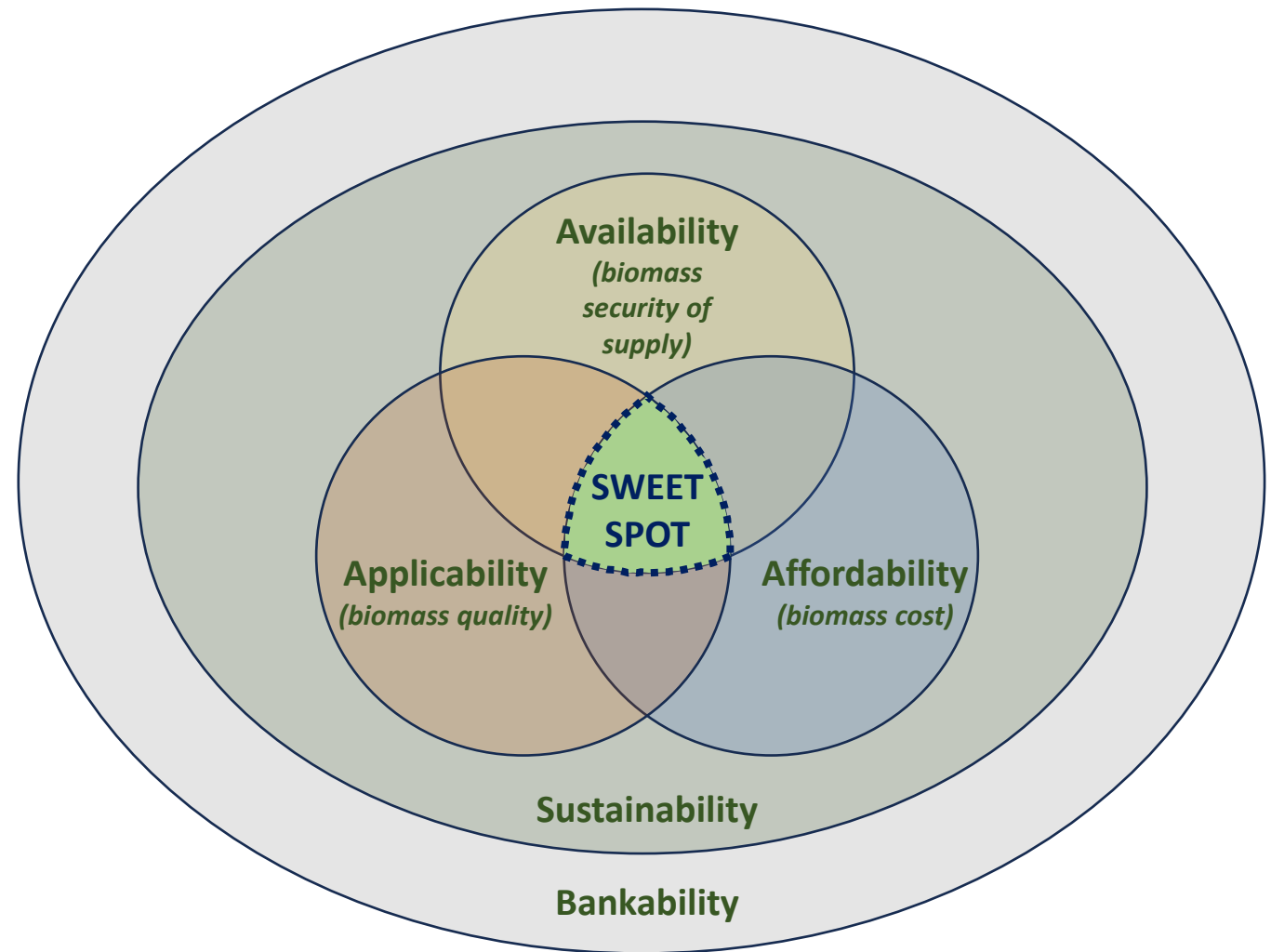
## Funnel and exclusion approach to identify sustainable feedstock opportunities



# The biomass supply chain “sweet spot”

## How to get to the biomass supply chain “sweet spot”:

1. Maximize initial scouting and origination of all biomass supply options (**Availability**)
2. Don't compromise on **Sustainability**
3. Arrange fuel acceptance specifications as wide and tolerant as possible with the end user (**Applicability**)
4. Structure and negotiate best biomass cost at user gate and optimize the upstream and downstream side of the biomass supply chain option to drive down cost (**Affordability**)
5. Find **sweet spot optimum** as best compromise between biomass security of supply, acceptable quality and cost
6. Increase the sweet spot by **widening fuel acceptance criteria** to accept lower quality biomass (even optionally as trade-off with higher CAPEX and OPEX) providing for consequential lower biomass cost and increased fuel availability
7. Again, don't compromise on **Sustainability**
8. Ultimately the sweet spot to meet all **Bankability** criteria



Source: Hinterland management



- 1. **Develop** the entire supply chain from (unlocked) feedstock to ultimate use as renewable fuel
- 2. **Assessing** the **individual elements** of the supply chain on its optimal (Security of Supply, Quality, Price, Sustainability and Bankability) approach
- 3. Evaluate **impact on other** (upstream and downstream) **elements** in the supply chain
- 4. Assess **alternative options** for **improved overall performance supply** of the entire supply chain
- 5. Structure the **most optimal supply chain**



Reasonably well matured and operational experience, scaling required, but achievable

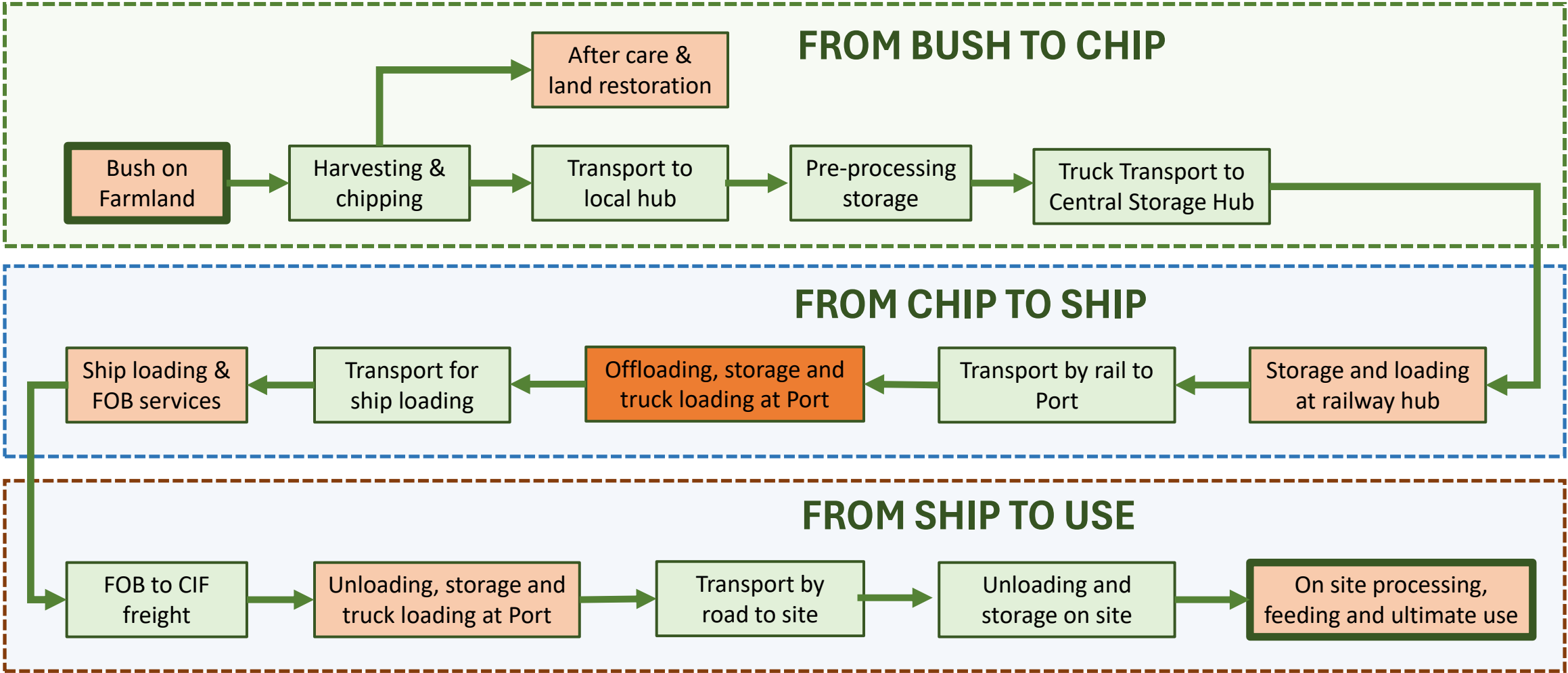


Addressed, but not secured / developed, needs attention to implement, but achievable



Critical Success Factor and not yet developed, needs full attention

# EXAMPLE: Bush chips biomass supply chain overview



Source: Hinterland management





# Hinterland

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