



World Bioenergy Association

Webinar Optimizing Industrial Supply Chains: Building bioenergy trade

The biomass supply chains sweet spot

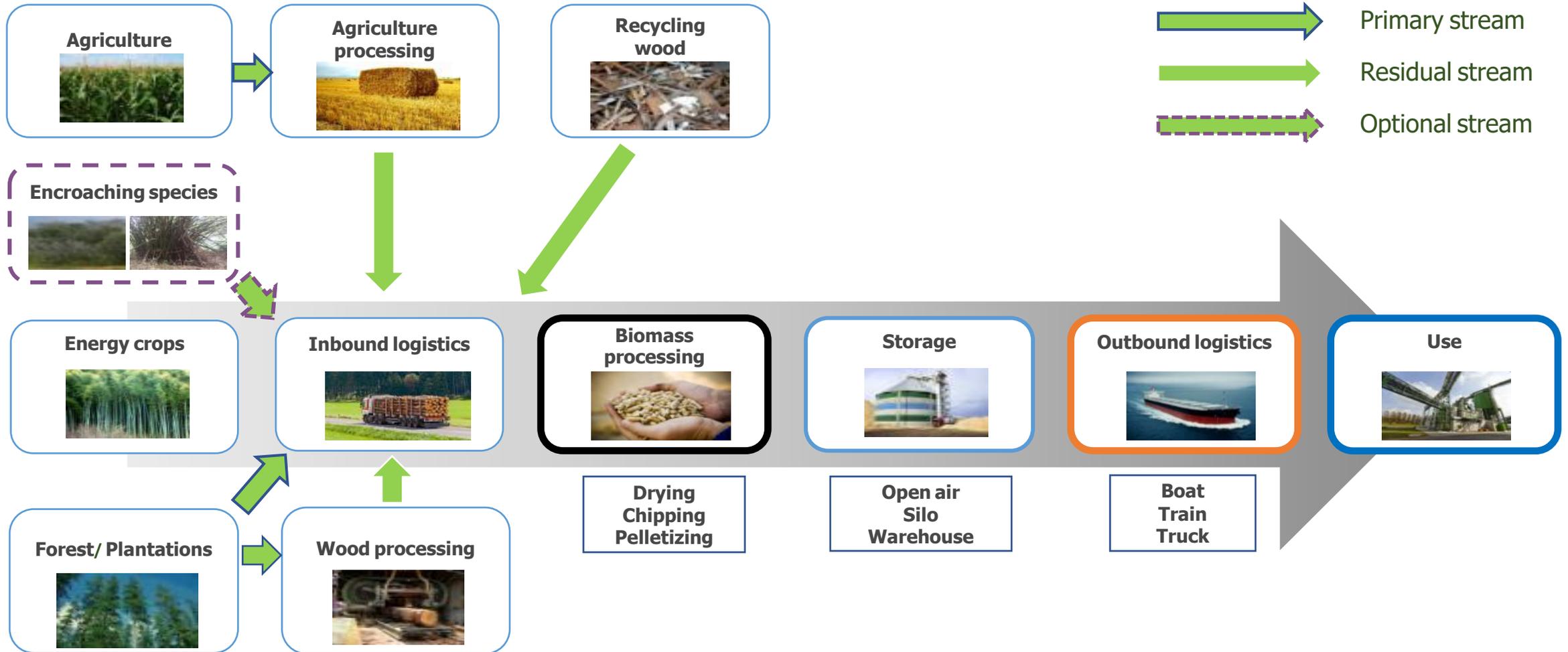
11 November 2024



Hinterland

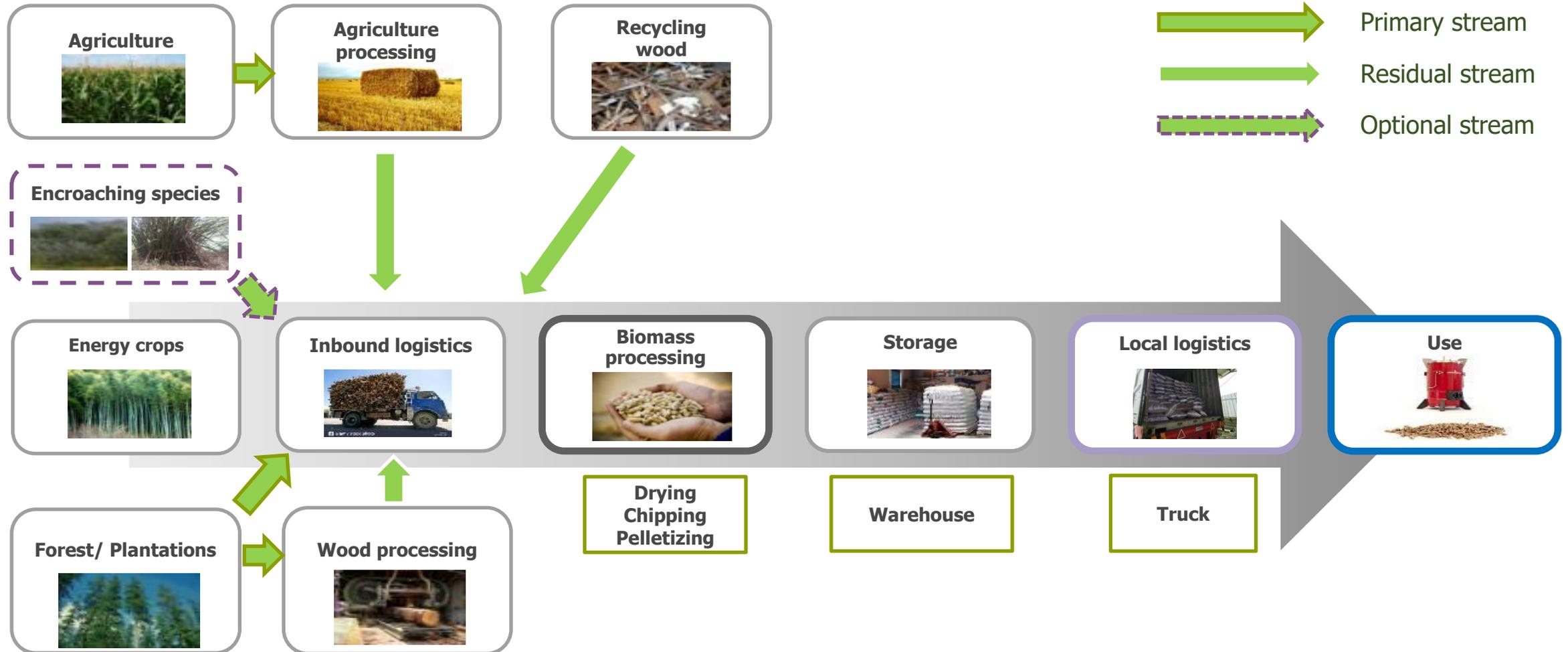
The various steps in the biomass supply chain

Perspective : European utility looking for LT security of supply



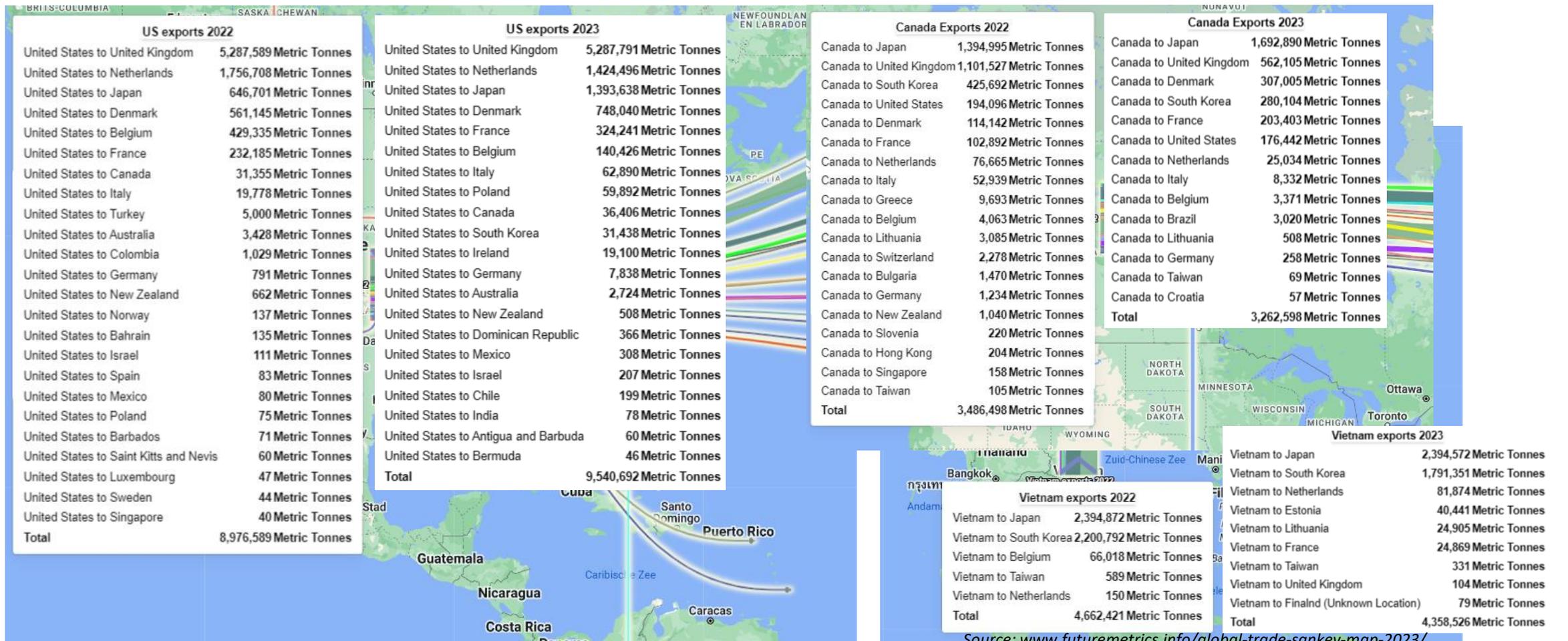
The various steps in the biomass supply chain

Perspective : African all-inclusive clean cooking and biomass fuel



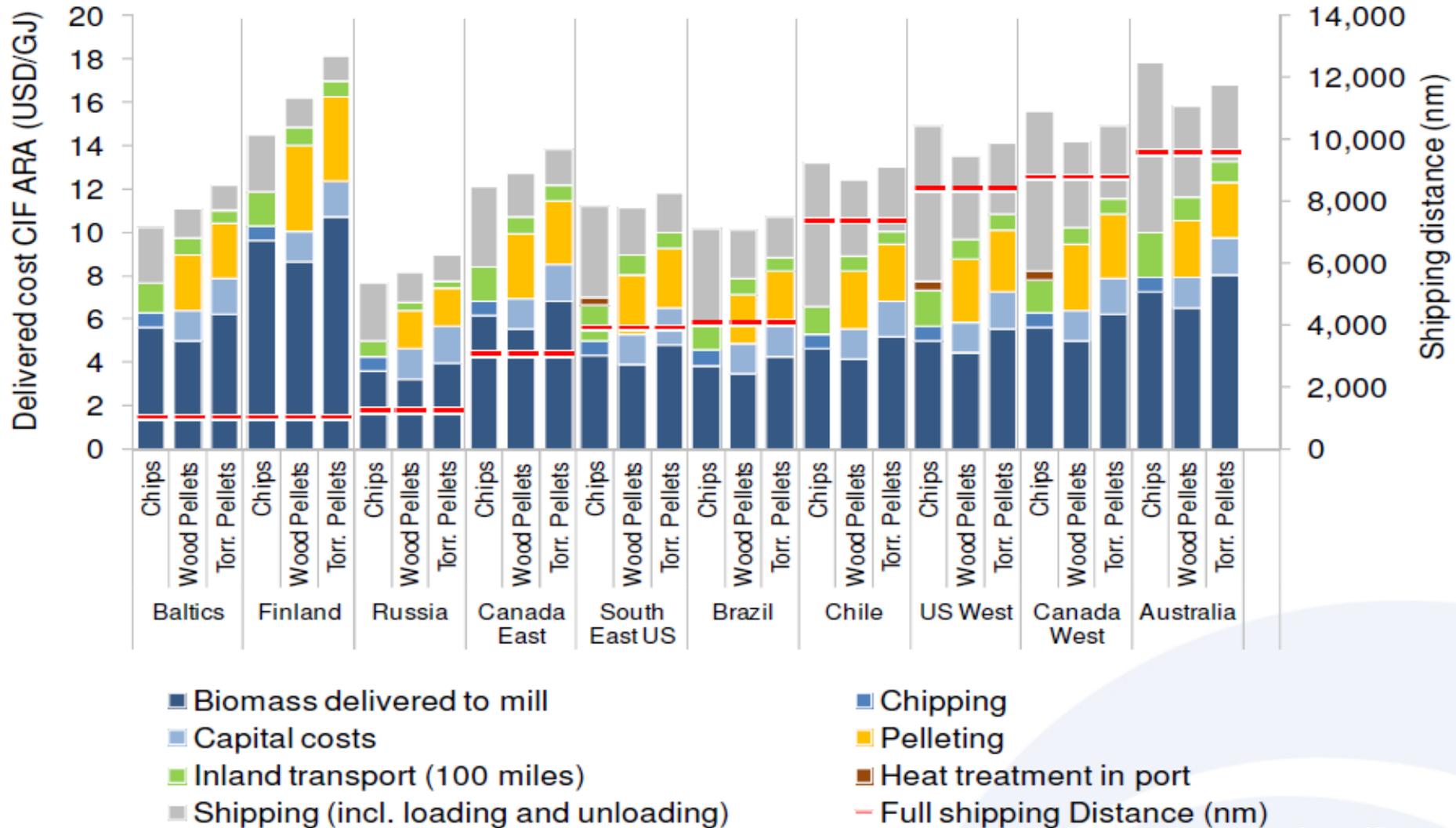
Global wood pellet supply volumes

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



Source: www.futuremetrics.info/global-trade-sankey-map-2023/

Global supply of wood pellet CIF ARA breakdown

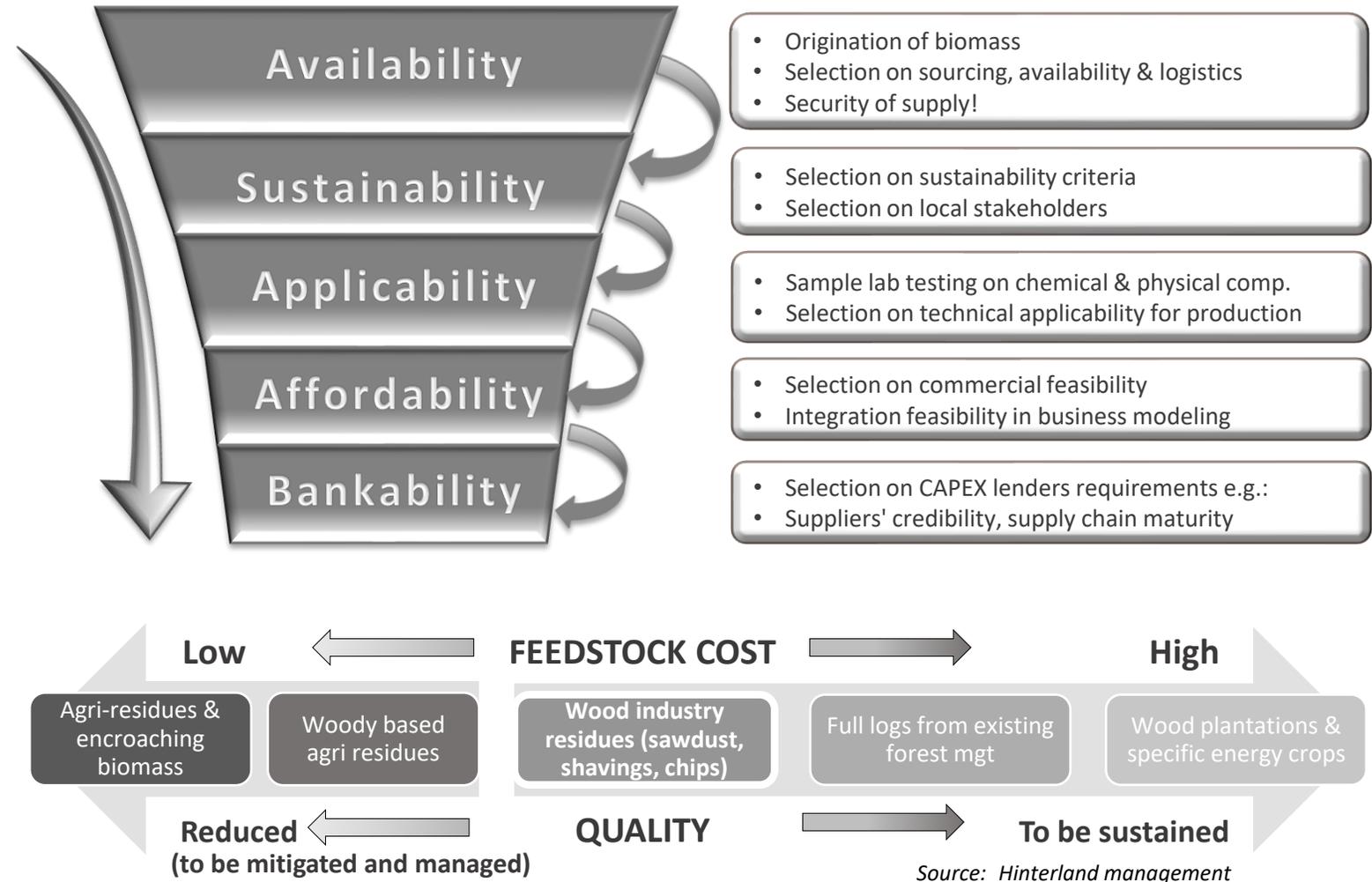


Source: Pöyry

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

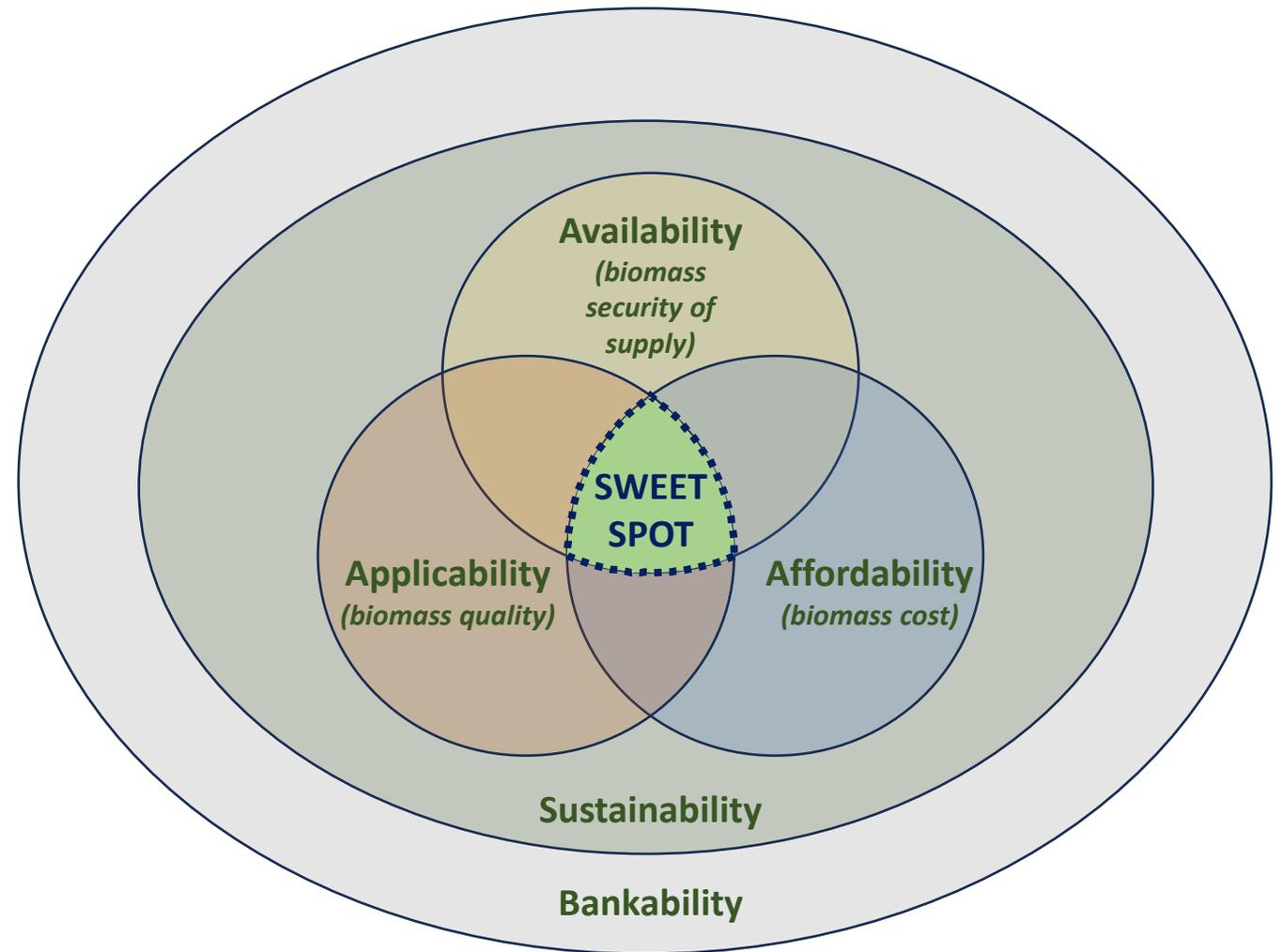
Funnel and exclusion approach to identify sustainable feedstock opportunities



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

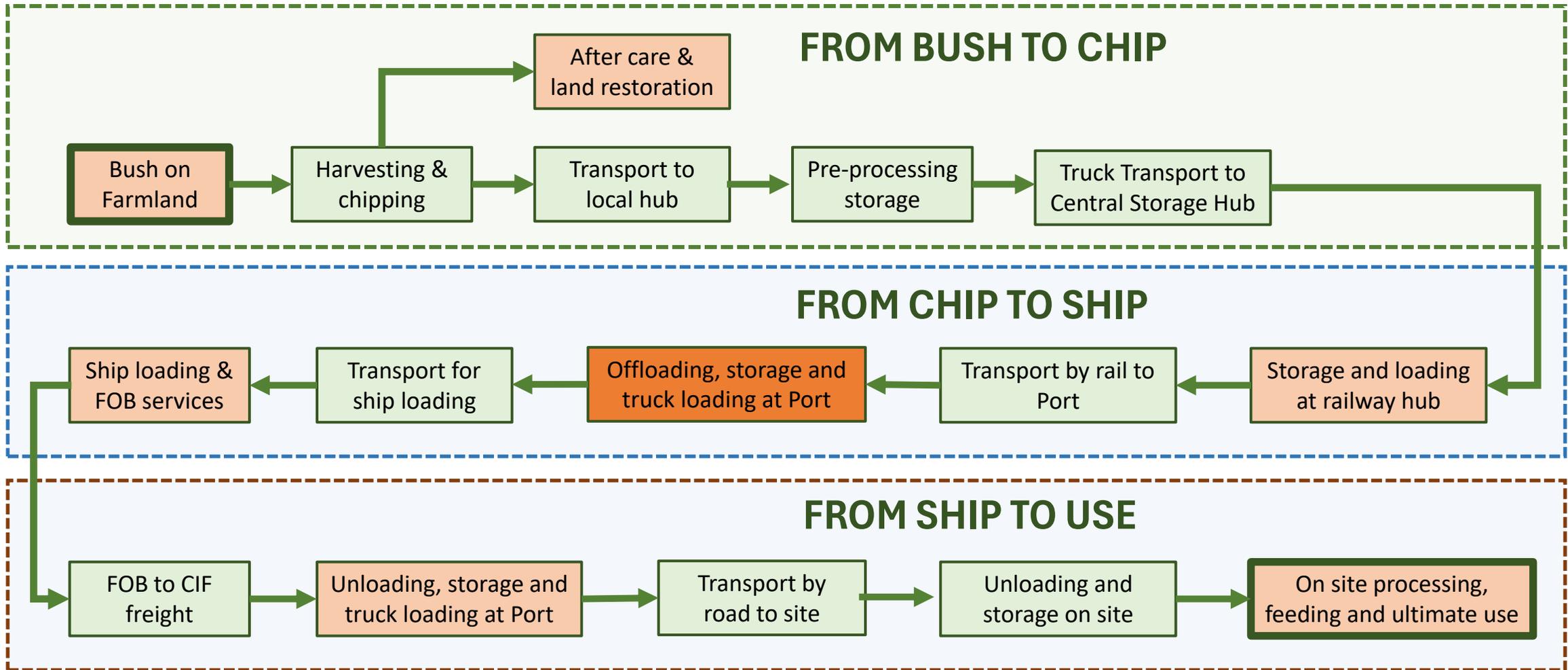


Source: Hinterland management

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



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