



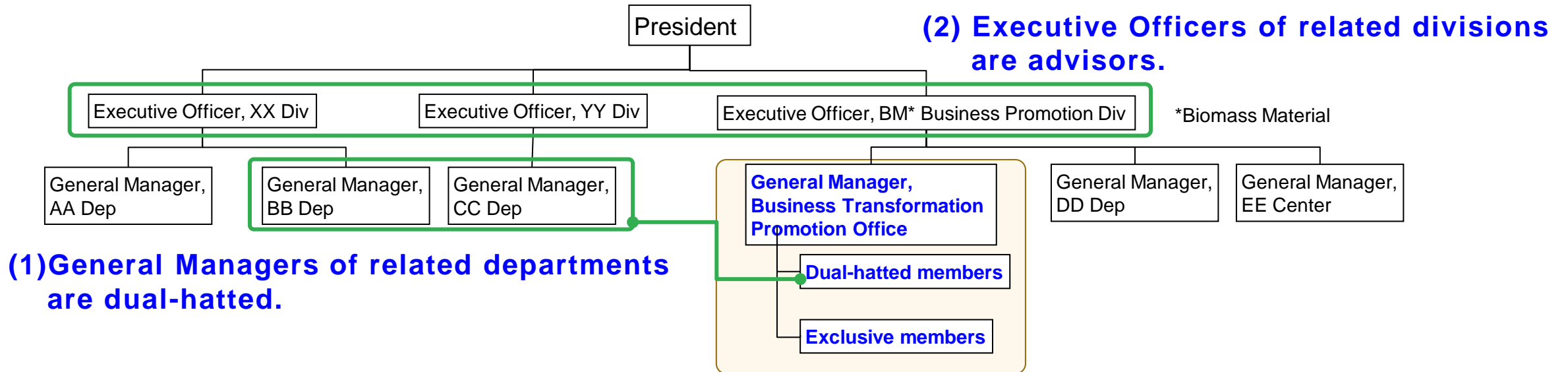
<Self-introduction>

- Shisei Goto, Ph.D
- General Manager
Business Transformation Promotion Office
Biomass Material Business Division
Nippon Paper Industries Co., Ltd.

Organization in charge of vertical, horizontal, and diagonal collaboration to accelerate new business creation and business transformation. (1) (2)

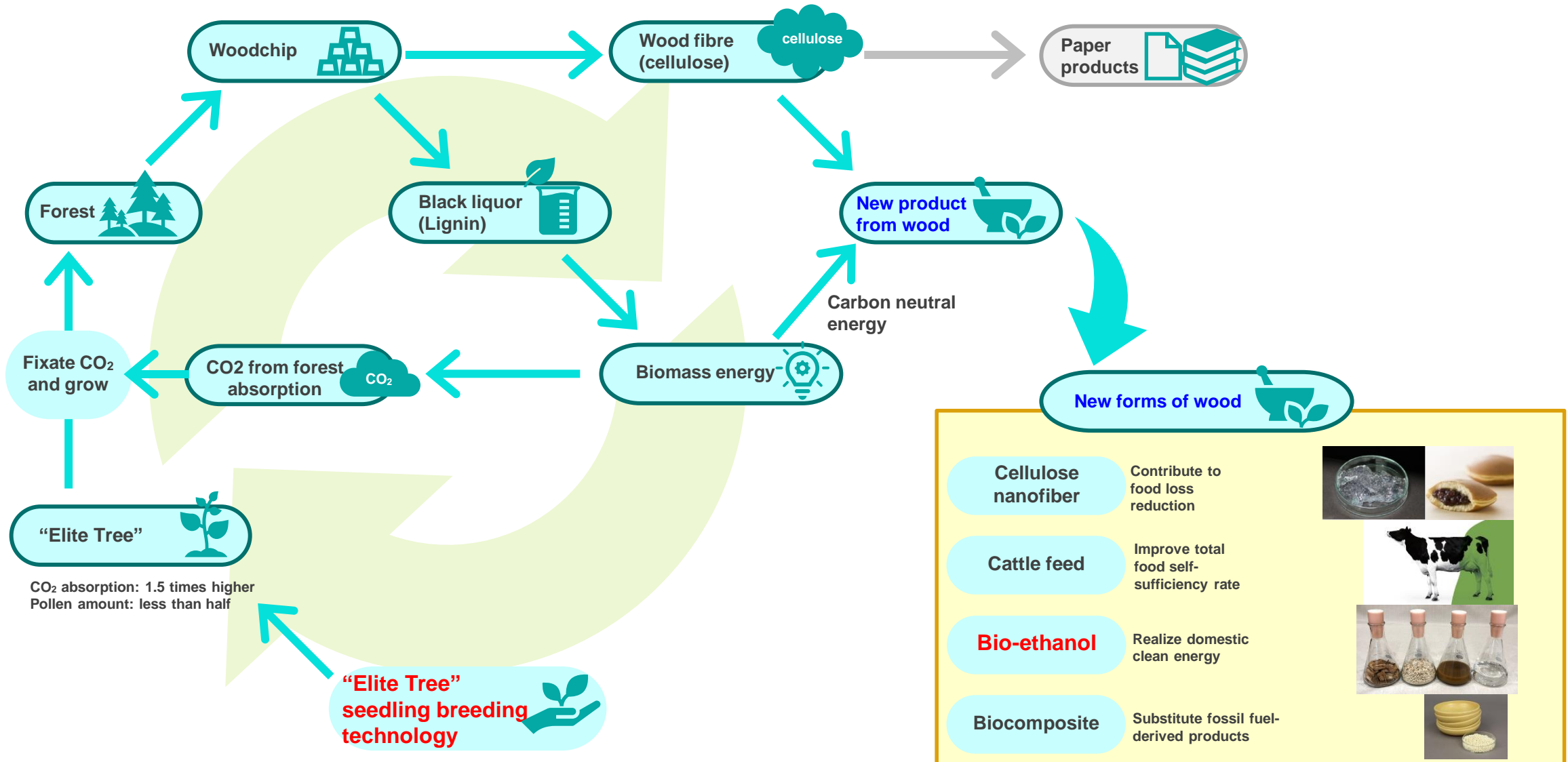
*Produce biofuel and chemical using biomass feedstock

- Engaged in organizing new business development and commercialization studies including biorefinery(*) using mainly woody biomass and carbon recycling, which contribute to carbon neutrality.





New use of woody biomass and acceleration of forest resources circulation





First cellulosic bioethanol from woody biomass in Japan Study for commercial production and expansion into biochemical products

森のチカラを空飛ぶチカラに
森空プロジェクト
"Morisora" Project



Domestic timber supply chain
Production facilities



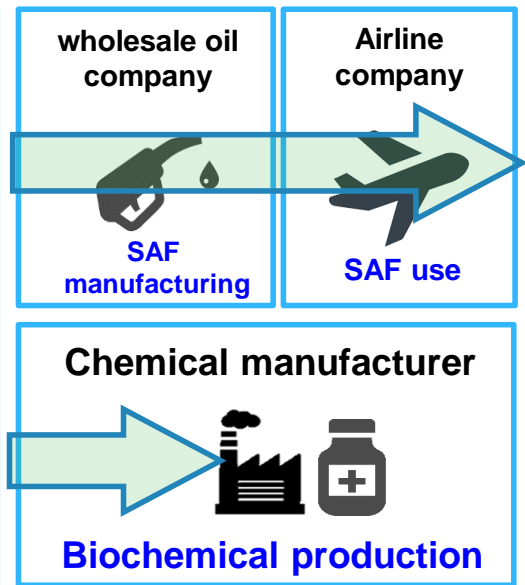
Marketing Domestic and
international information gathering



Biorefinery technology



Sugar and bioethanol production



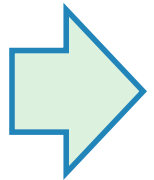
<Significance of this study

By utilizing **domestic** timber...

- **Decarbonization**
Supply low CFP* products from biomass
*Carbon footprint
- **Circular Economy**
Return economic benefits to local communities
- **Resource Security**
Ease import dependence

Points:

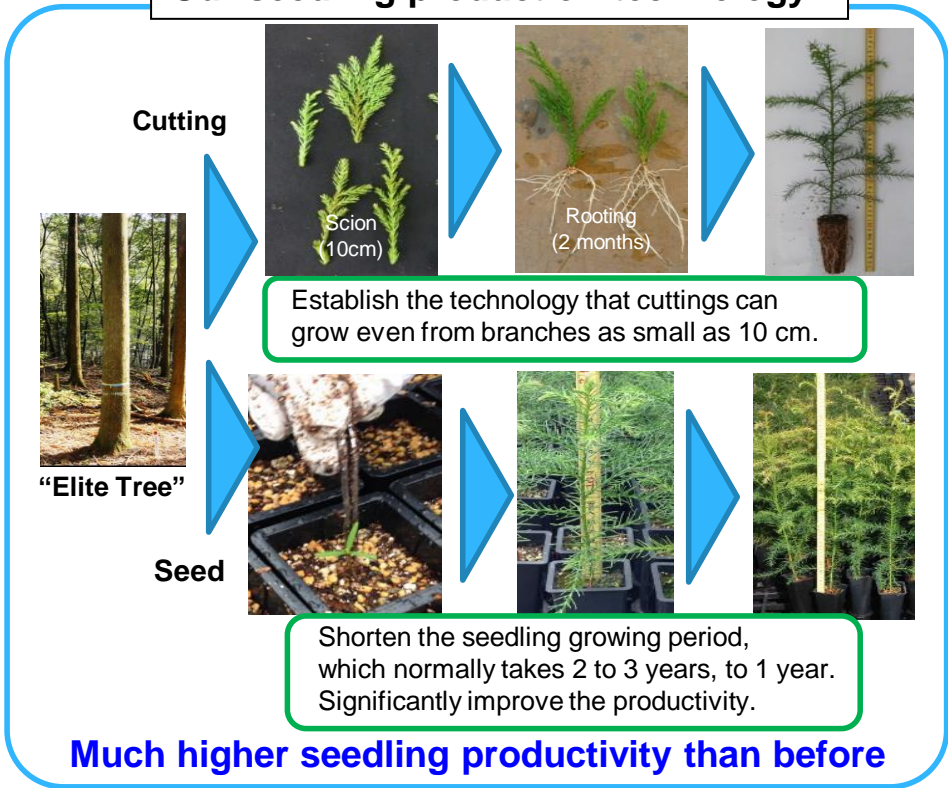
- **Use of domestic timber**
- **Second generation ethanol (E2G)**
→ **Use of inedible feedstock without food conflicts**



As a pilot business entity of the National SAF Public-Private Council/CertificationTG, **we have been considering to conform to CORSIA eligible fuel.**



Our seedling production technology

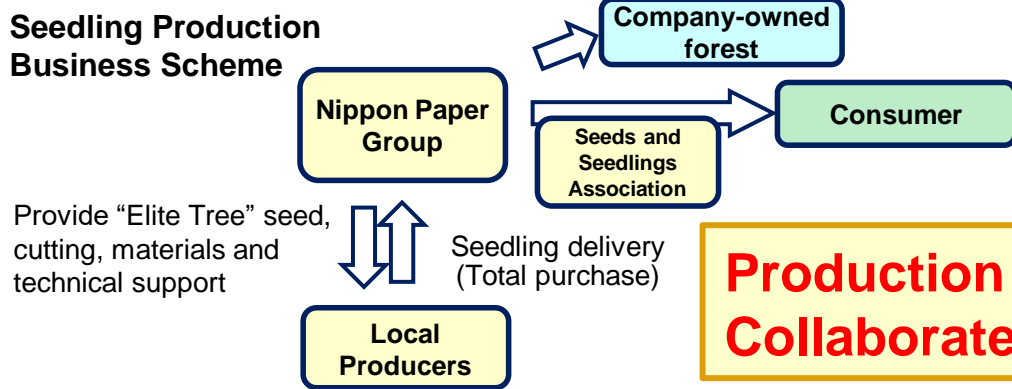
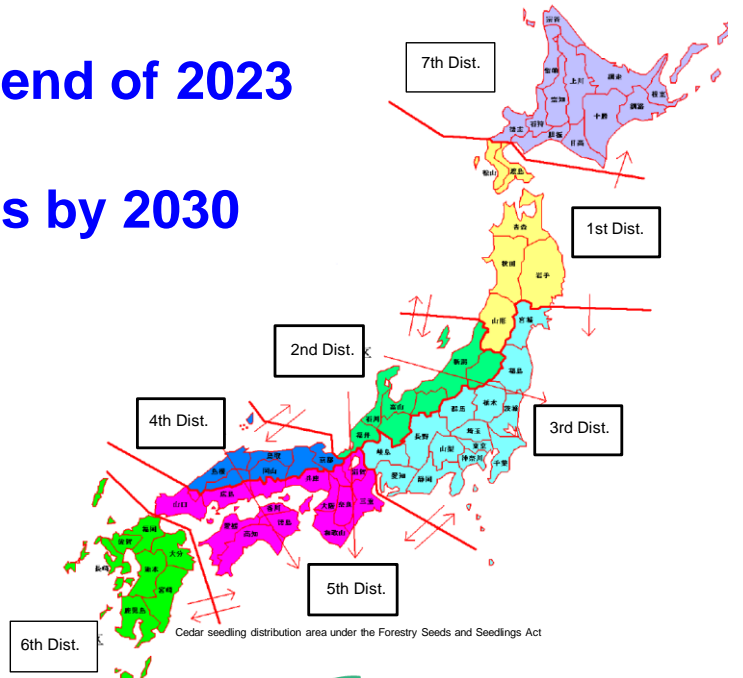


Obtained “Specified Breeding Business Operator” certification from the Governors of prefectures of Akita (1st District), Shizuoka (3rd District), Tottori (4th District), Hiroshima (5th District), Kumamoto and Oita (6th District).

Production systems in each region are in place.

Started production of seedlings for company-owned forest and direct sales

1.6 million units/y at the end of 2023
Expanding on demand
⇒ Target: 10 million units by 2030



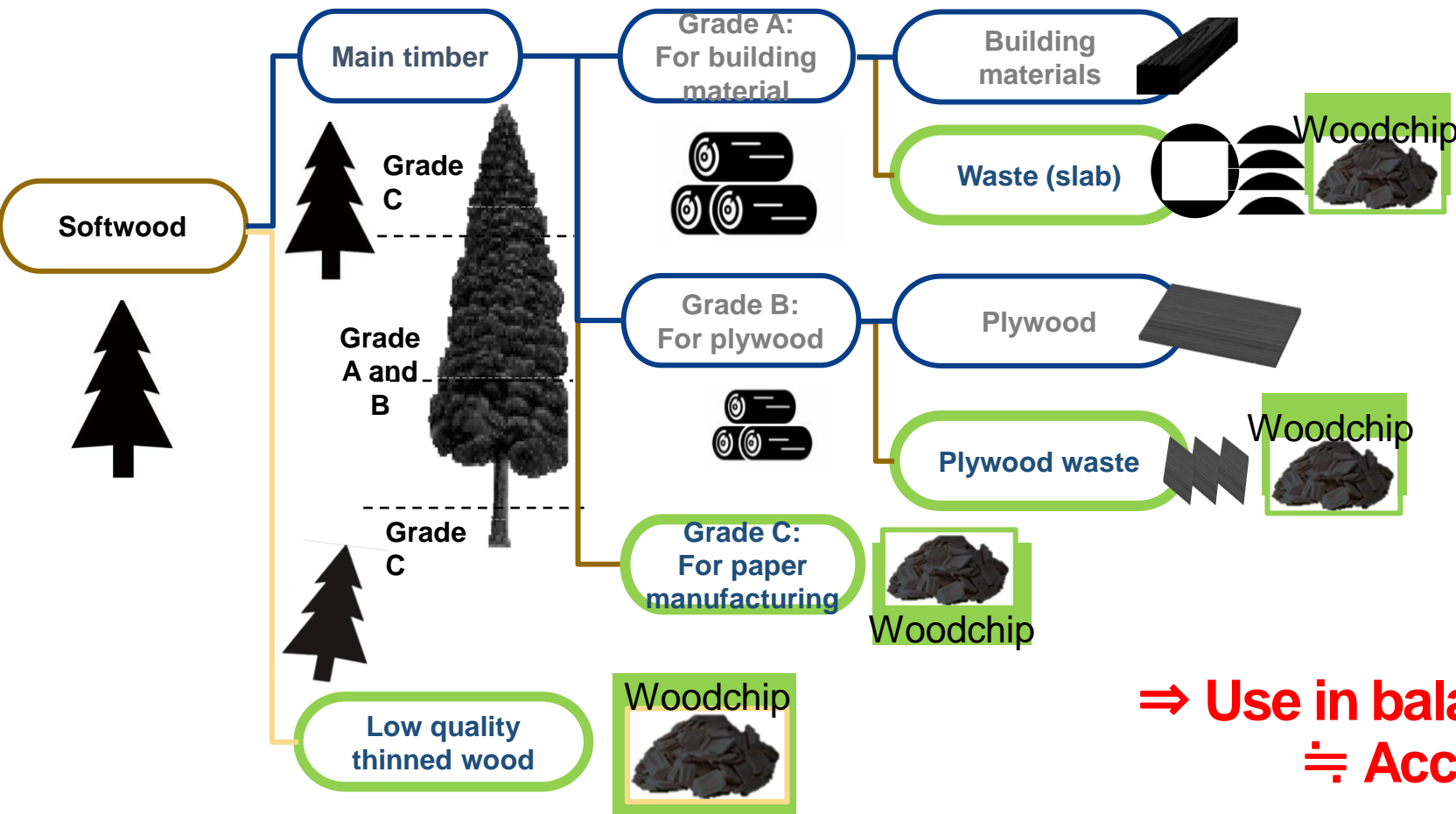
Production is outsourced locally
Collaborate with existing producers

木とともに未来を拓く



**Expand cascade use of domestic forest resources and accelerate resource circulation
⇒ Biorefinery concept (bioethanol, “Elite Tree”, etc.)**

Main feedstock for domestic papermaking are by-products and wood waste.



Lumber and plywood companies:
wood waste processing

||
Paper companies:
procurement of feedstock

**⇒ Use in balance and breed quickly
≡ Accelerate cycle**



Characteristics of biorefinery vs oil refinery

●Diverse biomass feedstock

- Edible (corn, sugarcane)
- Inedible (agricultural residues, forest residues, woody materials)

●Challenges in collecting

- Bulk and seasonality (straw, agricultural residues, etc.)
- Distributed throughout the country

⇒Transport costs and LCA are high when trying to collect the feedstock on a large scale.

→Important to gain understanding and cooperation on establishment and use of the local production and local consumption supply chain for the diverse feedstock.

⇒Would like to gain international recognition for the use of Japanese forest resources through certification of woody bioethanol for SAF.