

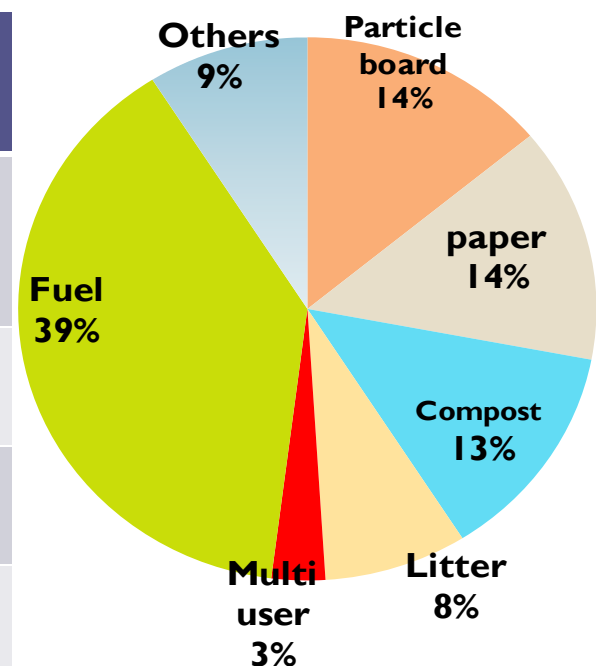
# Evaluation of Carbon sink Related to Biochar Production Process

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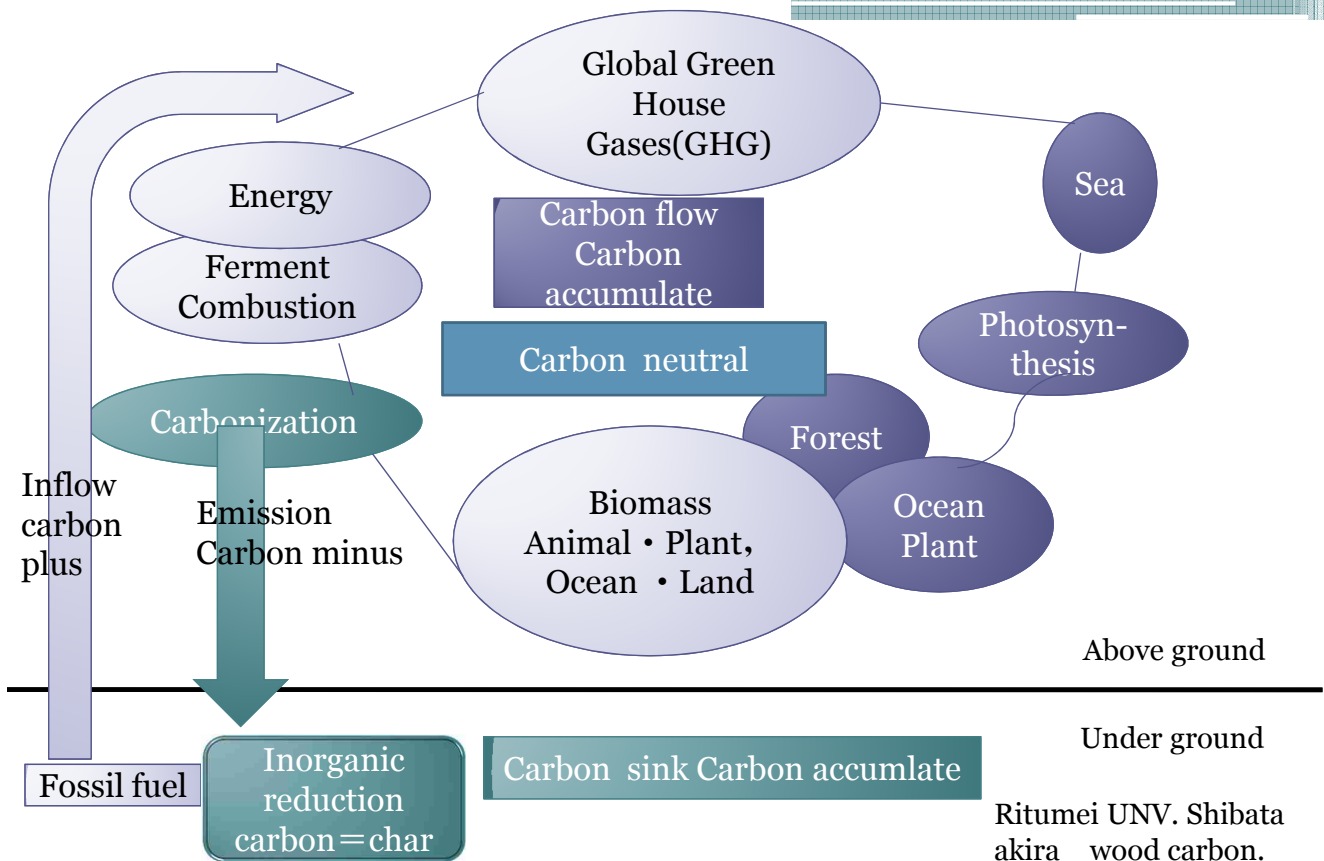
Kazunari SENOO

## Kind of Wood Biomass

Wood Biomass	Scrap (104ton)	Recycle (%)
Sawing remain materials	500	90
Building wood	460	60
Agriculture wood	1300	30
Forest remain	370	0
(Biomass	Japan Unity strategy	2005)



## Thinking about Carbon sink



## PURPOSE OF THIS RESEARCH

1) Carbon sequestration by Biochar can reduce the total amount of carbon cycling on the ground.

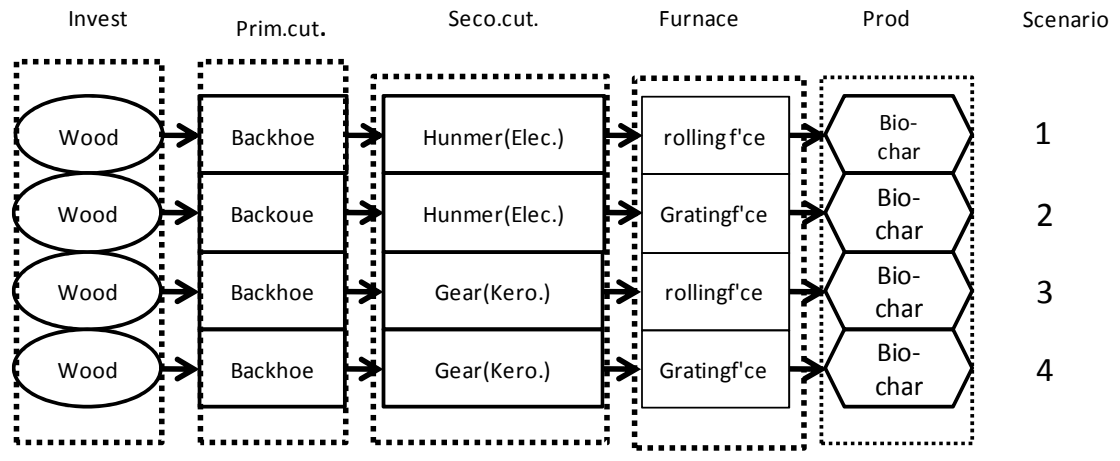


2) Take note of effective resources utilization by means of waste wood carbonization.

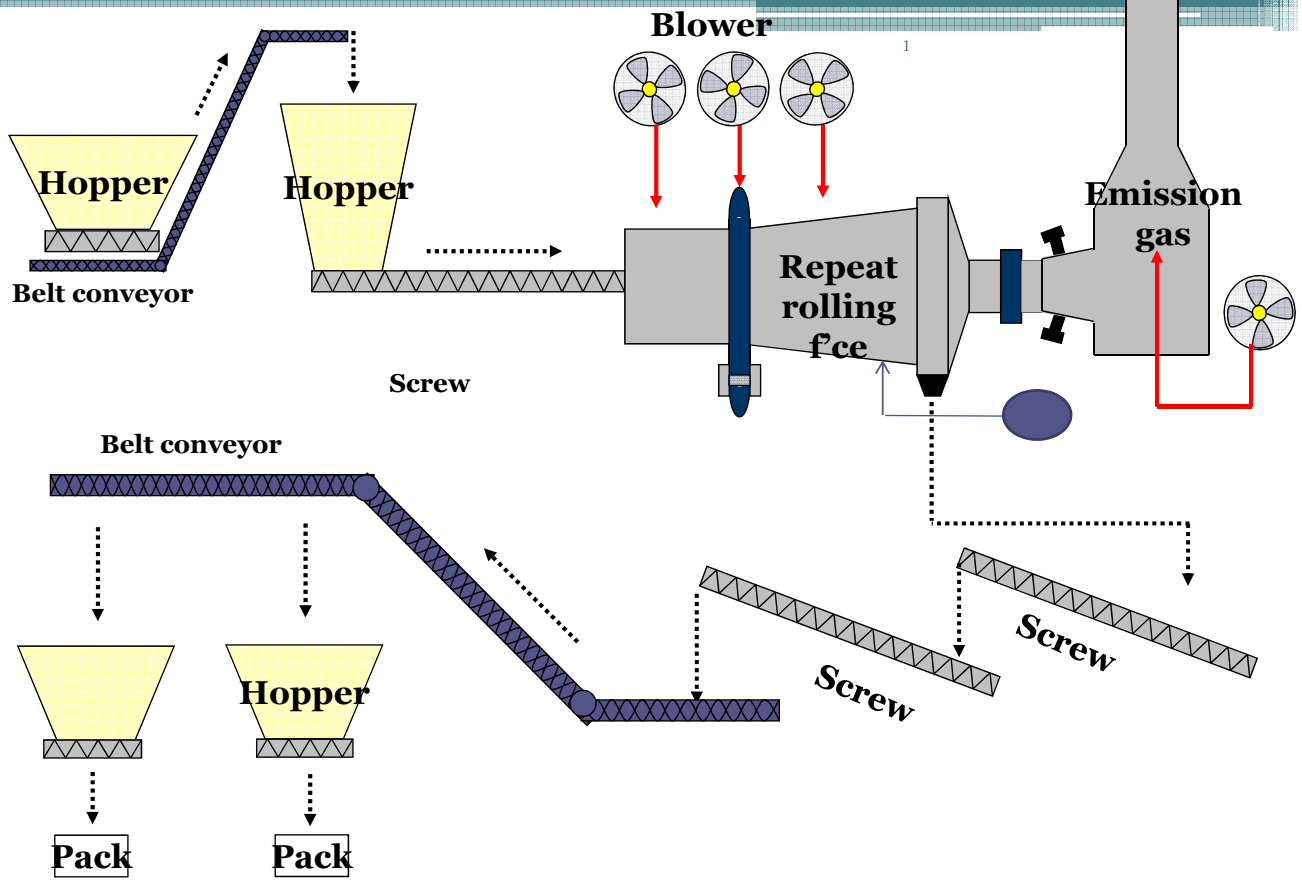


3) Evaluation of Carbon sink with the measurement of CO<sub>2</sub> Emission from the waste wood carbonization.

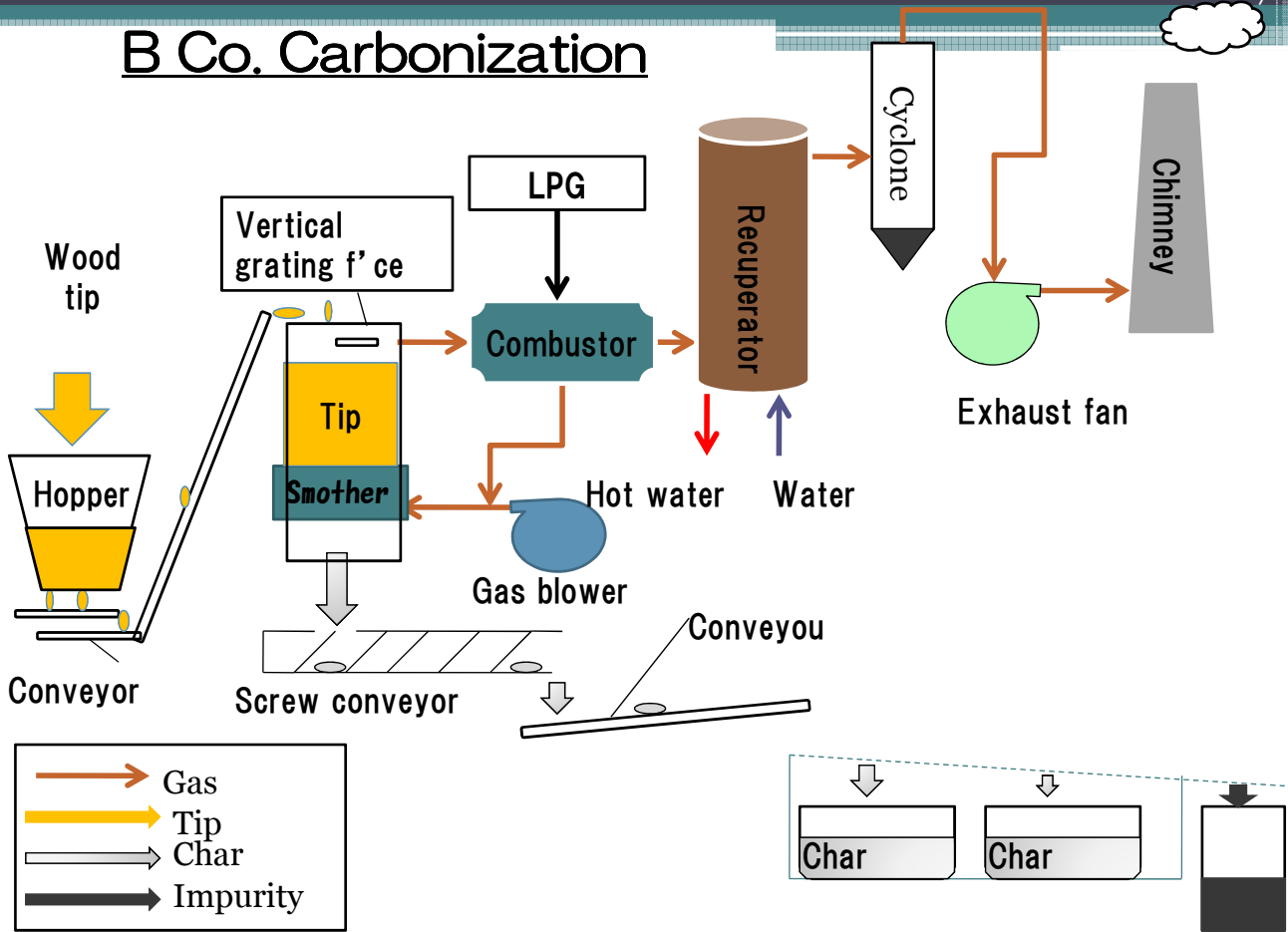
# EVALUATION SCENARIO



## A Co. Carbonization flow



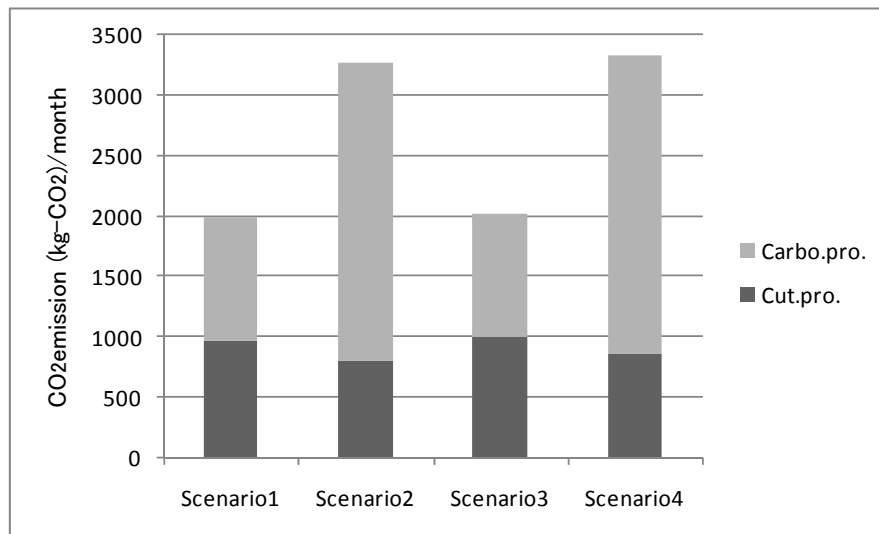
# B Co. Carbonization



## Caluculation object

		scenario1	scenario2	scenario3	scenario4
C u t . p r .	Elec.	0	0	-	-
	L.oil	-	-	0	0
	H.oil	0	0	0	0
C a r b o . p r	Elec.	0	0	0	0
	P.oil	0	-	0	
	L.oil	0	0	0	0
	LPG	-	0	-	0
	G.gsol.	0	-	0	-

## Each scenario CO<sub>2</sub> emission



## CARBON SINK VALUE (Carbon sequestration)

Carbon sequestration method in the earth, evaluation of carbonization process was performed as below.

$$C_S = C_C - C_E \quad (1)$$

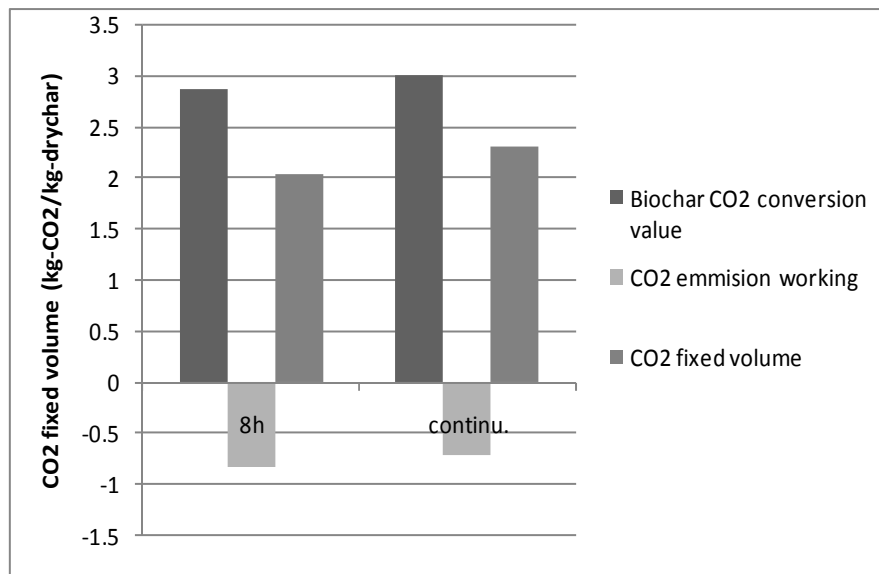
Note

- $C_S$  : Carbon sequestration (kg-CO<sub>2</sub>)
- $C_C$  : CO<sub>2</sub> equivalence of biochar (kg-CO<sub>2</sub>)
- $C_E$  : CO<sub>2</sub> emission by carbonization (kg-CO<sub>2</sub>)

$$8h \cdots 2.04 = 2.87 - 0.83$$

$$\text{Contin.} \cdots 2.30 = 3.00 - 0.70$$

## Carbon sink value (scenario 2,carbo.yield rate 8%)



## SUMMARY

- 1)The Vertical grating furnace exhaust 2.4 times more CO<sub>2</sub> emission than the Repeat rolling furnace .
- 2)The exhaust CO<sub>2</sub> emission of cutting process were nearly equal.
- 3)The Carbon sink effect was about three times more than CO<sub>2</sub> emission in the running of a carbonization.