Bio Eco Power Closed Cycle System (BePCCS)

Creation of Circulated Society with help of Microbes

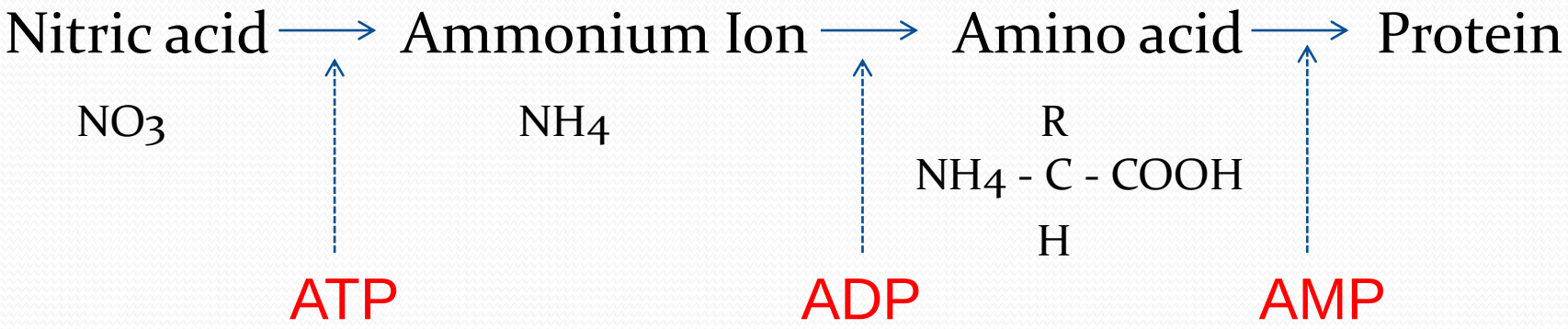
Waste garbage is also another resources for Organic farming

Current Farming

- In 20 century, Agriculture expands its productivities by using artificially chemical synthesized fertilizers and/or agrochemicals.
- However, by using so long chemical fertilizers, it becomes adverse effects in natural eco-system.
- For example, it is reduced microbes which is digested organics like fallen leafs, excreta and etc., easy to grow anaerobe in a soil and plant becomes to develop a disorder. So that it is increased to spray different agrochemicals.

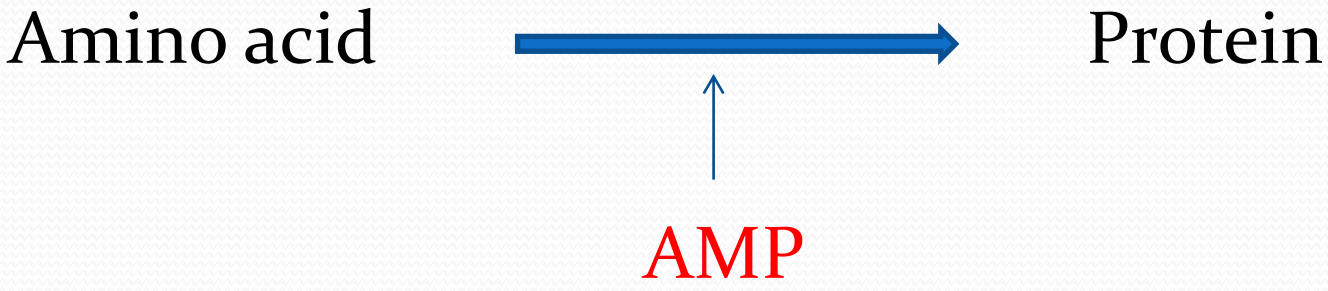
Current Farming

Nitrogen (N), Nitric acid (NO 3), Phosphorus (P) or Water-soluble phosphoric acid, Potassium (K) or Calcium are necessary for fertilizers.

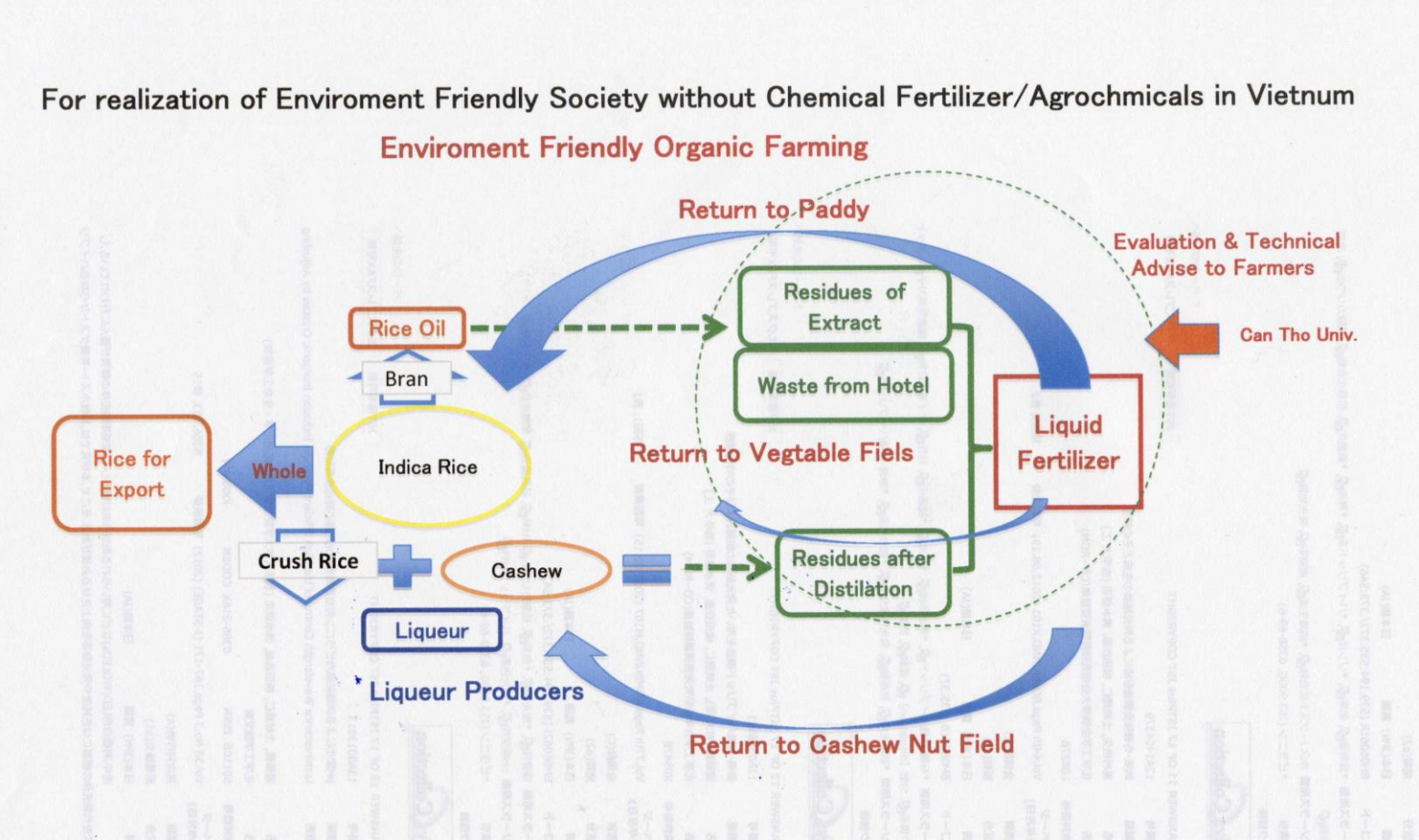


Bio Eco Power Closed Cycle System (BePCCS) as one of Organic Farming

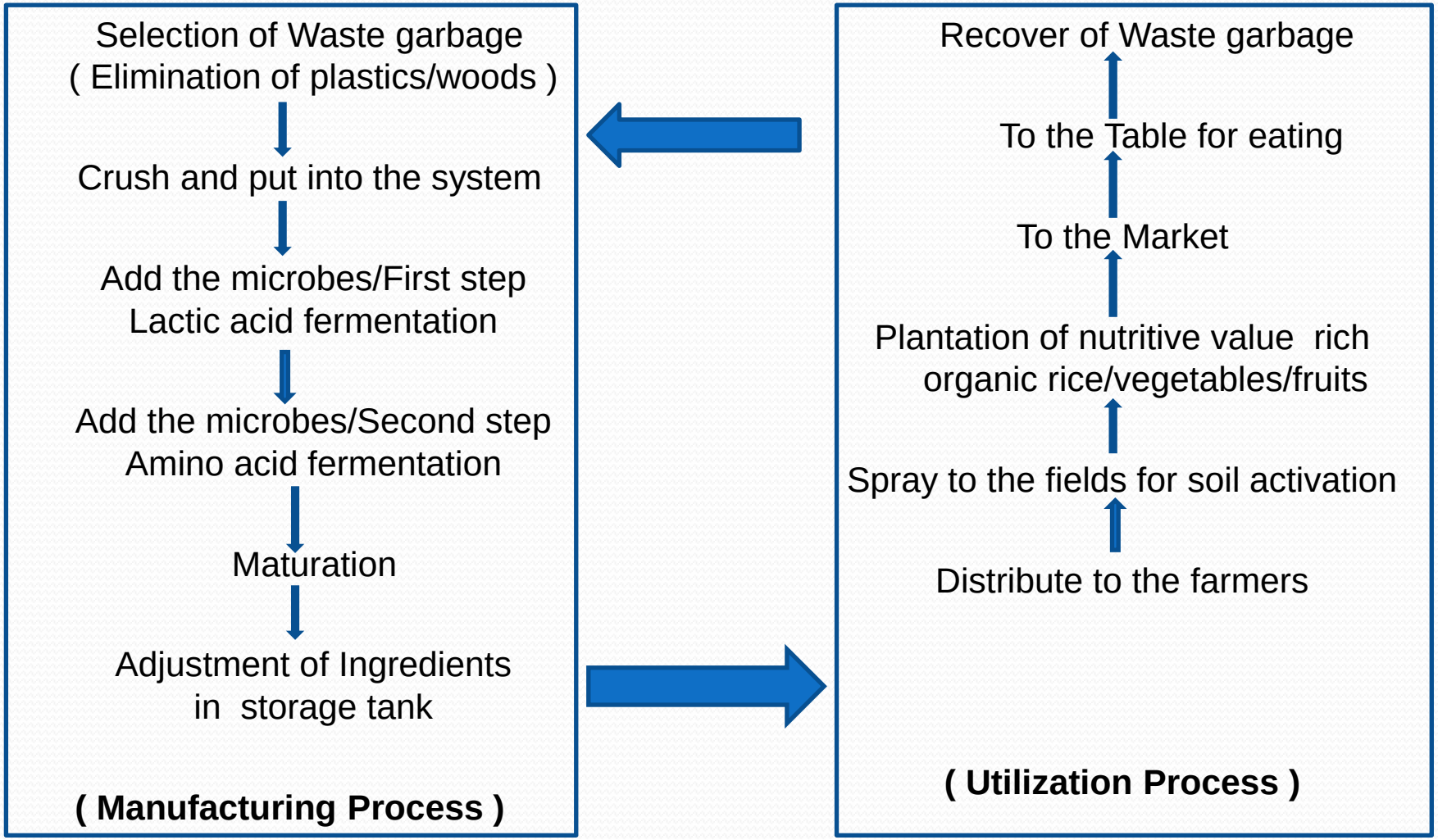
- BePCCS is the one of solution that it produces liquid organic soil activator contained organic acids mainly amino acid, which is digested waste garbage by the help of microbes.



Outline of Our Proposal on Organic Farming with BePCCS



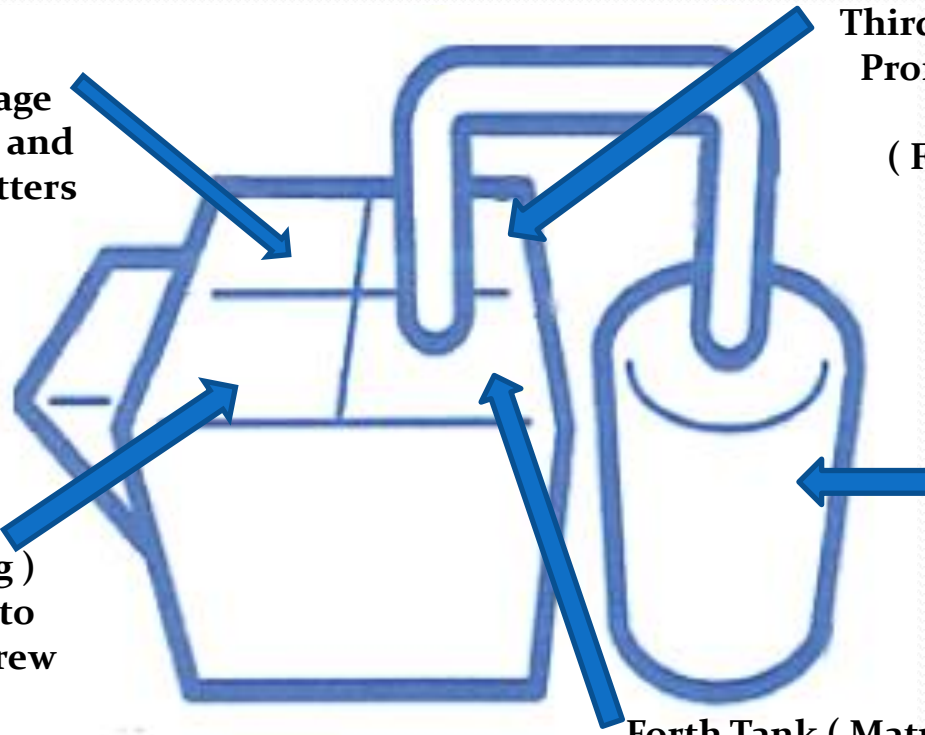
Outline of BePCCS



Outline of BePCCS System
Zero-Sum Emission

Second Tank
(Circulation)
Crushed waste garbage becomes liquid paste and eliminate foreign matters

Third Tank (Mixing)
Promote enzymatic digestion
(Fermentation)



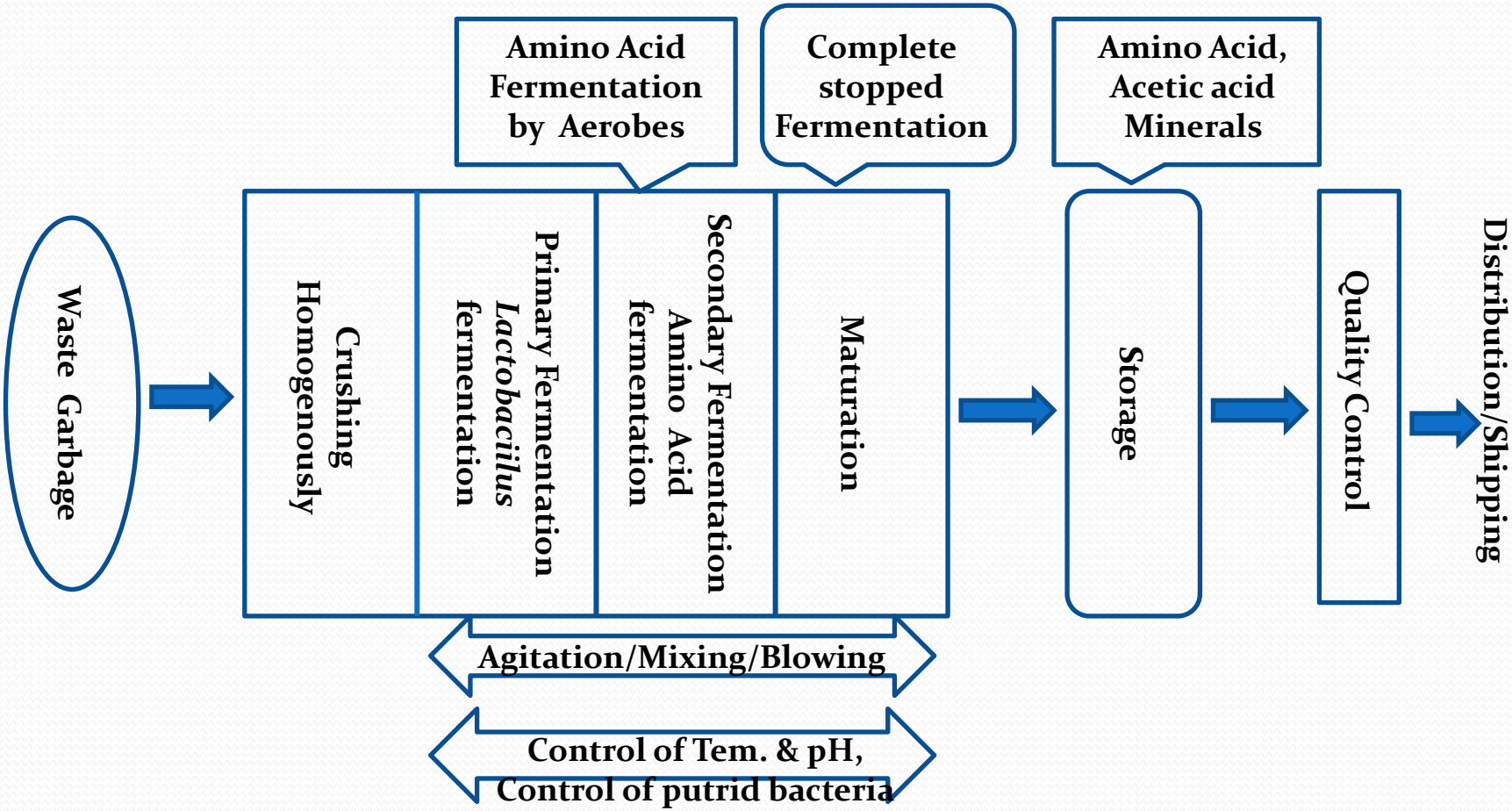
Fifth Tank
(Storage Tank)
Storage of matured fermented liquid

First Tank (Crushing)
Waste Garbage put into Crushing Tank with screw type cutter and microbes

Forth Tank (Maturation)
Maturate fermented liquid

This system is possible to produce organic soil activator within 24 hours with several Microbes Mixture.

Process of Liquid Fertilizer



BePCCS System/PILOT PLANT
(50 KG/Day)

Properties of Liquid Fertilizer from BePCCS

Item		Item	mg/100 g	Item	mg/100 g
Water	87.6 %	Lys	110	Thr	76
pH	3.3	Leu	150	Iso Leu	74
N	0.33 %	Val	85	Phe	66
P_2O_5	0.17 %	Met	35	Asp	120
K_2O	0.17 %	Ser	87	Glu	270
C	5.2 %	Gly	110	Ala	150
C/N	15.8	His	37	Arg	150
CaO	0.4 %	Tyr	51	Pro	110
MgO	0.02	Cys	Non	Trp	13

Paddy Rice by Organic Farming

- Before making ploughing and irrigating the fields, spray 10 times diluted soil activator into dry paddy (500 ~ 1,000 L undilution per 10 are).
- Then for making paddy fields, pour water into the fields and put 100 L/10 are of soil activator with water into paddy fields.
- At the time of flora bud coming, rice plant needs energy so that put liquid fertilizer into paddy field (500 ~ 1,000 L/10 are) and also spray diluted soil activator (30 ~ 50 times dilution) on leafs 3 ~ 5 times. Liquid fertilizer has effects to avoid insects.
- After harvest and before Winter, spray undiluted soil activator into dry paddy (4 ~ 8 tons per 10 are). This is as same as soil improvement agent.

Paddy Rice Test Field

Spray of Diluted Soil Activator

Comparison of Rice produced by Organic Farming and Current Farming

- Current farmed seedling is growing faster, leafs are more greener and stem is higher but Organic farmed seedling leafs are light green, width of leaf is narrow and stem is lower than current farming.
- The amino acid contents in rice are increased in Organic Farming and increasing functionalities of rice.
- The price of rice is double then current farming rice. Japonica " Koshihikari" produced by Organic Farming is 1,000 Yen/KG and current Japonica "Koshihikari" is 500 Yen/KG.

Other Application of BePCCS

- BePCCS (Liquid fertilizer) is possible to apply for vegetable farming like potato, tomato, lettuce, onion and etc.
- BePCCS is possible to apply for fruits plantation like apples, orange and etc.

Cultivation of Vegetables by Organic Farming

Apples Plantation