



Biomass Energy



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In the urban area heavy industry has been progressing since the 1950~60s due to the postwar economic recovery. In rural villages the burning was done causing air pollution.

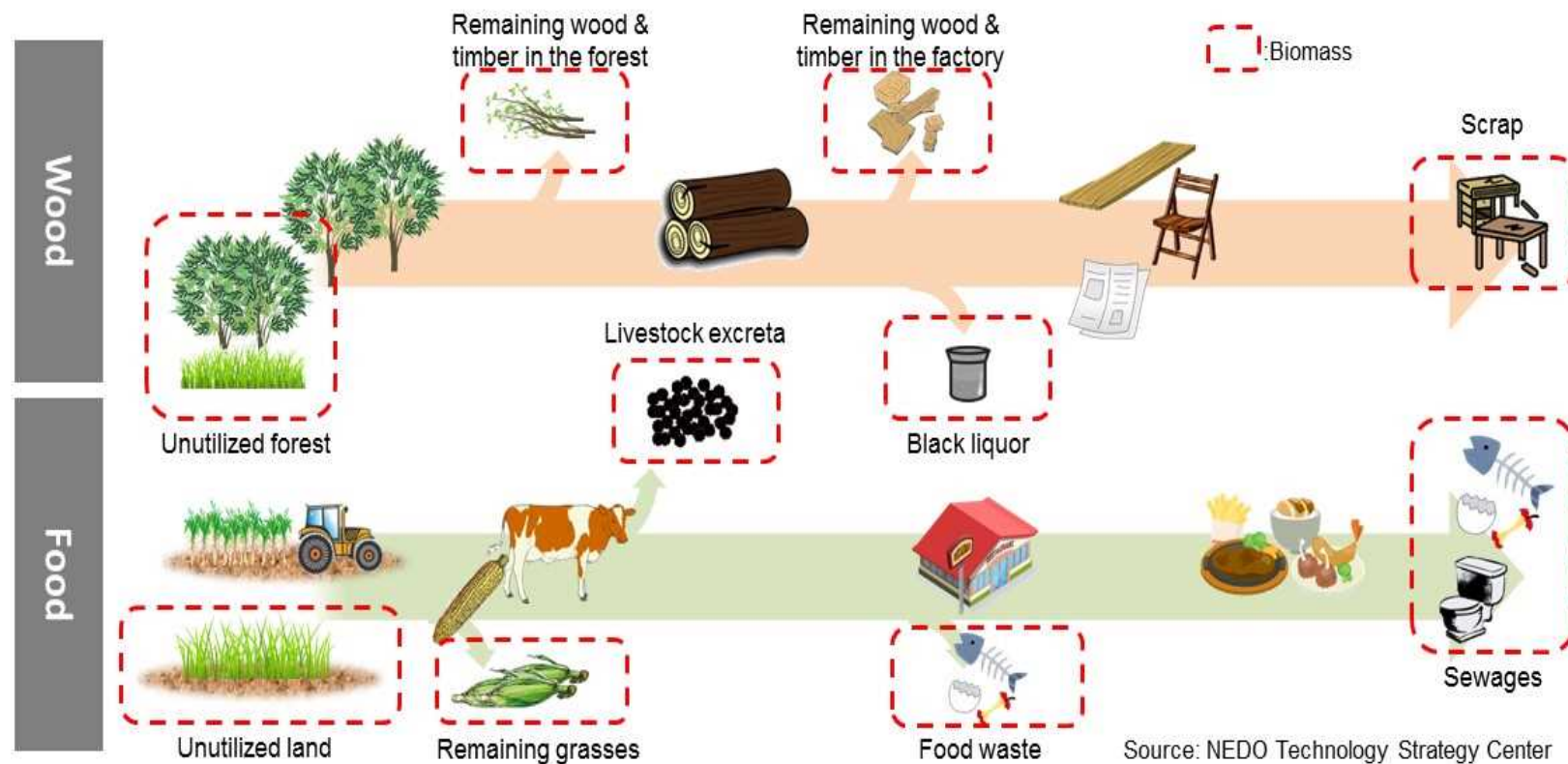
To return a clean air by biotechnology

- ✓ Reduction of fossil fuel consumption
- ✓ Reduction of air pollution caused by agricultural residues as burned fields

Contribute with the above two methods

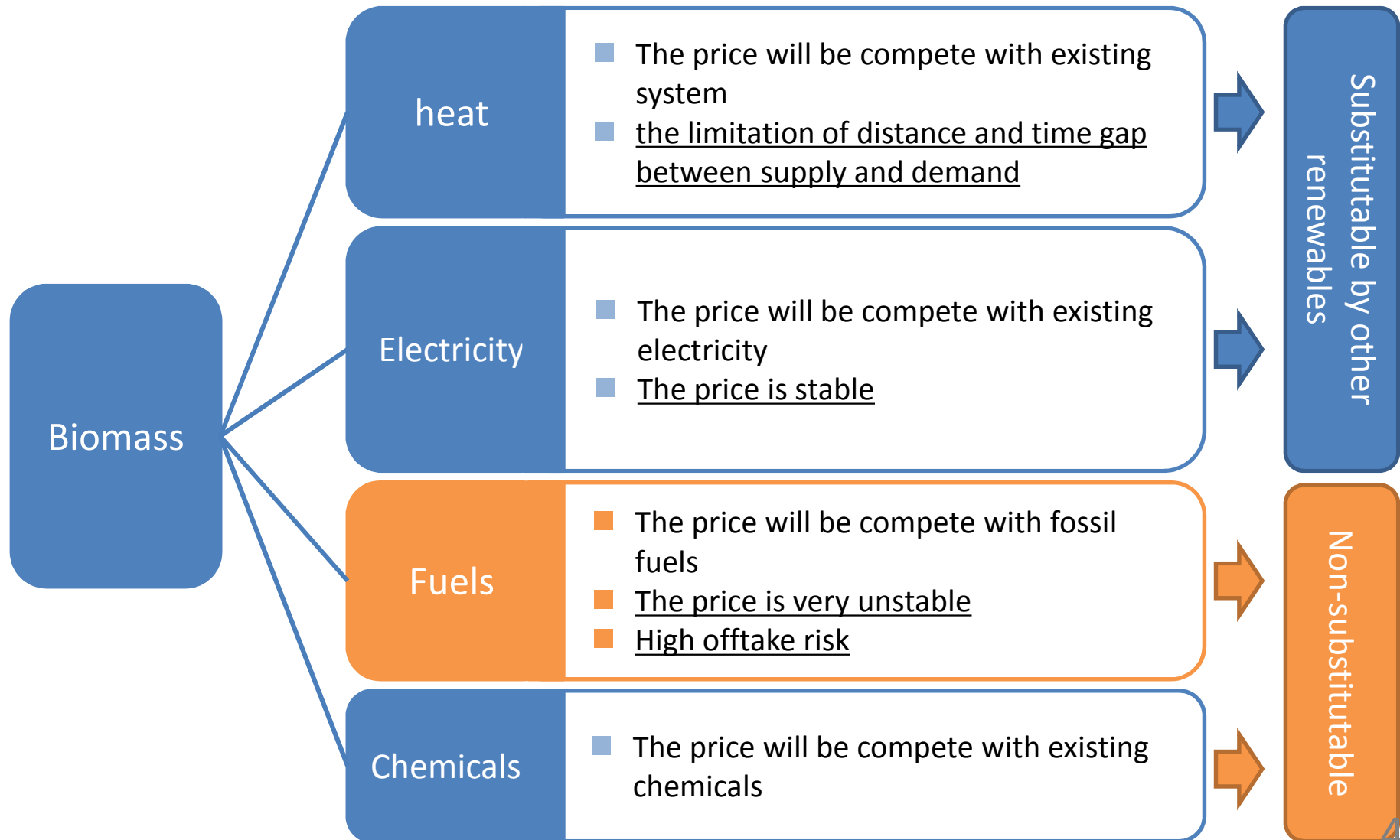
Theoretical Potential of Biomass

- Most of biomass come out from wood production activities and food production activities.
- Biomass from food production activities are one of the adequate area for India since India is the largest producer of several agricultural commodities, and is ranked second in total food production, globally.

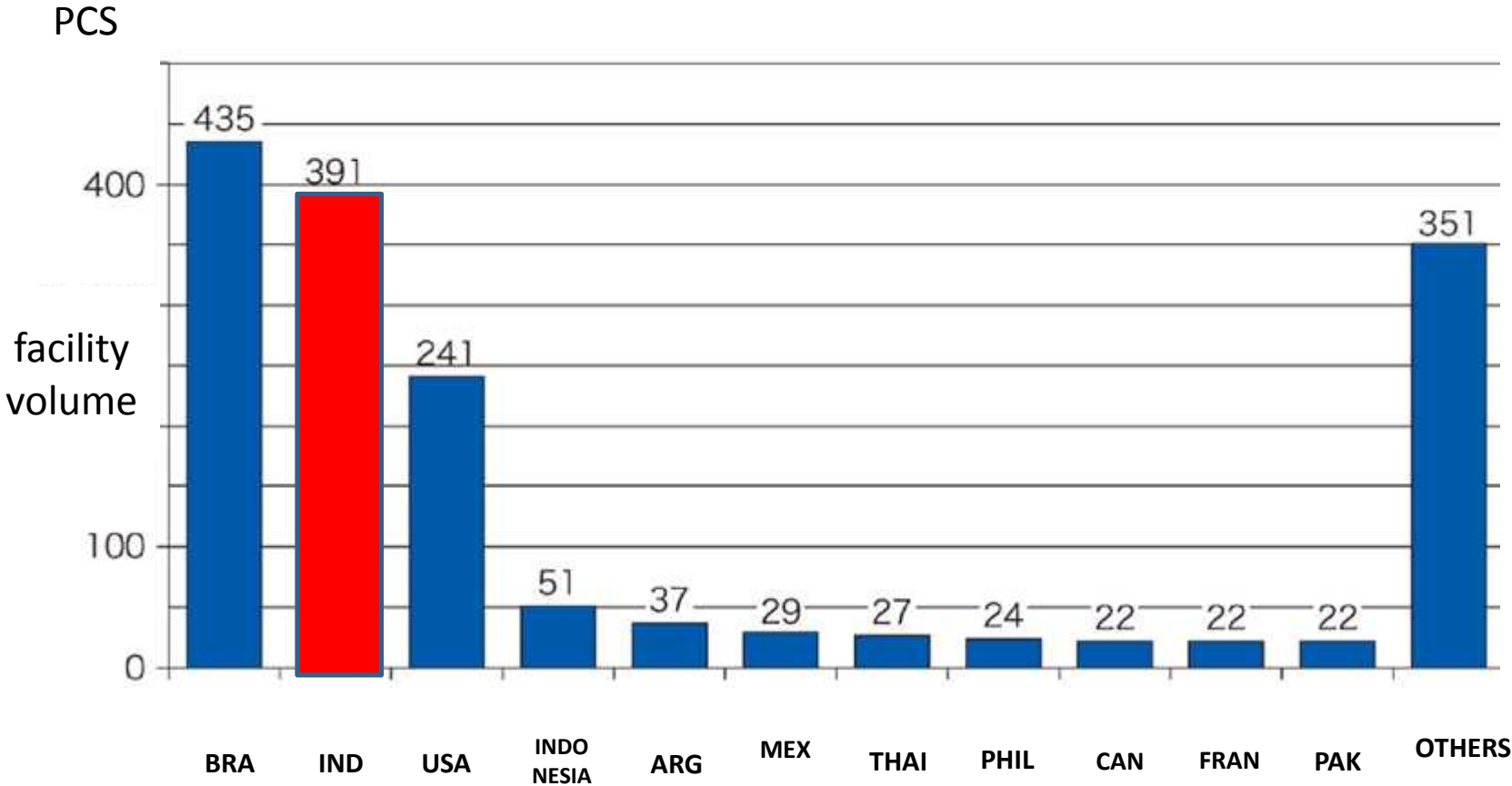


Options of biomass utilization

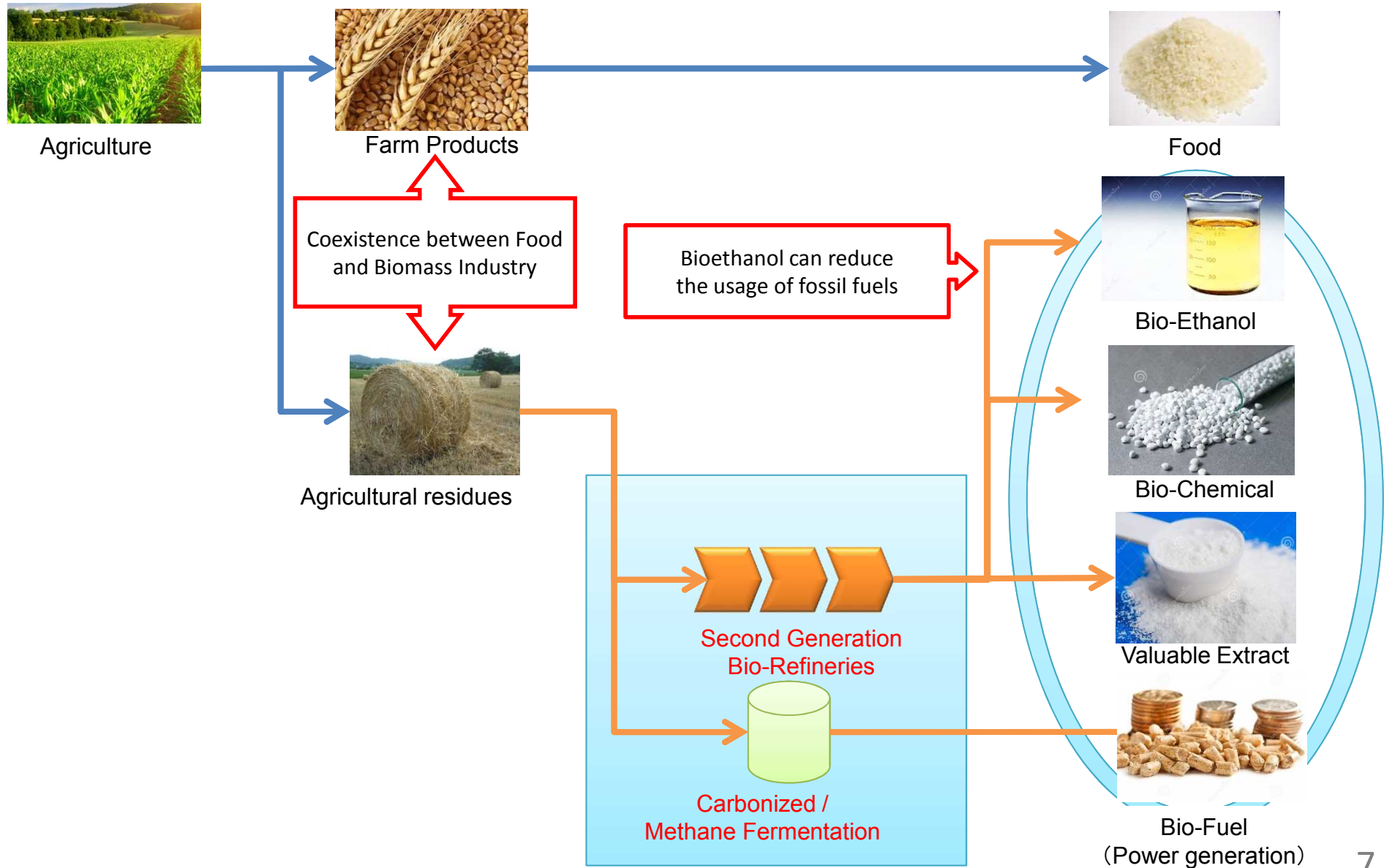
■ Biomass could be converted to heat, electricity, liquid & solid fuels and chemicals.



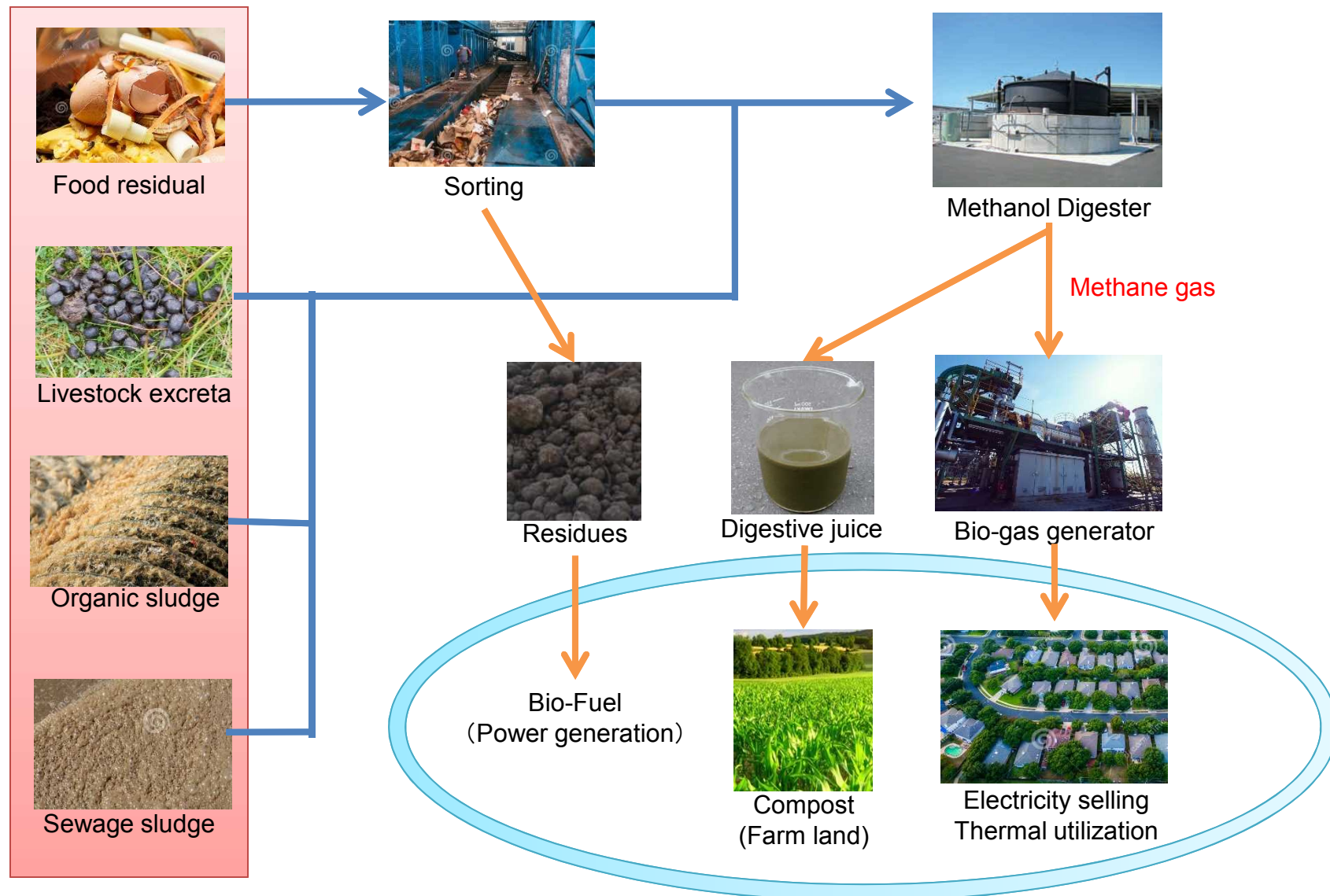
Number of the First generation bioethanol production facilities



Second generation bio-refineries



Methane fermentation of organic wastes



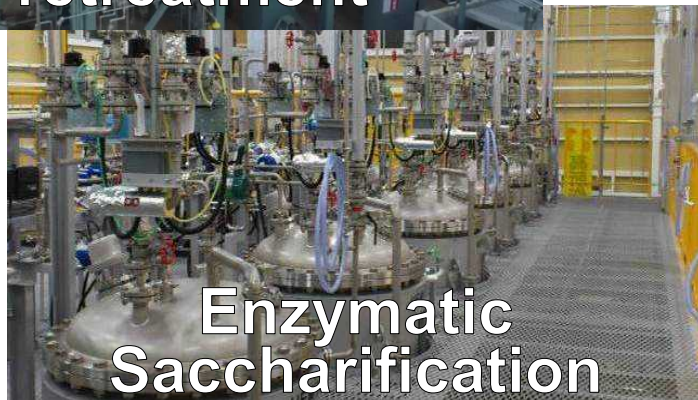
NEDO's activity for second generation bio-refineries



Development of an Integrated System for Low-Cost Cellulosic Bioethanol Prod



Pretreatment



Enzymatic
Saccharification



Fermentation



Conc. &
Dehydration



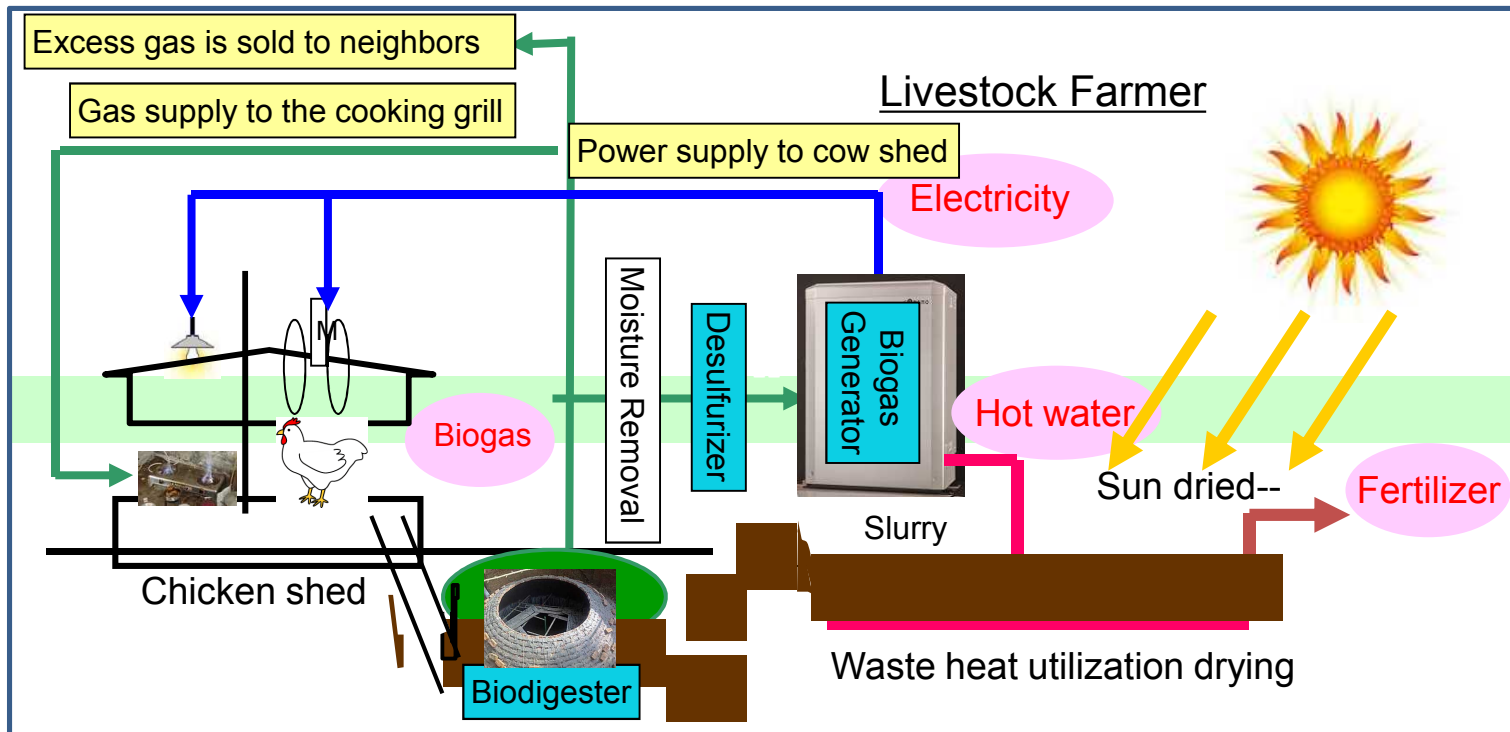
**Prod Capacity
25 kL/yr**

- JX Nippon Oil & Energy Corp
- Mitsubishi Heavy Ind Mechatronics Sys, Ltd.
- TOYOTA MOTOR CORP
- KAJIMA CORP
- SAPPORO ENGI LTD.
- Toray Ind, Inc.
- The University of Tokyo

Energy solution is to diffuse Onsite small gas engine generations

Solution is to:

- Be a reasonable affordable market price and be able to install near the poultry site.
- Not need to collect raw material by using the farm's own raw materials.
- Not need Collection and transportation cost of raw.



◆ The solution has been realized by AISIN SEIKI Co. Ltd. in the following rural Energy Infrastructure condition of Bangladesh.

- Electrification rate: non-accessible 72%, Gasification rate: non-accessible 98%

Japan External Trade Organization(JETRO):BOP business potential needs survey report, Bangladesh: Energy sector, pp.15,33 (3/2011).

Origin of source: AISIN Technical Review Vol.20, 2016

Our Actions and Way Forward

- ◆ Organize and make system for collecting agricultural waste sustainably in general
- ◆ Promote effective utilization of The Second Generation Biomass
- ◆ Preferential treatment system to ensure economy for products

Active intervention by public agencies will be necessary!