Issues concerning the agricultural industry of Indonesia

- Indonesia is one of the biggest producers of palm oil in the world, and the amount of production has been increasing since 1990.
- O Through the process of producing palm oil products, liquid waste containing a high level of organic substances is discharged, resulting in the emission of greenhouse gas (methane gas), bad odor, and the deterioration of water quality in the surrounding environment. Thus, environmental pollution control measures are required.
- O From the viewpoint of reduction of greenhouse gas emissions and the environmental pollution control measures, it is necessary to effectively use biomass resources, including palms, etc., which are generated during the process of producing palm oil products.

Purpose of the project

O To contribute to the enhancement of Indonesia's environmental measures and policies through promotion of co-benefit environmental pollution control measures. Specifically, this is achieved by implementing life cycle assessment (LCA) to reduce environmental load in Indonesia's palm oil industry and considering the way to make effective use of biomass resources.

Oil paim cultivation process					
Nate: Please sput the annount for each stage of plantation, "seeding", "fat year", "2nd year", "3nd year" and "4 to 25th yea	e				
Questions related to the "NFUTS" of oil polm cultivation process		Age of of path			
How much testikens are (will be) applied in a year for each stage of plantation? Please input the amount by types of festilians below, in "pones per year".	Sending	1	2	3	4-25
Als Ammonium nitratia	100		. 0		
SCA: Suphate of ammonia			0	0	
DAP: Diammonium photohula			- 0	0	
Unia	2,338	3,338	3,338	3,338	1,33
AC: Ammonium chioride	0.050	0	. 0	.0	
Keserlis	212	212	212	.212	21
MOP: Muriate of potenty	5,809	5,886	5,886	5,886	5,88
GRP: Gesund rock phosphate	363	380	393	785	
TSP: Triple superphosphale		. 0	4	0	
CML: Cound magnesium limestone (Dolomite)	500	103	800	800	80
Further XX	d		0	.0	
Fertilizer YY					
EFB. Empty hull bunch	88,481	88,481	88,451	88,481	88,48
PCME: Pain of mit effuert (n unit of 'm ³ ywar')	4				
How much composit are (will be) applied in a year for each stage of plantation? Please input the amount in "tornes per year".		- 4		0	
How much peakide are (will be) applied in a year for each stage of plantation? Please input the amount in "tonnes per wear".	2.2	27	27	2.7	2
How much insecticide are (will be) applied in a year for each stage of plantation? Please input the amount in "tornes	9.8	9.8		9.8	
How much dessi of are (will be) used in a year for each stage of plantation? Please input the amount by activities below, in "No Rens (k) per year".					
Transportation of the fortilizer (fortilizer factory to the site)	77	72	72	72	
Transportation of the pesticide (pesticide factory to the site)	0.008	0.008	0.006	0.006	0.00
Transportation of the insecticide (insecticide factory to the site)	0.000	0.000	0.030	0.030	0.00
Agricultural machinaries	623	620	121	:620	6
Transportation of the FFB (plantation sile to the mill)	400	465	465	465	- 14
Questions related to the "OUTPUTS" of oil pains cultivation process					
Please input the FFB production for each slage of plantation in "tornes per year".		280,975	280,975	280,875	280,97
Please input the amount of solid biomass wasie subjuits, e.g. litter and devolveed, for each stage of plantation in "tenness per year".		28.098	20,000	28,096	28,09

(Left) Environmental load calculation tool (Bottom) Workshop scene



Activities (LCA)

<u>FY2011</u>

 Arrangement and analysis of existing information, inventory check, and calculation of the amount of environmental load

FY2012

 Identification of production process that generates great environmental load, and proposal of co-benefit environmental improvement measures

FY2013

• Development of environmental load calculation tool, and creation of LCA manual



Activities (biomass)

<u>FY2011</u>

 Arrangement and analysis of existing information, arrangement of issues, and formulation of effective use plan

<u>FY2012</u>

 Consideration of technologies for effective use of biomass resources, and collection and analysis of information on use promotion method

<u>FY2013</u>

Consideration of co-benefit biomass use promotion method

Arrangement and analysis of information

Consideration of technologies for effective use

Consideration of effective use promotion method