

Report of Investigation trip to People's Republic of China

Delegates

Dr. Yukihiro Matumura, Hiroshima Univ.

Dr. Tomoaki Minowa, AIST

Dr. Takuyuki Yoshioka, Nippon Univ.

Ms. Miyuki Tomari, BIN

Acknowledgement

Dehua LIU

Professor at the Tsinghua University. He is the first contact person, and helped us for all the arrangement.

Jing ZENG (Betty)

She arranged the tour for us under the supervision of Prof. Li.

Fengguang DU

He introduced us the Tianguang Group and its activity.

Dongyang GUO

Farmer who provides feedstock to the Tianguang Group.

Kefan ZHANG

Director general of the ethanol plant at Nanyang.

Lixin ZHAO Director general of IEEP, CAAE.

Fei WANG Director assistant of IEEP, CAAE.

Schedule

Monday, Feb. 5, 2007

Left from Japan to Zhengzhou via Beijing

Tuesday, Feb. 6, 2007

Visited to Tianguan Enterprise Group Co., Ltd, HeNan
Province: Office and an ethanol plant
Left for Beijing

Wednesday, Feb. 7, 2007

Visited to Institute of Energy and Environmental
Protection (IEEP), Chinese Academy of Agricultural
Engineering (CAAE), Beijing
Left for Japan

Map



Ethanol Utilization in China



EtOH Production
1.2 million t/y at 2006
5 million t/y in 2010
15-20 million t/y in 2020

Feedstock;
wheat, corn, cassava, sweet
potato, and sweet sorghum

E10 car

Gas stand of “Sinopec”



Tianguan Enterprise Group Co., Ltd



Ethanol Plant



Outlook of the ethanol plant, 300,000 ton/year

Institute of Energy and Environmental Protection (IEEP)

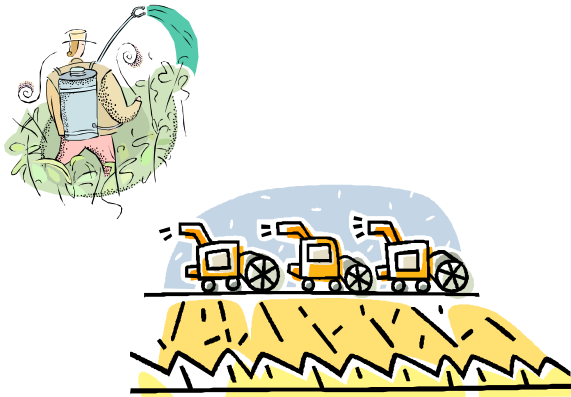


Economy of the production of 1 Mg of ethanol

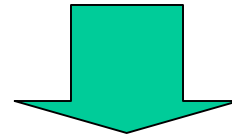
Item	Amount	Unit	Income
Ethanol	1 Mg	4600 RMB/Mg	4600 RMB
(Governmental support)		1300 RMB/Mg	1300 RMB
DDGS	0.5 Mg	1000 RMB/Mg	500 RMB
Protein	0.2 Mg	7500 RMB/Mg	1500 RMB
Total			7900 RMB
Item	Amount	Unit	Cost
Wheat	3.3 Mg	1500 RMB/Mg	4950 RMB
Coal (Energy)	0.2 Mg	270 RMB/Mg	50 RMB
Enzymes	0.01 Mg	20000 RMB/Mg	200 RMB
Labor	0.002 persons	20,000 RMB/person yr	40 RMB
Total			5240 RMB

1.3 billion RMB of initial cost → payback time is estimated 1.6 year

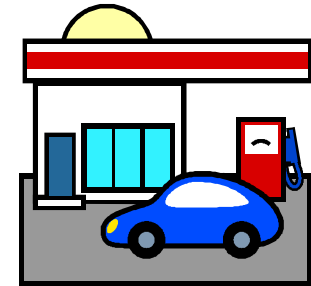
Mechanism of improvement the farmers' income



Expansion of demand



Increasing of crop price



Improvement of production

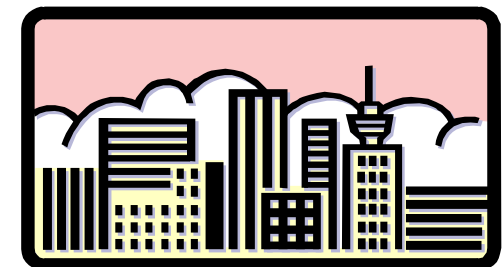
- expanding of farm land
- increasing of productivity

Income

800 RMB/y in 2002



1,500 RMB/y in 2006



Income: 20,000

redistribution of wealth

Sustainability

