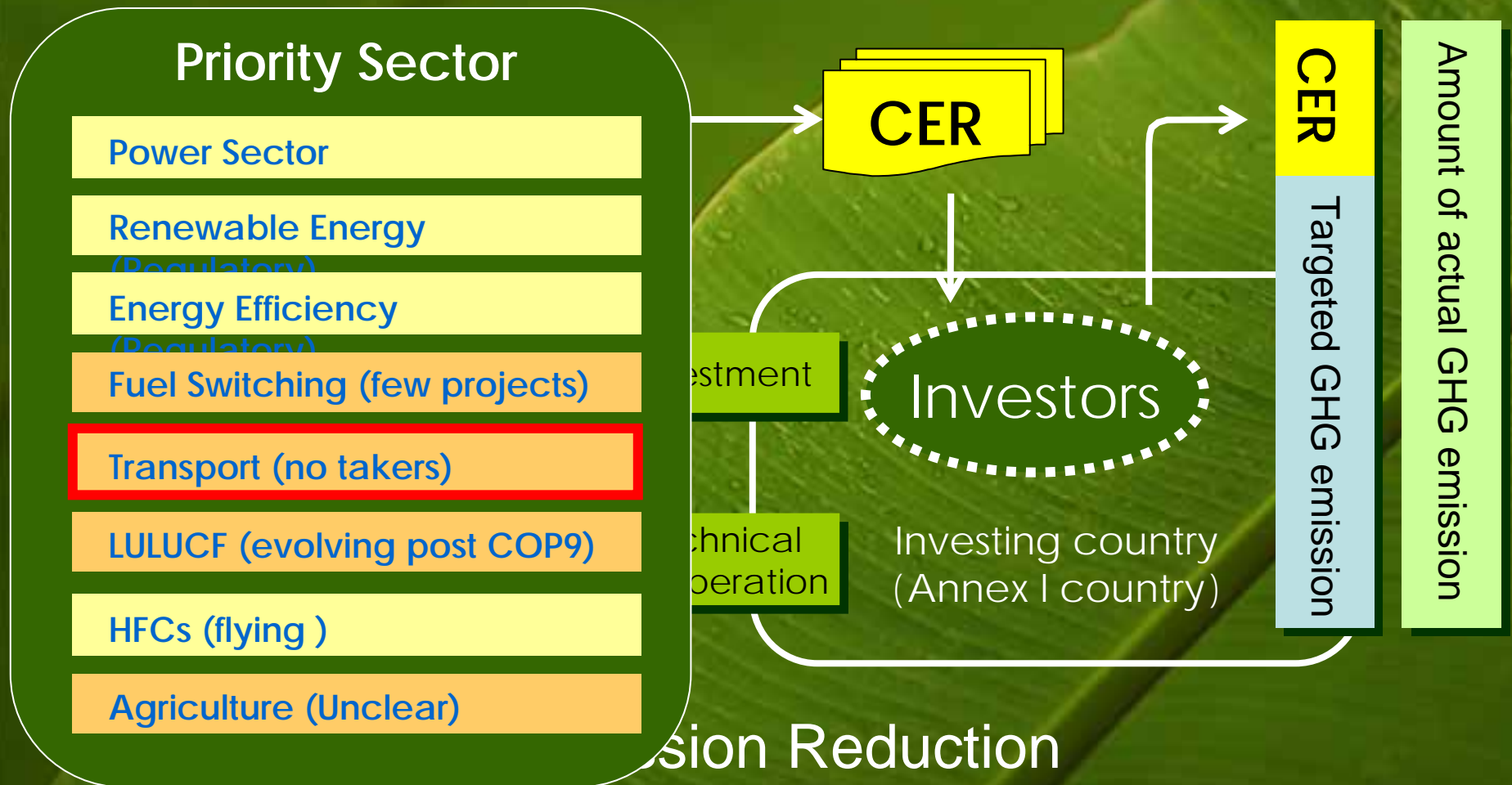


Report on International Follow-up Seminar
“Promotion on
Clean Development Mechanism
in Transport Sector and
Bio-Diesel Fuel Project Perspectives
in Thailand”

Atsushi FUKUDA

Professor of Nihon University

Basic Structure of Clean Development Mechanism



Promotion of CDM Project in Transport Sector

2002

2003

2004

2005

2006

MLIT Study
In Japan

Preliminary Study
on CDM Project
in Transport
Sector

Study on CDM
Project in Transport
Sector 2005

Study on CDM
Project in Transport
Sector 2004

F/S on BDF use for
Public Buses in
Bangkok

Field Survey at Bangkok, Thailand

Study to promote
CDM/OE in Transport
Sector 2003/CNG Bus

Study to promote
CDM/OE in Transport
Sector 2004/BRT

Study to promote
CDM in Transport
Sector 2005/BRT

F/S on Replacement of
CNG Engine for Private
Buses in Bangkok

Seminar
3/2005

Follow-up
Seminar

B

NM0142
Thailand/PME-BDF
in Transport

New Methodology
In Transport Sector

C

NM0052 Bogta/
Trans-Millenio

B

NM0105 Bogta/
Trans-Millenio II

C

NM0069
India/BDF

B

NM0108
India/BDF

R

NM0082
Khon kean
/Etanol

B

NM0082rev
Khon kean
/Etanol

C

NM0083
India/LPG

C

NM0109
Thailand/Sun
flower BDF

Other
Topics

Methodology
for HFC
decomposition

Brazil, Landfill
Gas Project,

Kyoto
Protocol



Purpose of Follow-up Seminar

Report the progress of CDM project on PEM-BDF for Transport.

- Detail of Project Design
- Report of NM submitted to MP/CDM.

Promote CDM in Transport sector

- Another efforts to set up CDM project

Exchange the information about policies of both governments on BDF, CDM and FCC as well as technology.



Main presenters on this seminar

Japan

Ministry of Land, Infrastructure and Transport (MLIT)

Japan Transport Cooperation Association (JTCA),

Japan Weather Association (JWA),

ALMEC & TransPLan,

Nihon University

Thailand


Ministry of Transport (MOT),

Office of Transport and Traffic Policy and Planning (OTP),

Ministry of Environment (MOE),

Ministry of Natural Resources and Environment (MONRE),

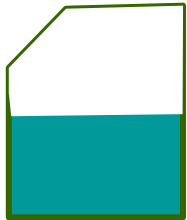
Royal Thai Navy



How does CDM in
transport sector concern
with "Biomass" ?

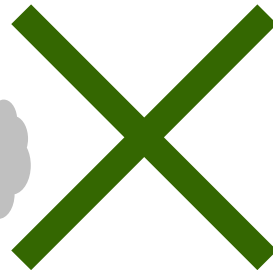
Mechanism to reduce CO2 in transportation sector

Use Bio Fuel
(Carbon Natural)



CO2 Emission
per car/capita

Improve CO2
Emission factor



Divert to Mass Transit



— Total
— CO2

Reduce traffic/driving distance

Methods Reducing GHG in Transport Sector

Reduce GHG per capita

- Fuel: Gasohol, Bio-Diesel Fuel, CNG, etc.
- Engine: Engine improvement, EV, Fuel Cell

Related to Biomass

Technological Approach



■ Smoothing Traffic condition

- Reducing traffic congestion

■ Improving Traffic Facilities

- Reducing vehicle travel kilometers

■ Managing Traffic Demand

- Reducing vehicle usage by using NM
- shifting to PT and controlling TDM

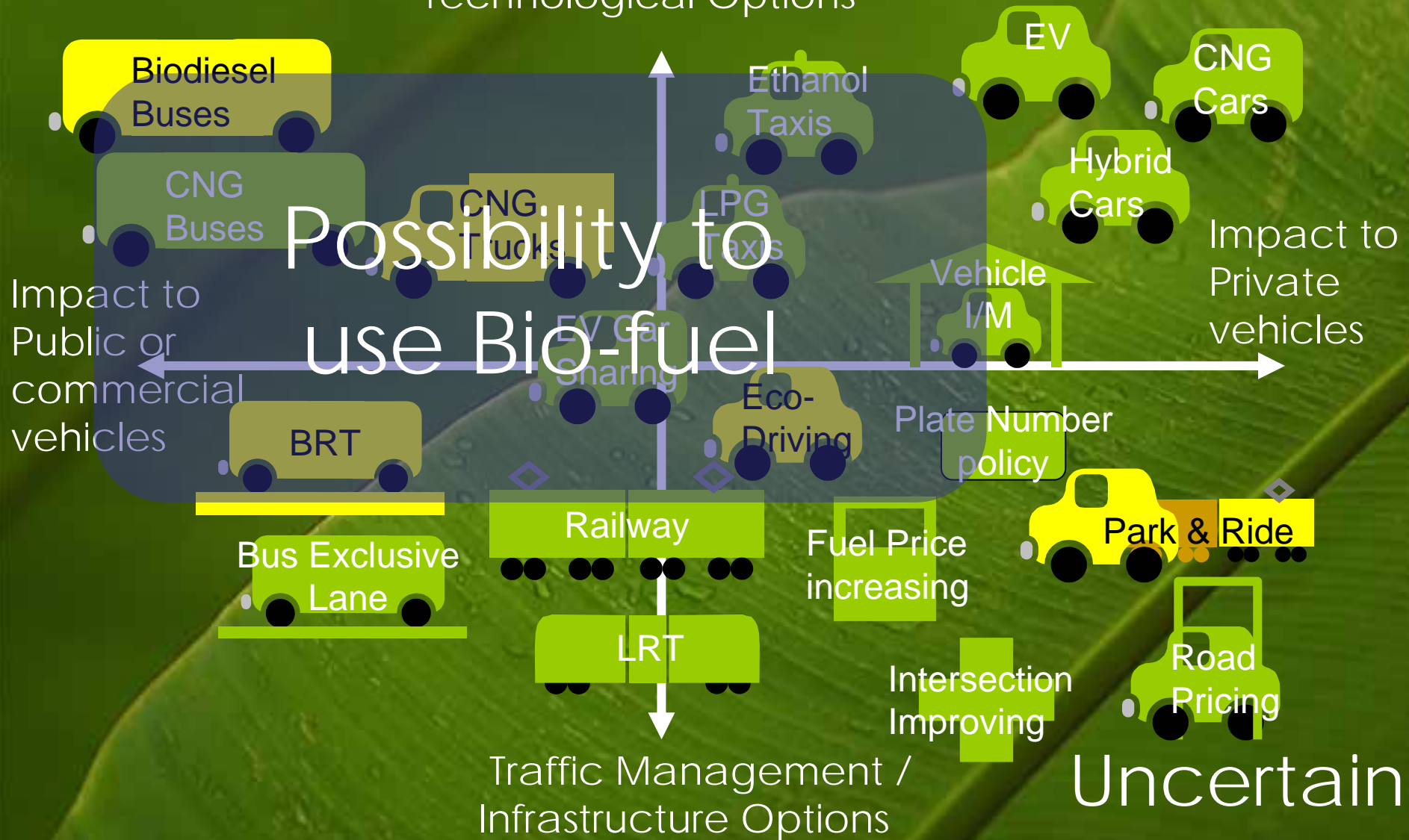
Policy/
Management

Reduce amount of GHG

Nature of Transport Sector CDM Projects

Certain

Technological Options



Uncertain

Current efforts to develop NM for TCDM in Japan

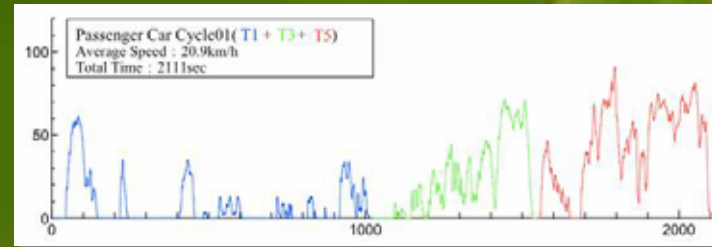
Title	Baseline Method	Period	Project Type	Annual Reduction (t CO ₂ eq)	Total Reduction (t CO ₂ eq)	Economic View
NM0082rev. Khon Kaen fuel ethanol	48(a) using LCA	10	Alternative fuel. Use Biofuel of 10% blended with gasoline	46,000	460,000	
NM0105 BRT for Bogota: TransMilenio Phase 2 to 5	48(a) replaces part of conventional transport modes	10	Efficiency improvement of mass urban transit system	295,131	2,951,312	Bogota district has a financial gap in phase 2 of 114 m\$, income from the CER can cover more than a quarter of this gap and potentially up to 40%.
NM0108 Biodiesel for Transport in Andhra Pradesh, India	48(a) fuel switch substituting petrodiesel with biodiesel	7 (21)	Alternative fuel. Use 5% petrol blended and 10% diesel blended Biodiesel.	27,851	194,957	
NM0142 PME-BDF for Transport in Thailand	48(a) using LCA	10	Alternative fuel for transportation. Use 10% diesel blended biodiesel for buses.	217,755	2,177,550	without CER, the FIIR is 3.2%, with CER, it will be 12%.

The background of the slide features a close-up, slightly blurred image of several large green leaves, likely from a tropical plant, with prominent veins. The leaves are layered, creating a sense of depth and texture. The overall color palette is various shades of green, from light to dark, providing a natural and eco-friendly aesthetic.

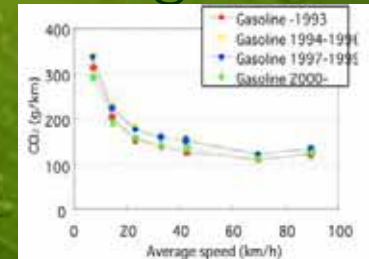
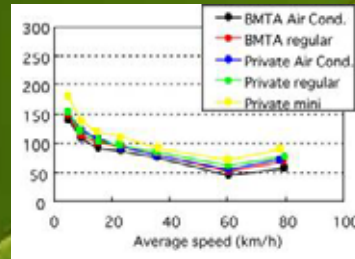
Study on Feasibility of
CDM Project producing
PEM-BDF and using BDF for
Transport Sector in
Thailand

Summary of our study

1. Bangkok Driving Cycle



2. Emission Factors of Various Vehicles in Bangkok



3. Estimate CO₂ from Transport Sector in Bangkok

4. Identify Feasible Pilot CDM Project Sample



Outline of Proposed BDF-CDM Project



- BDF Products: 300 ton/day, 100,000 ton/ year
- Raw Material: CPO 124,000 ton/year
(FFB: 730,000 ton/year)
- Raw material CPO delivered from Suratthani and neighboring 3 provinces
- Location of Plant: near Bangkok (Bangpakong)
- Amount of CO₂ Reduction: 217,000 ton/year
- Initial Capital Cost: 20 million US \$
- O & M Cost: 5.8 million US \$/year
- Expected BDF Sales: 58 million US \$/year
(Ex plant price at 20 baht/liter)
- Raw Material Cost: 52.7 million US \$/year
- CO₂ Credit: 1.5 million US \$/year (at 7 \$/ton)
- IRR: 3 % (without CDM), 14% (with CDM)

Comparison BDF-CDM Project with other CDM

BDF-CDM Project in Thailand



Project Cost: 20 million US \$
CO₂ Reduction: 217,000ton/year = 80 windmills (1MW)

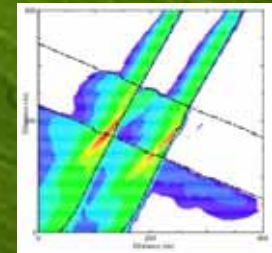
Windmill CDM Project Essaouira, Morocco



Project Cost: 58 million US \$
CO₂ Reduction: 156,000ton/year

Next our task

1. Promotion of BDF/CDM Project
 - a. Preparation of New Methodology for BDF/CDM
 - b. Identification of Project Participants
 - c. Preparation of Detail Project Plan (F/S)
 - d. Preparation of Project Design Documents (PDD)



2. Utilization of Data & Information of Last Study
3. Preparation of Adequate Model & Monitoring Method



Conclusion

- The project using new fuel such as bio fuel, gasohol, etc. produced from biomass is one of potential CDM project in transport sector, especially in Asian countries.
- Thai society welcome to use bio-fuel.
- However, stability on the quality and the price of bio-fuel is strongly required.
- Thus, we need more study in this field. Our group wish to cooperate with Biomass-Asia group in order to ensure BDF-CDM project in transport sector.

A close-up photograph of a green leaf with water droplets, serving as a background for the text. The leaf is the central focus, with its veins and texture clearly visible. The water droplets are scattered across the surface, adding a fresh and natural feel to the image. The overall color palette is dominated by various shades of green, from a deep forest green to a lighter, almost yellowish-green where the light hits the leaf's surface.

Thank you for your attention !