



Group Discussion G4: Keynote Speaker

Approach on

Life Cycle Costing (LCC) and its benefits

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and

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What is Life Cycle Costing

Life Cycle Costing (LCC) is a methodology that enables you to incorporate costs and benefits that occur over the entire life cycle of a product into your procurement decisions- rather than considering the initial capital cost of a product only

Costs and benefits:

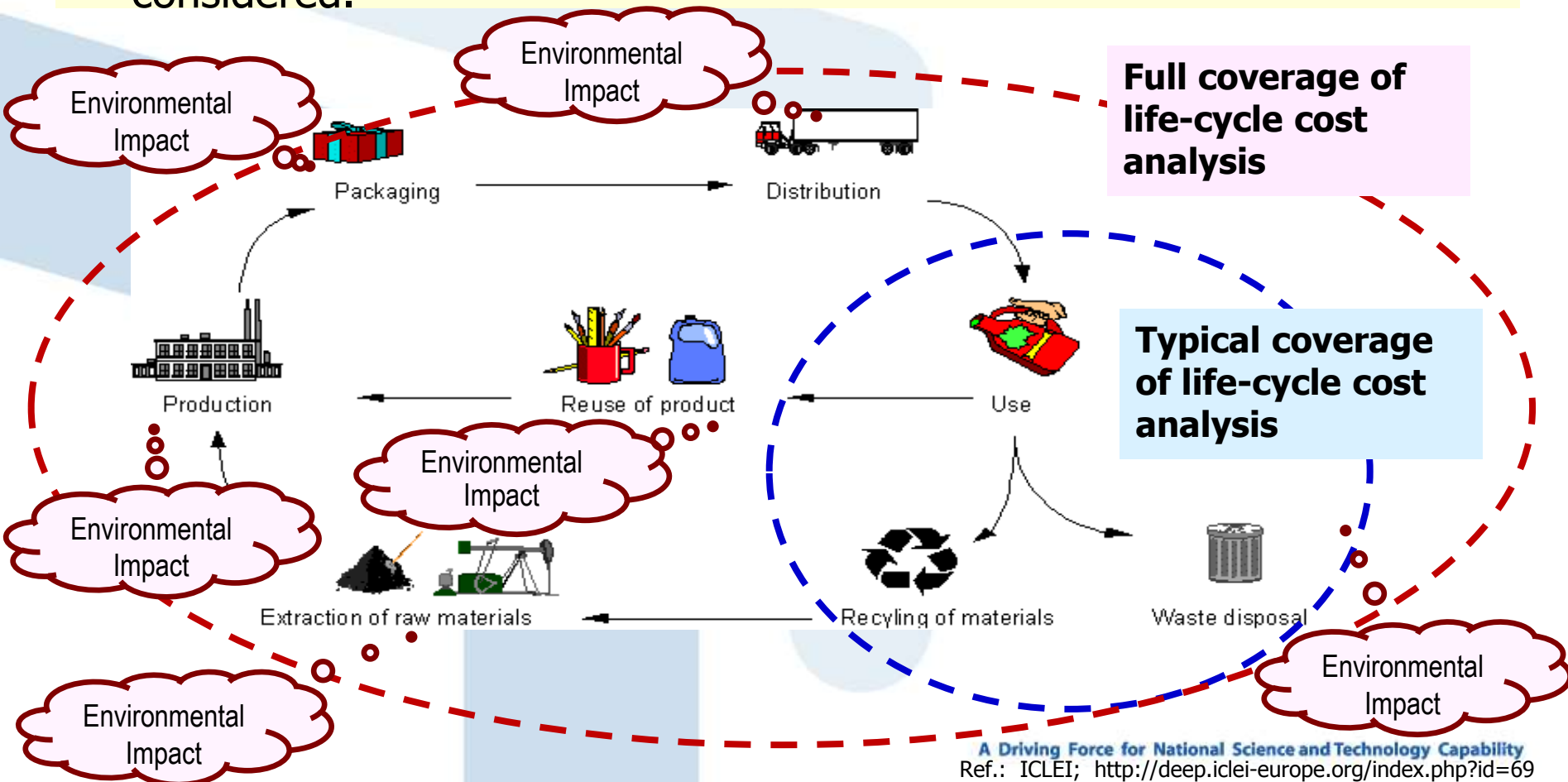
For General Procurement: e.g. energy consumption, replacement of equipment or parts, consumables and disposal- they all affect the ultimate price, yet are rarely considered when selecting a product! (Ref.: ICLEI: <http://deep.iclei-europe.org/index.php?id=69>)

For Public Procurement: need to consider “**External cost**” (not included in the market price) occurs when producing or consuming a good or service imposes a *cost upon a third party or the public* (such as pollution, health related problems)

Full LCC vs. Typical LCC

Typical LCC only takes account of the costs and benefits that accrue during the ownership of the equipment.

Full Life Cycle Costing (including external cost) in which the environmental and economic benefits related to its entire life-time are considered.



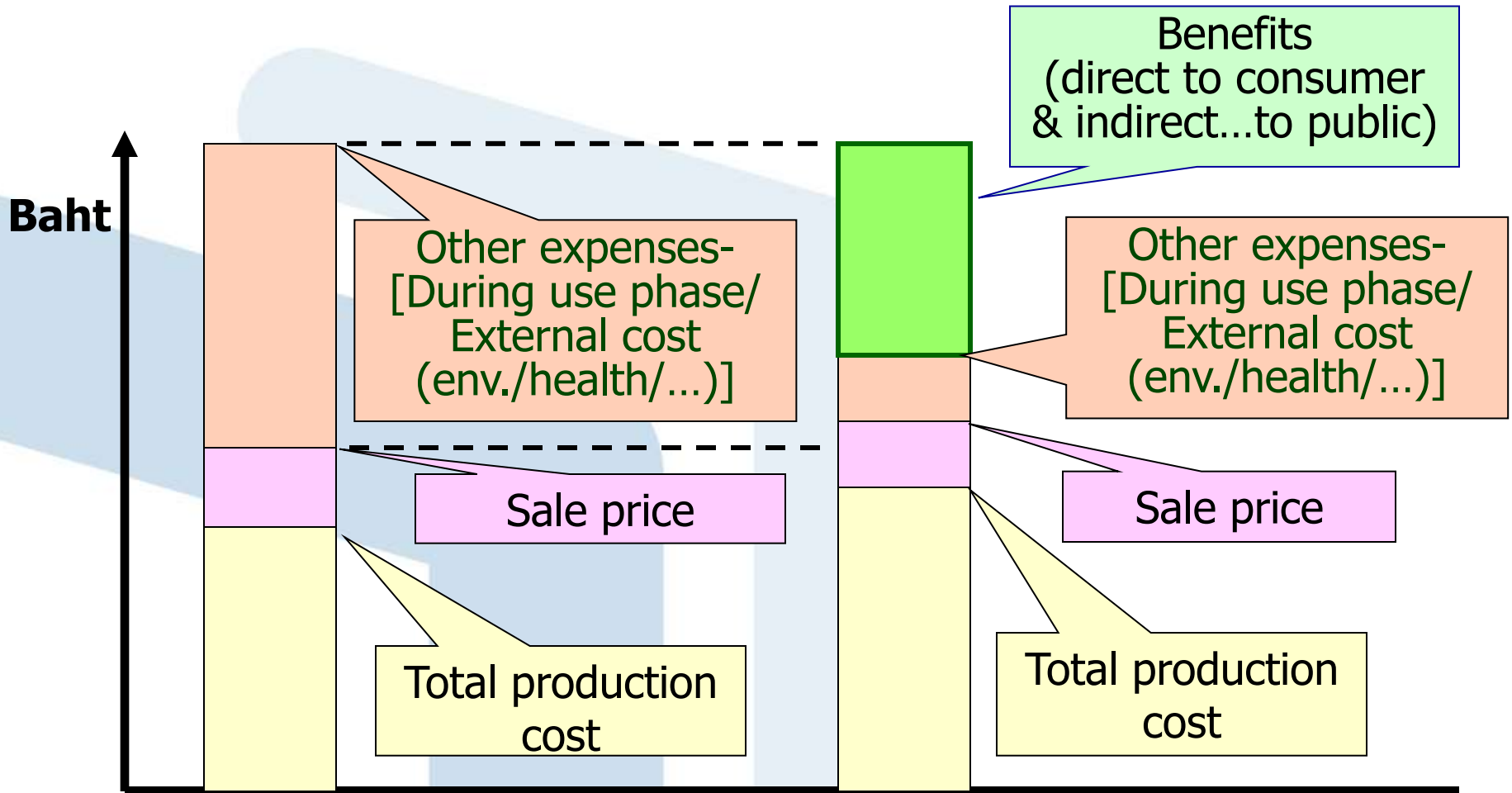
Why should Public Authority use LCC?

There are many benefits for Public Authorities in using LCC (including external cost) on a systematic basis:

- ❑ It can save money (considering external cost)
- ❑ It supports the purchase of better product
- ❑ It encourages more logical decision-making
- ❑ It supports local/global sustainable development

In summary, LCC supports public responsibility to the community/country to use public funds wisely and sustainably

Cost according to LCC concept (Typical vs. Green products & Services)



**Typical
Product/Service**

**Green
Product/Service**

2. Policy Research and Evaluation of Thai Green Public Procurement: FY 2008-2011

Period of Study: 9 months (December 2011-August 2012)

Background

- Thai government endorsed “Govt. Green Procurement Plan” on 22 January 2008 to promote the production and consumption of green products/services
- Target of 4-year GPP Plan



Item \ FY	2008	2009	2010	2011
% of Govt. Units (total 170)	25	50	75	100
% of budget	25	30	40	60

- Pollution Control Department collect the data of (1) number of govt. units joined and (2) amount of budget purchased
- **Not enough data** to indicate the success of GPP implementation during 2008-2011 to
 - (1) promote the production & consumption (of non-govt.) of green products
 - (2) help environment and savings (according to the GPP concept)
- So, NSTDA initiated this research project with the cooperation from PCD ₆

3. Research Methodology

Research Framework

Policy Research and Evaluation of Thai Green Public Procurement: FY 2008-2011

Evaluation of the Effectiveness of the GPP Plan 2008-2011

Evaluation of Environmental Impact (using LCA/LCC)

Evaluation of Impact on the Market of Green Products/Services

Propose Policy Recommendations
-national level
-to NSTDA

Products/Services Selection and Calculation

Priority list for Gov. Green Procurement Plan

- **Printer cartridges**
- **Computer papers and color covers**
- **Document folders**
- **Envelope**
- **Box**
- **Correction pen**
- **Fluorescence**
- **Printer**
- **Copy machine**
- **Metal Furniture**
- **Toilet paper**
- **Paint**
- **Whiteboard pen**
- **Primary battery**

- **Copy machine renting service**
- **Cleaning service**
- **Hotel service**



From 14 products and 3 services in the plan, **12 products were selected for LCC study** due to the availability of LCI/LCA data




Calculation Method

- ✘ Specify the difference of the specifications (typical vs. minimum requirements of green label products Type 1) of the 12 selected products
- ✘ Using Life Cycle Assessment/ Life Cycle Costing/ MECO (Material, Energy, Chemicals and Others) methods
- ✘ Analyze and evaluate the quantities and the cost
- ✘ Compare and summarize the benefit in terms of cost and GHG emission reduction

4. Research Results

4.1 Evaluation of Environmental Impact (using LCA/ LCC)

Thai Government Green Procurement Promotion Plan 2008-2011



**1. External Cost
(indirect)
(Thai Baht)**



**2. Greenhouse Gas Emission
Reduction (CO_{2e})**

4.1 Evaluation of Environmental Impact (using LCA/ LCC)

External Cost of the 12 selected products (baht/unit product)

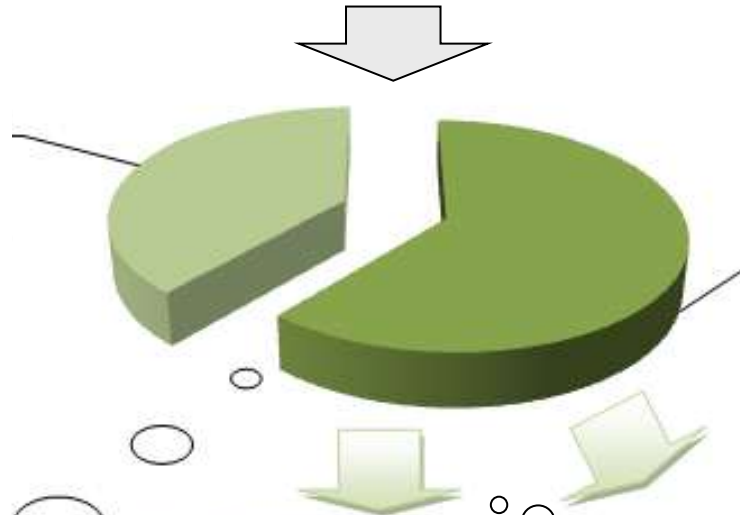
Name of Products	Env. benefits (baht/product unit)
1. Printer cartridges (box)	127.77
2. Paper (500 sheets)	45.88
3. Document folder (piece)	1.87
4. Envelope (piece)	1.09
5. Document box (box)	23.92
6. Correction pen (piece)	
- liquid	0.23
- pen	0.08
7. Fluorescence (piece)	
- normal	3.12
- compact	720.08
8. Copy machine (set)	160,789.96
9. Toilet paper (roll)	2.79
10. Printer (piece)	1,400.04
11. Metal furniture (piece)	452.12
12. Paint (box)	2,465.50

4.1 Evaluation of Environmental Impact (using LCA/ LCC)

Summary: Environmental Benefits

Total budget the govt. spent on 12 selected products:
929.25 million baht

Budget on
typical products:
359.23 million
baht (39%)



Budget on
green
products:
570.02
million baht
(61%)

Total GHG
reduction:
25,685 ton CO2e



Total external cost
savings: **223.51**
million baht

External cost (baht/unit) x
Units that govt. bought (unit)

4.2 Evaluation of Impact on the Market of Green Products/Services

Assumption:

Government is the biggest consumer. Budget spent in 2010 is ~ **0.32 trillion baht.**
So government green public procurement is the proactive strategy to promote green product/ green market

Impact on the Market of Green Products

Increase the Supply Side?

Manufacturers produce more Green Products/Services ?

- Compare the number of green label products certified before and after the period of GPP Promotion Plan (2008-2011)

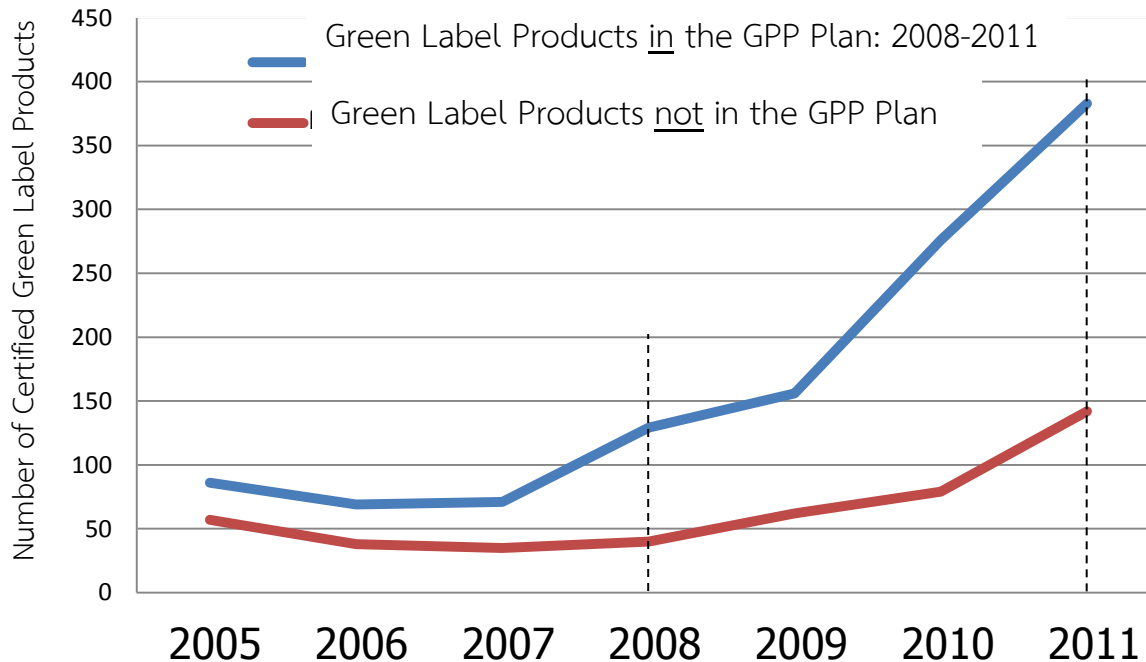
Increase the Demand Side?

Consumers have more opportunity to protect environment through market mechanism by purchasing green products/Services ?

- Consider the market trends of green products during the period of GPP Promotion Plan
- Evaluate the External Cost gained from the total green products during the period of GPP Promotion Plan

On the Supply Side Manufacturers produce more Green Products/Services ?

Number of Green Label Products Certified during 2005-2011



Study Result:

The result indicates that GPP Promotion Plan can encourage the manufacturers to produce more green (label) products into the market

4.2 Evaluation of Impact on the Market of Green Products

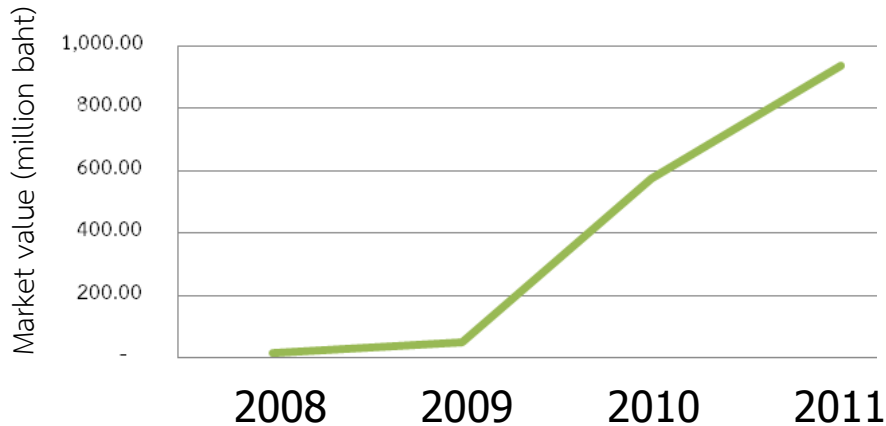
On the Demand Side

Consumers have more opportunity to protect environment through market mechanism by purchasing green products/Services ?

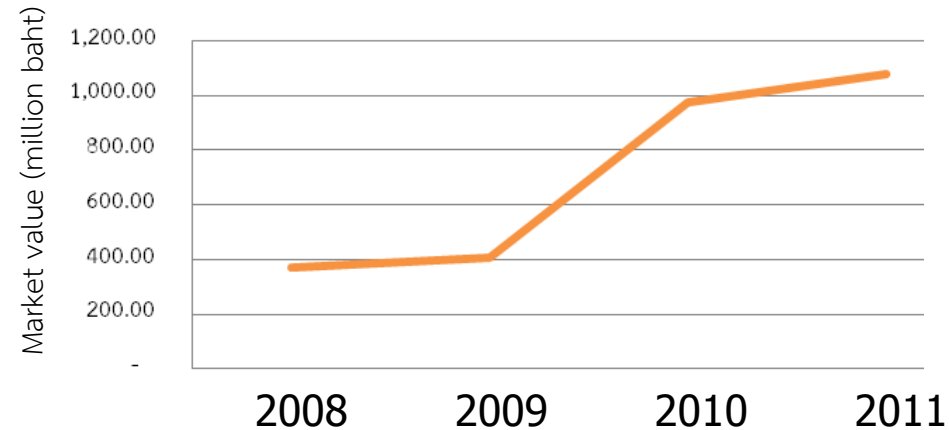


The market trend of green products increases during the period of GPP Promotion Plan

Market value of green-label Paint
(non-government market)



Market value of green-label Copy Machine
(non-government market)



4.2 Evaluation of Impact on the Market of Green Products

Result: Evaluate the environmental benefits (External Cost) gained from the selected **3 green products** during the period of GPP Promotion Plan

Products	Govt. spending during the plan (M baht)	Govt. spending on green products during the plan		Total spending on green products (both govt.& private)		External Cost (environmental benefit) on green products (both govt.& private)		
		Amount (M unit) (A)	Market value (M baht) (B)	Amount (M unit) (C)	Market value (M baht) (D)	Per product unit (baht/unit) (E)	From Govt. Spending during the plan (M baht) (F = A x E)	Total Spending (both govt. & private) (M baht) (G=C x E)
Paper (500 sheets)	321.02	3.2521	282.13	63.16	7,579.11	45.88	149.23	2,897.78
Paint (box)	2.97	0.0021	1.65	5.08	1,582.31	2,465.50	5.15	12,525.74
Copy machine (set)	23.32	0.0001	9.04	0.03	2,838.21	160,790.00	18.33	4,823.70
Total	347.31	3.2543	292.82	68.27	11,999.62	-	172.71	20,246.22

External Cost (Environmental benefits) from selected 3 products

- Direct from Govt. Spending (of 292.82 M baht on 3 green products) = 172.71 M baht
- All from both govt. and private sector = 20,246.22 M baht

Govt.

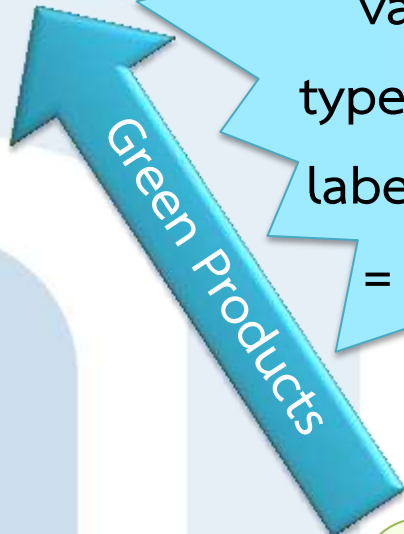
Consumers

Spending on 3 types of green-label products = 292.82 M baht

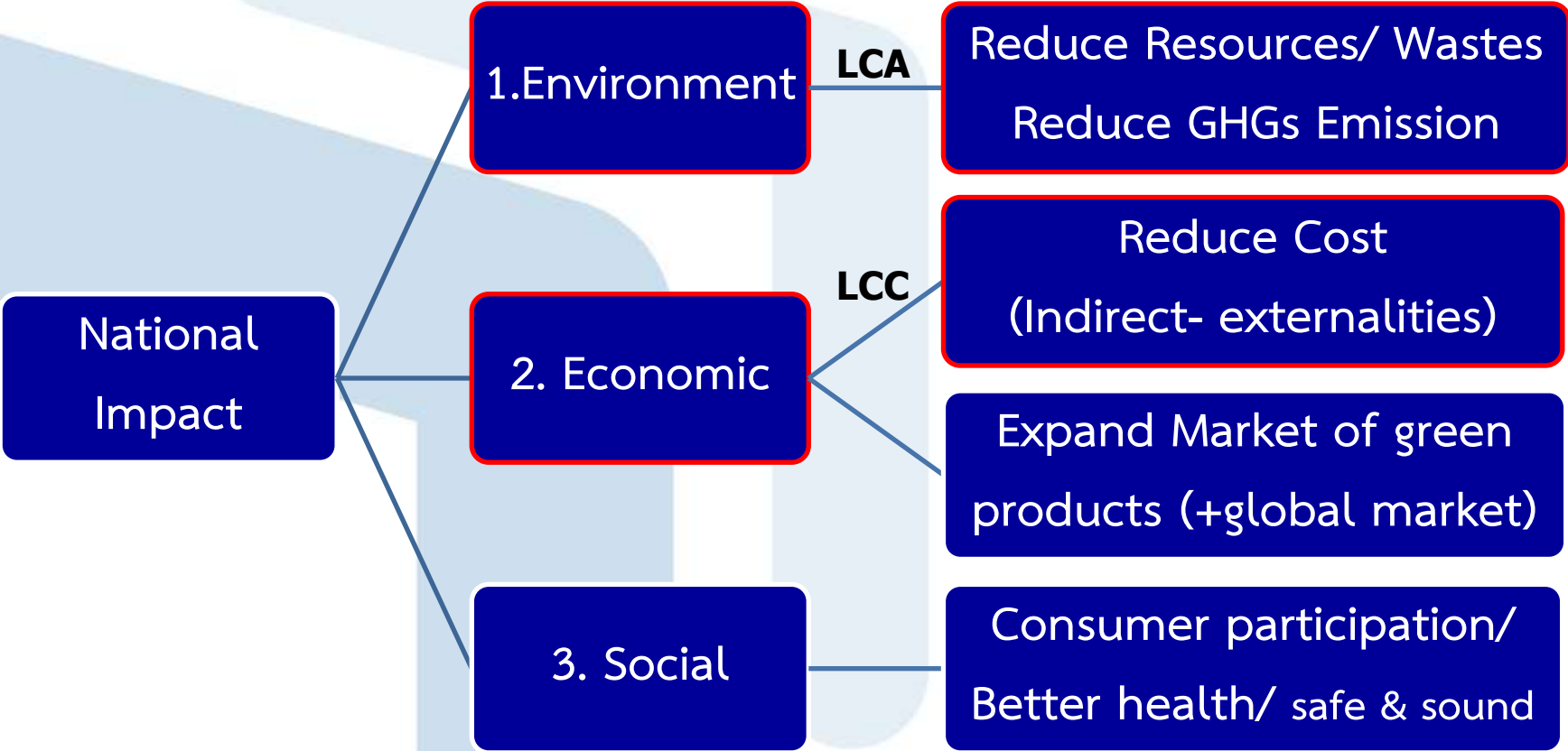
Total market value of 3 types of green-label products = 11,999.62 M baht

Producers

Green Market



Total Impact from the Govt. Green Public Procurement



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