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Regional Analysis of CFL Standards: An Update

My Ton

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**Presentation for
PHASING-IN QUALITY: ESTABLISHING A QUALITY
IDENTIFICATION SYSTEM FOR CFLs IN ASIA REGIONAL
WORKSHOP**

**June 6, Asian Development Bank HQ, Manila
The Philippines**



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Presentation Agenda

- Review of ECO-Asia CDCP efforts
 - ◆ Quantifying Regional CFL Quality
 - ◆ Regional Analysis of CFL Standards
- Summarizing Common Regional Issues
- Recommendations
- Updates on Regional Efforts

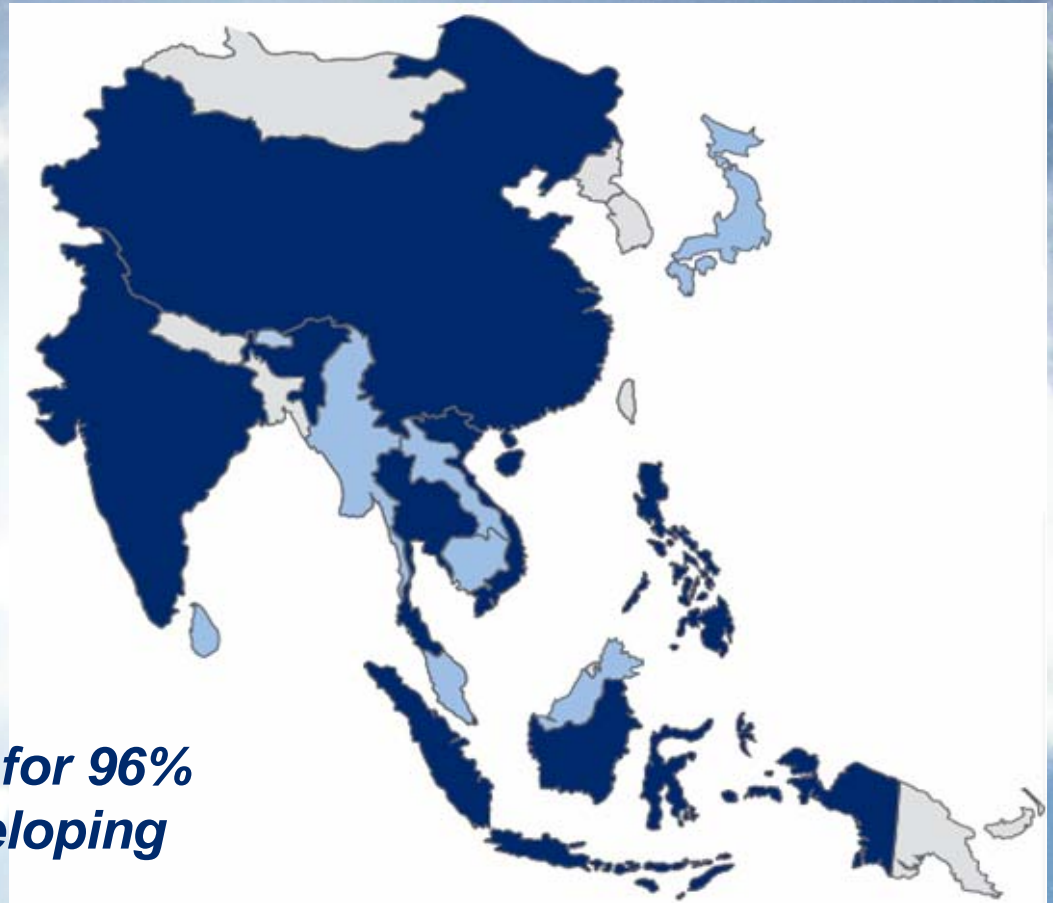


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ECO-Asia Clean Development and Climate Program

China
India
Indonesia
Philippines
Thailand
Vietnam



These countries account for 96% of the GDP of Asia's developing countries



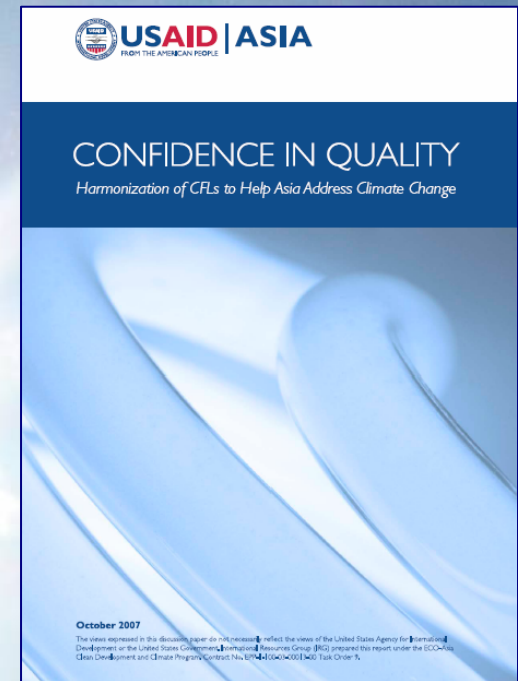
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Review of ECO-Asia CDCP Efforts

Regional Analysis of CFL Programs and Markets:

- Funded by the USAID ECO-Asia Clean Development and Climate Program
- Covered China, India, Indonesia, Philippines, Thailand, and Vietnam
- Analysis covered:
 - ♦ CFL quality
 - ♦ Testing
 - ♦ Certification procedures
 - ♦ Mandatory and voluntary compliance regulations for CFLs.
- Build on earlier work and reports (such as Australian CFL benchmarking report)
- Recommend a regional approach for harmonizing and rationalizing CFL programs and regulation in Asia





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Review of ECO-Asia CDCP Efforts

Approximated Market Size

Country	CFL Production and Sales: Annual Volume (in million units)					
	2001	2002	2003	2004	2005	2006
China	750	800	1,040	1,380	1,760	2,400
India	NA	34	40	46	70	100
Indonesia	10	40	50	60	70	90
Philippines	4.5	NA	NA	18	25	NA
Thailand	NA	NA	NA	NA	10	15
Vietnam	NA	NA	5.4	7	8.4	11

*Preliminary estimates

Source: Australian Green House Office Reports 2006, and ECO-Asia 2007



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Review of ECO-Asia CDCP Efforts

Defined Quality Category

Market category	Description of market category
High quality – International/Well-known brands	<ul style="list-style-type: none">Well-known name brands, such as OSRAM, Philips, National/Panasonic, GE, etc.≥ 6,000 hour lifetimeEvidence of testing and/or quality registration
High quality – National/Not-well known brands	<ul style="list-style-type: none">Not well-known name brands≥ 6,000 hour lifetimeEvidence of testing and/or quality registration
Poor quality	<ul style="list-style-type: none">Not well-known name brands3,000 to 6,000 hour lifetimeLittle or no evidence of testing
Very poor quality	<ul style="list-style-type: none">Not well-known name brands< 3,000 hour lifetime or no claimed lifetimeLittle or no evidence of testing and/or quality registrationTypically US\$1 or less in the market



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Review of ECO-Asia CDCP Efforts

Estimated Market Share by Quality

Country	Export Quality CFLs (%)	High Quality CFLs (%)	Medium Quality CFLs (%)	Low Quality CFLs (%)
China	15	30	40	15
India	NA	NA	NA	NA
Indonesia	36	18	26	20
Philippines	NA	68	8	24
Thailand	NA	NA	NA	NA
Vietnam	17	44	0	39

Source: Australian Green House Office Reports 2006, and ECO-Asia 2007



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Review of ECO-Asia CDCP Efforts

Surveyed Countries Regarding CFL Standards and Requirements

Reviewed

- Safety standards
- Energy performance standards
- Quality standards
- Labeling criteria
- Test protocols
- Implementing agencies

	CFL Test Protocol	Basic Safety and Quality Standard	Minimum Energy Performance Standard	Energy Label
China	✓ mandatory	✓ mandatory	✓ ^a	✓ voluntary
India	✓ mandatory	✓ mandatory	✓ mandatory	✓ voluntary ^b
Indonesia	X ^c	✓ mandatory	X	✓ voluntary ^c
Philippines	✓ mandatory	✓ mandatory	✓ mandatory	✓ mandatory
Thailand	✓ voluntary	✓ mandatory	✓ mandatory	✓ voluntary
Vietnam	X	X ^c	✓ voluntary	X



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Updates on Regional Analysis of CFL Standards

CFL Safety Standards

- Electrical requirements
 - ◆ Transient protection
 - ◆ Voltage fluctuation
- Mechanical requirements
 - ◆ Fit
 - ◆ Integrity
- Inspection
- Registration

Country	CFL Safety Requirements
China	Yes
India	Yes
Indonesia	Yes
Philippines	Yes
Thailand	Yes
Vietnam	Yes



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Updates on Regional Analysis of CFL Standards

CFL Efficiency Standards

- Wattage bins

Country	Number of Bins
China	4
India	3
Indonesia	4
Philippines	5
Thailand	4
Vietnam	N/A



Updates on Regional Analysis of CFL Standards

CFL Efficiency Standards

- Wattage bins

Bins	Efficacy (Lm/W)	Country
≥ 2 - <5	45	Philippines
≤7	45	India

Bins	Efficacy (Lm/W)	Country
5 - 8	36-40	China
	40	Thailand
≥ 5 - <9	50	Philippines
	45	Vietnam
	50	Aus/NZ(ELI)
<10	40	Taiwan
	42	Korea
8 - 10	49	India

Bins	Efficacy (Lm/W)	Country
≥ 15 - <25	60	Philippines
	60	Aus/NZ(ELI)
	55	Vietnam
15 - <25	60	Taiwan
15 - 23	58	Korea
15 - 24	51-55	China
	55	Thailand
16 - 23	59	India

Bins	Efficacy (Lm/W)	Country
9 - 14	44-48	China
	48	Thailand*
≥ 9 - <15	55	Philippines
		Aus/NZ(ELI)
	45	Vietnam
≥ 10 - ≤15	48	Korea
10 - <15	50	Taiwan
11 - 15	54	India

Bins	Efficacy (Lm/W)	Country
24 - 26	59	India
≥ 25	65	Philippines
> 25	65	Taiwan
≥ 25-< 60	65	Aus/NZ(ELI)
	55	Vietnam
25 - 60	57-60	China
	60	Thailand
25 - 60		



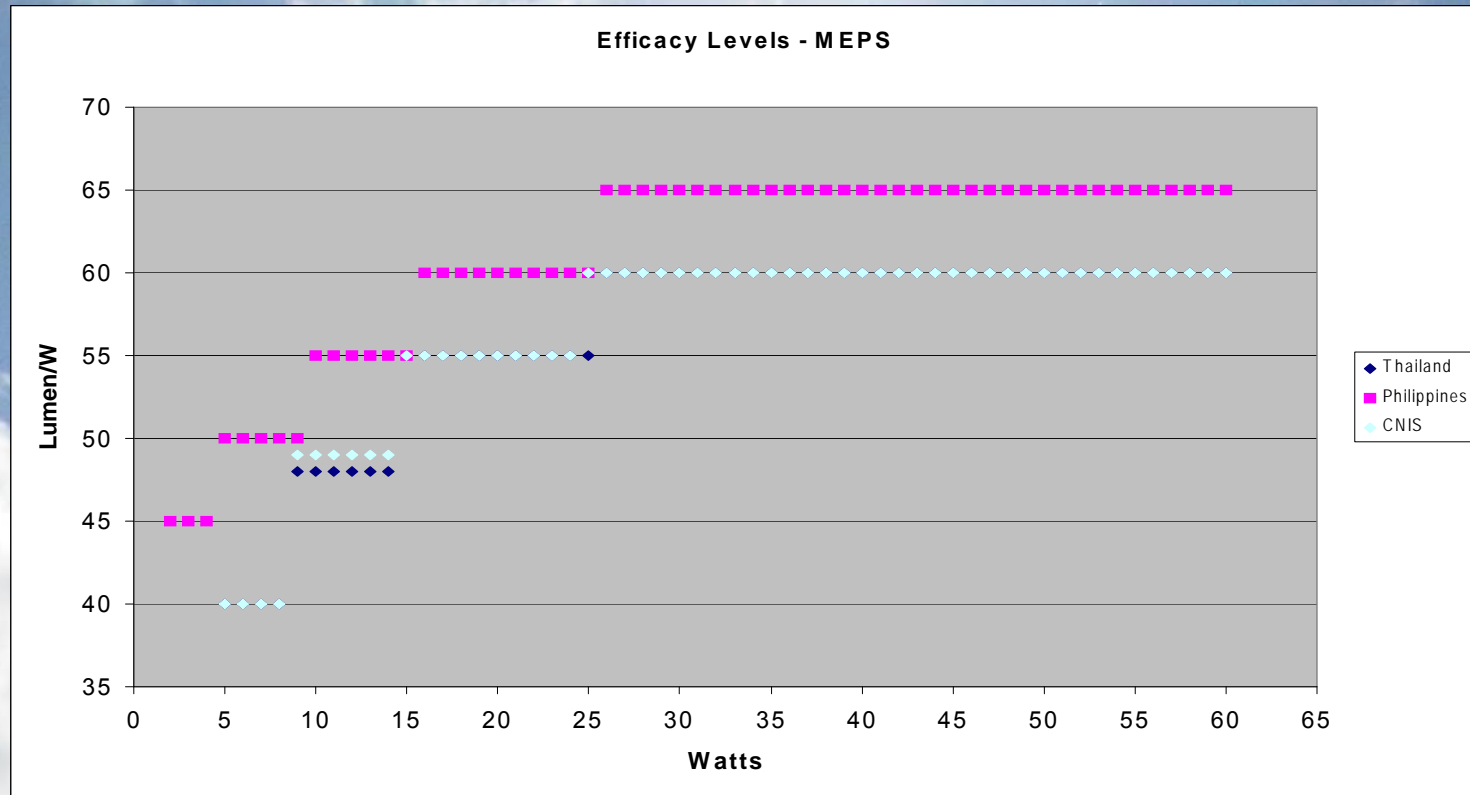
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Updates on Regional Analysis of CFL Standards

CFL Efficiency Standards

- Efficacy (lumens per Watt)





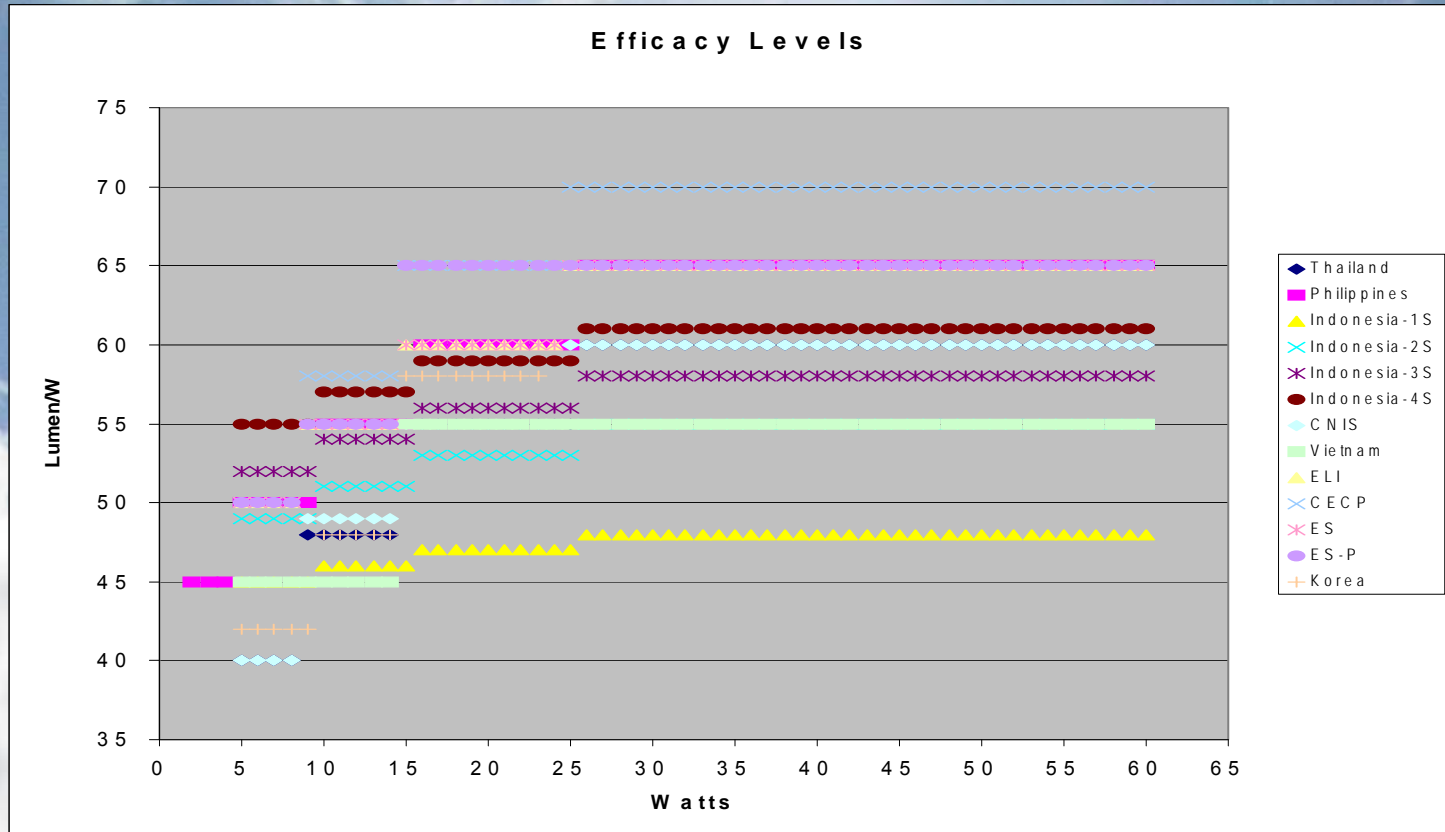
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Updates on Regional Analysis of CFL Standards

CFL Efficiency Standards

- Efficacy (lumens per Watt)

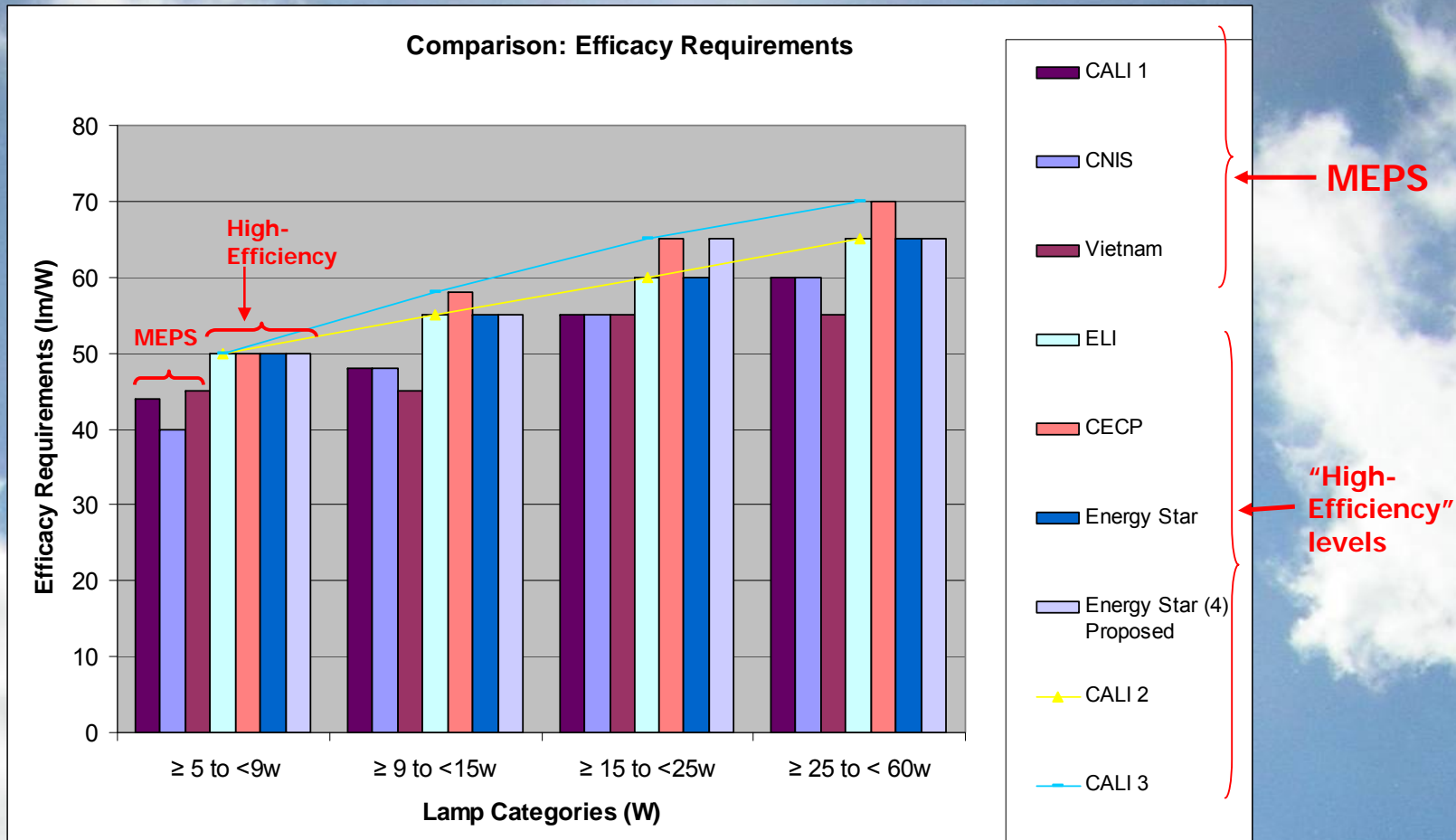




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Updates on Regional Analysis of CFL Standards





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Updates on Regional Analysis of CFL Standards

CFL Quality Standards

- Lifetime
- Light quality
 - ◆ Color rendering
 - ◆ Color temperature
 - ◆ Lumen maintenance
- Other characteristics
 - ◆ Start up
 - ◆ Run up
 - ◆ Power factor
 - ◆ Mercury content
- Warranty



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Summary of Criteria Included in Regional CFL Standards

Country	Safety	Efficacy	Color Rendering	Start-up Time	Lamp Lifetime	Lumen Maint.	Warranty
China	Y	Y	N	N	N	N	N
India	Y	Y	N	N	Y	Y	Y
Indonesia	Y	Y	N	N	N	N	N
Philippines	Y	Y	N	Y	Y	Y	N
Thailand	Y	Y	N	N	Y	Y	Y
Vietnam	Y	U	N	N	N	N	N

Y = Yes

N = No

U = Under consideration



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Updates on Regional Analysis of CFL Standards

CFL Performance and Quality Standards

- Testing requirements
 - ◆ Laboratory accreditation
 - ◆ Samples requirements
 - ◆ Sampling methods
- Performance testing standards
 - ◆ IEC 90698
 - ◆ IEC 90969



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Updates on Regional Analysis of CFL Standards

CFL Quality Standards

- Available testing laboratories
- Available testing capacities

Country	Available Laboratory	Laboratory Accreditation
China	Over 4	1 NAVLAP
India	Over 4	1 TUV
Indonesia	4	1 TUV
Philippines	2	ISO
Thailand	2	ISO
Vietnam	2	Various



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Updates on Regional Analysis of CFL Standards

CFL Testing Initiatives

- Country specific
 - ◆ Testing laboratory
 - ◆ Purpose of tests
 - ◆ Size
 - ◆ Criteria
 - ◆ Availability of results



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Regional CFL Testing Authorities

Product Testing Summary



	Agency Responsible for Testing	Purpose of CFL Testing	Test Laboratories Participating in the Test	Period of CFL Testing	# of CFL Models Tested and # of CFL Suppliers	Results of Testing
CHINA	Accredited testing labs	Product quality, safety, energy performance	NA	NA	NA	NA
INDIA	Accredited testing labs	Certification by Bureau of Indian Standards for energy labeling by Bureau of Energy Efficiency	Four laboratories		15W CFLs from 14 suppliers	
INDONESIA	National Standards Bureau?	To issue SNI certificate and rate EE level	3 accredited labs	NA	NA	NA
PHILIPPINES	Lighting and Appliance Testing Lab (LATL) of the Bureau of Product Standards (BPS)	Assess compliance with PNS specs on safety, quality, energy performance	BPS tests safety and quality, LATL measures energy performance	Ongoing, as testing is mandatory	323 CFL models, 27 suppliers	NA
THAILAND	Thai Industrial Standards Institute	Safety	Thai Electrical and Electronics Institute	Ongoing: safety test is mandatory, EE is likely to become mandatory	All suppliers sent their CFLs for testing (about 60 models)	After 2,000 hrs, the lumen must be 80% or more of original lumens
	Electricity Generating Authority of Thailand	To issue No. 5 label				
VIETNAM	NA	NA	NA	NA	NA	NA



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Updates on Regional Analysis of CFL Standards

CFL Testing Initiatives

- Data sharing
 - ◆ Types of data
 - ◆ Availability
 - ◆ Uses
- Mutual recognition of results



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Summary of Common Regional Issues

1. Rapid growth in CFL production and capacity
 - Shortage of materials, quality concerns
2. Proliferation of CFL promotional programs
3. Proliferation of CFL standards and specifications
 - No common quality standards (testing, performance)
4. Little/no publicly available test data on CFL quality
5. No price signal/indicators for high-quality CFLs
 - Lack of regionally recognized quality threshold



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A Way Forward

Regional Initiatives Can Work with Governments and Private Sector to Develop a Common Approach

- **International CFL Harmonization Initiative (CFLI)**
 - ♦ Test protocol, performance tiers, compliance
- **Global Environment Facility (with UNDP and UNEP)**
 - ♦ Global lighting initiative to assist in GLS phase-out
 - ♦ BRESL regional program
- **Efficient Lighting Initiative**
 - ♦ Only international CFL quality certification scheme
- **International Energy Agency**
 - ♦ High-level policy dialogue, analysis
- **USAID ECO-Asia Clean Development and Climate**
 - ♦ Enhance regional information-sharing, promote regional agreements (harmonization), encourage national initiatives



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ECO-Asia CDCP's Recommended Priority Actions for CFL Quality

1. Recognize that sub-standard CFLs are a serious policy problem
2. Develop regional agreement on a common test procedure
3. Develop common performance quality standards for the region
4. Adopt regional performance levels
5. Develop a framework for standards and labelling of CFLs
6. Increase public awareness about CFL quality
7. Seek funding for testing and compliance
8. Seek technical assistance in improving CFL manufacture.
9. Provide exchange of information and technical experts



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ECO-Asia CDCP's Recommended Priority Actions for CFL Quality

Develop common performance quality standards for the region

- Define and agree upon performance parameters
 - Wattage bins
 - Efficacy levels
 - Lifetime
- Optional
 - Start up
 - Run up
 - CRI
 - Lumen maintenance



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ECO-Asia CDCP's Recommended Priority Actions for CFL Quality

Adopt regional performance levels

- 2 Efficacy levels
 - MEPS
 - Performance
- Maximum of 3 levels
 - Low, Medium, High
 - Align High with EST 6, ENERGY STAR 4.0, or CALI 3
- Work with industry to facilitate adoption



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APP Project on CFL Harmonization and Quality

Testing and compliance

- 160 CFL models from 6 countries 2000+ lamps will undergo testing at 4 laboratories in 3 countries
- Lamps will be tested for a number of performance parameters
- Laboratories will be using a common test methodology
- A subset will also be tested for mercury content
- Provide “snap shot” of regional CFL performance to inform standards development and harmonization process
- Data will be publically available for policy makers and program managers
- Data will be maintained in Regional “CFL Registry”



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Thank You!

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