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# **Compliance Issues Highlighted by Lighting Programs: CFLs in Asia**

**International Monitoring, Verification and Enforcement Conference**

My Ton – USAID Contractor  
Team Leader, Energy Efficient Lighting  
ECO-Asia Clean Development and Climate Program  
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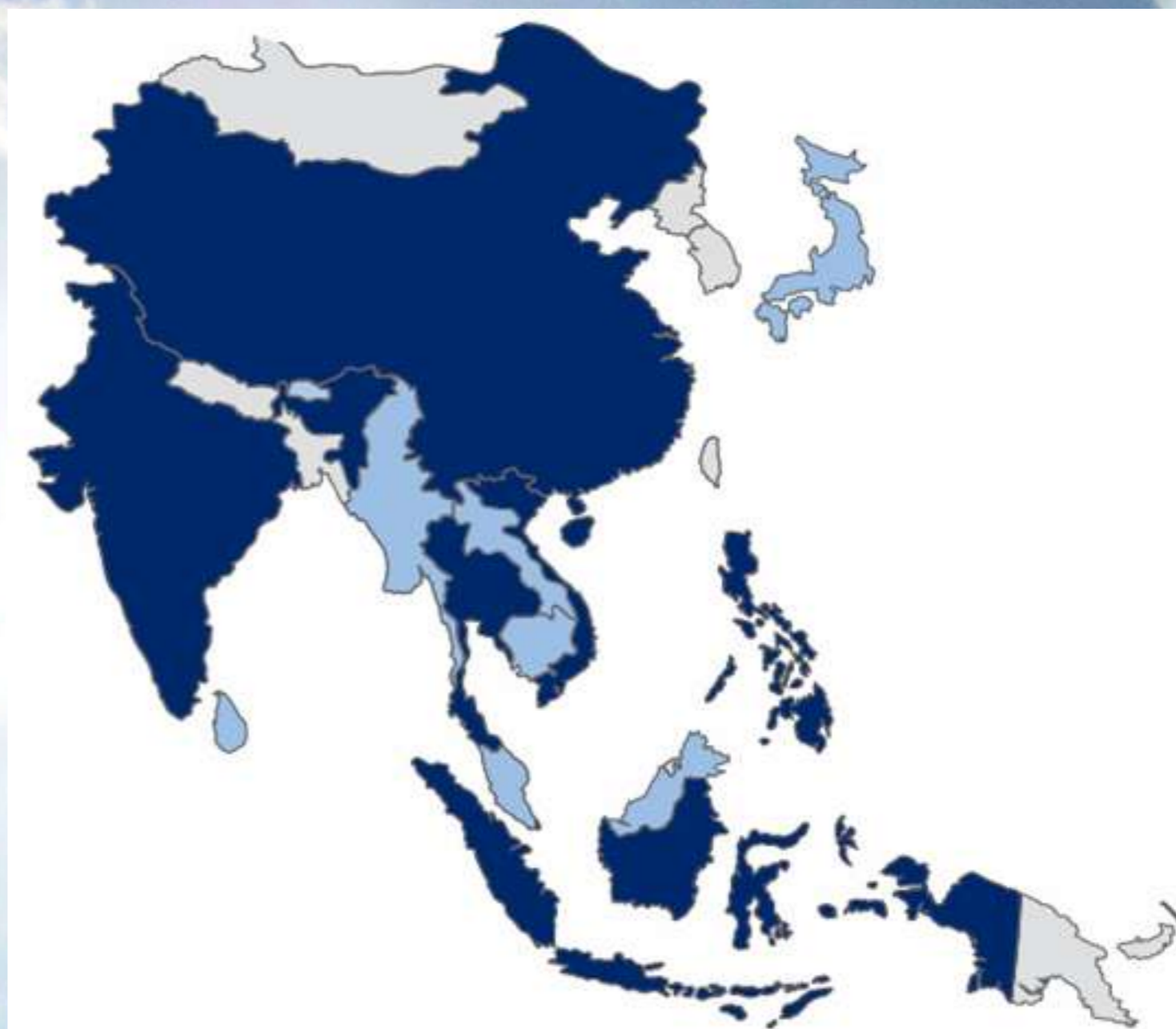
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## ECO-Asia CDCP Overview

### ECO-Asia Clean Development and Climate Program Geographic Coverage

China  
India  
Indonesia  
Philippines  
Thailand  
Vietnam

***These 6 countries account for 96% of the GDP of Asia's developing countries***





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## Overview: CFLs in Asia

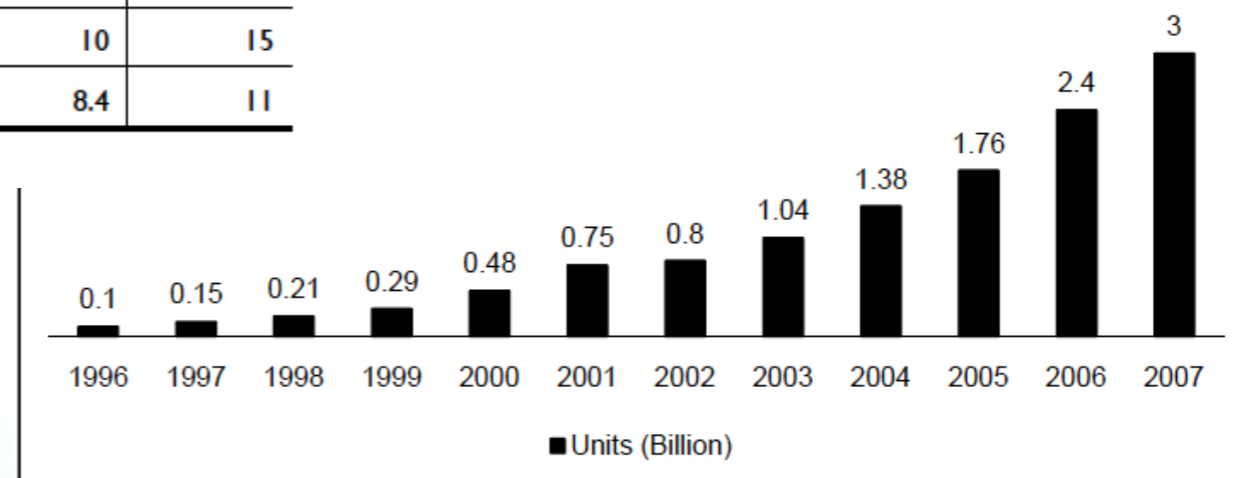
Asia's CFL Market: Large production volume, many producers

**TABLE I. SUMMARY OF REGIONAL CFL PRODUCTION AND SALES <sup>2</sup>**

Annual Volume (in million units)						
COUNTRY	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

Source: USAID, 2007a.

**CFL Production in China**



Source: Chen, Yansheng. China Association of Lighting Industry, 2008.

There are at least 200 CFL manufacturers and 400 suppliers of specialized CFL materials and components in China alone (Chen, 2008).



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## Overview: CFLs in Asia

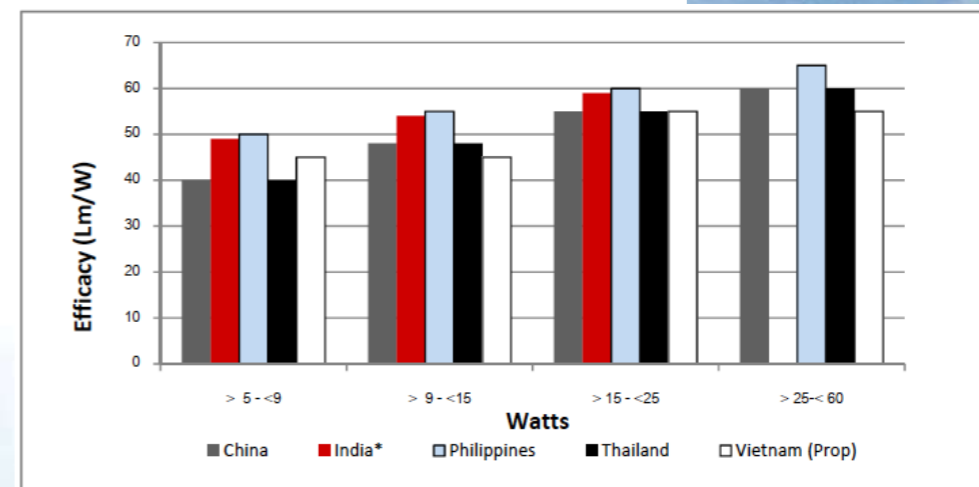
Asia's CFL standards: "so many standards, so little time"

COUNTRY	Safety	Efficacy	Color Rendering	Start-up Time	Lamp Lifetime	Lumen Maintenance	Warranty
China	✓	✓	✓	✓	✓	✓	✗
India	✓	✓	✗	✗	✓	✓	✓
Indonesia	✓	✓	✗	✗	✗	✗	✗
Philippines	✓	✓	✗	✓	✓	✓	✓
Thailand	✓	✓	✗	✗	✓	✓	✓
Vietnam	✓	U	✗	✗	✓	✓	✗

U = under consideration

COUNTRY	Number of Wattage Bins
China	4
India	5
Indonesia	4
Philippines	5
Thailand	4
Vietnam	2*

\*Note: Vietnam's standard remains under consideration.



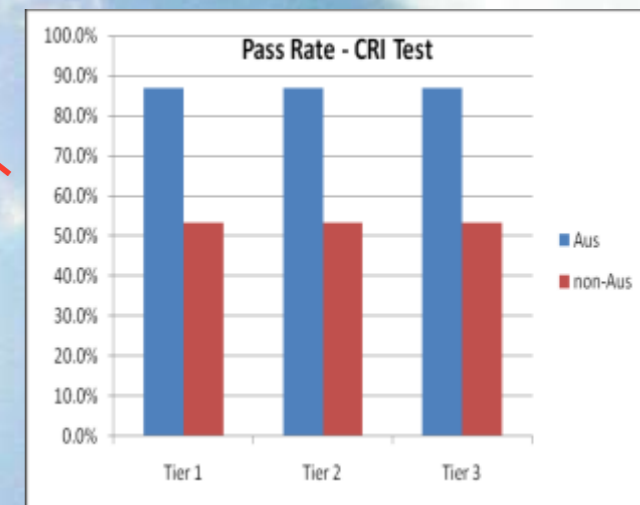
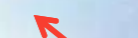
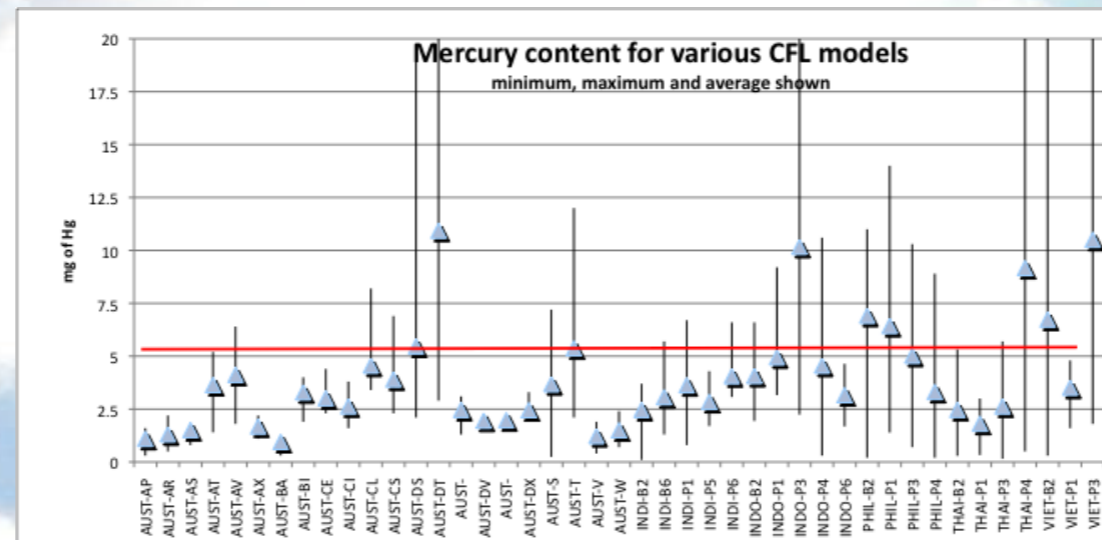
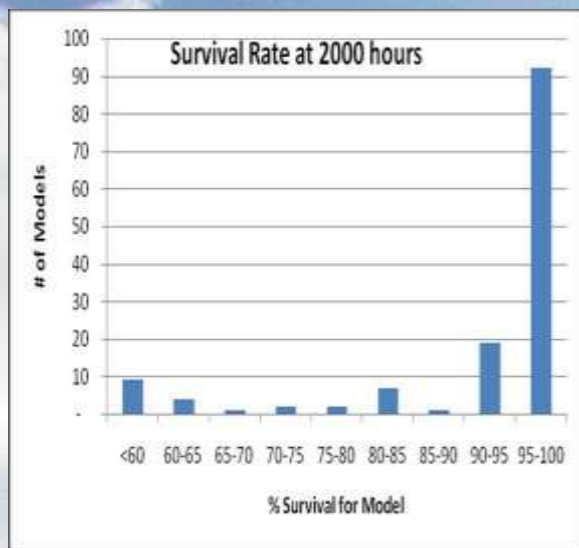
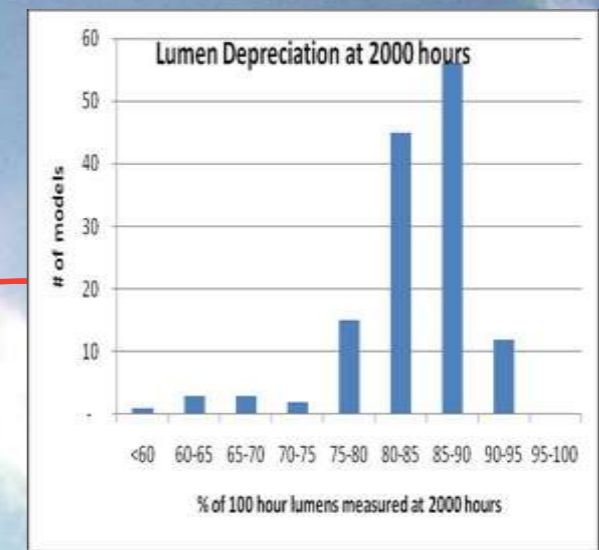
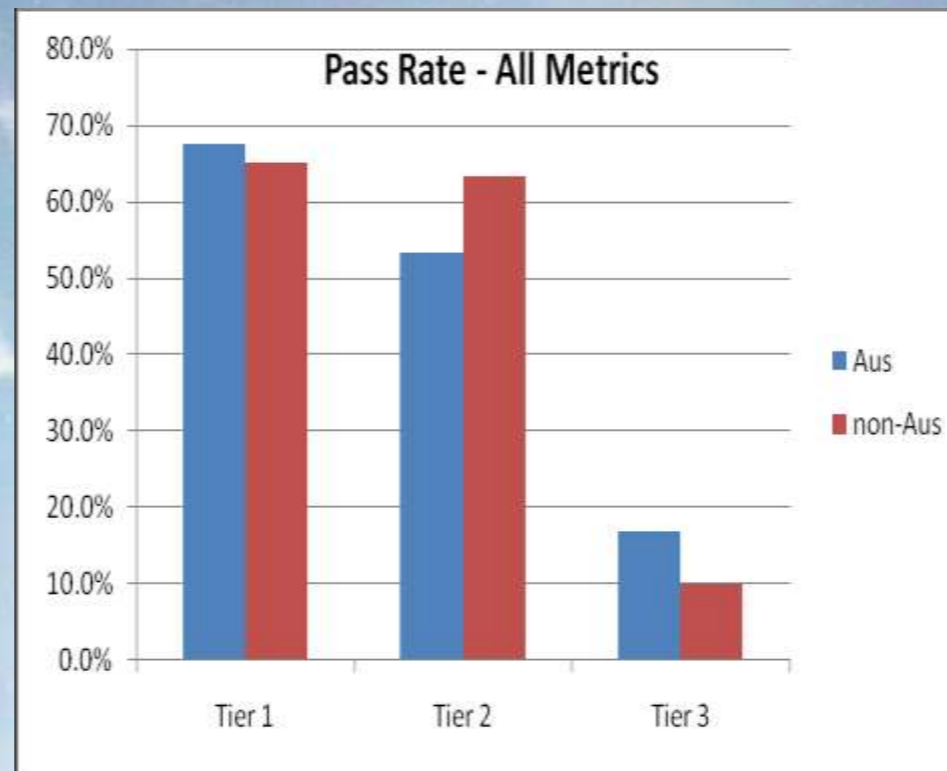
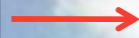
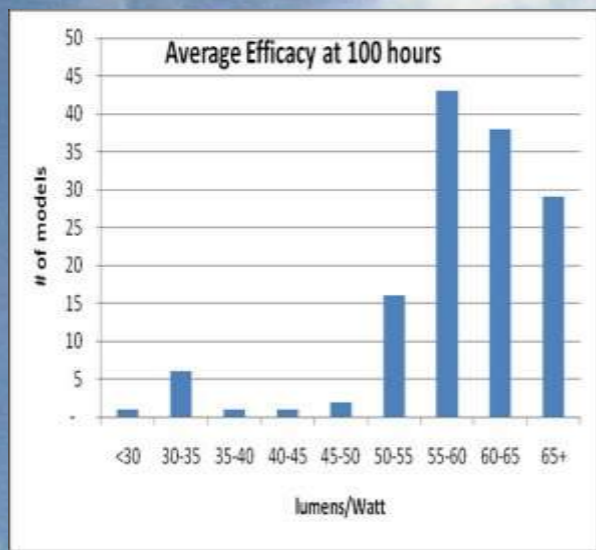


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## Overview: CFLs in Asia

### Asia's CFLs: current compliance rates





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## Asia CFLs: Some Observations Regarding Compliance

### Benchmarking Results Showed:

- At least **1/3 of the sample failed** to meet what may be considered as minimum performance standards (or the criteria for what may be considered a “quality” lamp) for the region.
- The overall **failure rate is likely to be significantly higher** than presented here due to limitations in laboratory testing, and that only a subset of all required metrics defining a quality CFL was evaluated.
- At least **90%** of tested products **do not meet** the requirements for ALC Tier 3, or **European equivalent standards**.
- **Name-brand models generally performed better** than low-priced models in most cases against most metrics. Exceptions to this rule were noted.



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## Asia CFLs: Some Steps Towards Compliance & Harmonization

### Asia Lighting Compact (ALC):

- Was created to fulfill the ideals of the Manila Compact
- Is an independent, non-profit organization dedicated to improving product quality and adoption of energy-efficient lighting in Asia.
- Is impartial, not tied to any particular commercial organization or driven by political or corporate motivations.
- Is membership-based and open to all stakeholders.
- Membership includes: national lighting associations, lighting manufacturers, government agencies, institutions and independent organizations.



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COMPACT

QUALITY LIGHTING FOR A GREENER ASIA





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## Asia CFLs: Some Steps Towards Compliance

### ALC Registration & Quality Process







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## Asia CFLs and Compliance – Not Done Yet

ALC is a good start, but:

- Lack of a regional agreement on compliance mechanisms is a major contributor to poor product quality in many Asian markets.
- Many data sources, no way to share or compare.
- Statistics are against us (lighting also take longer to test).
- Multi-sources and production locations not in our favor.
- Large-scale product procurement and/or location-specific requirements can be disruptive.
- Trade offs to consider:
  - ◆ Compliance or high performance.
  - ◆ Harmonization or comprehensive.



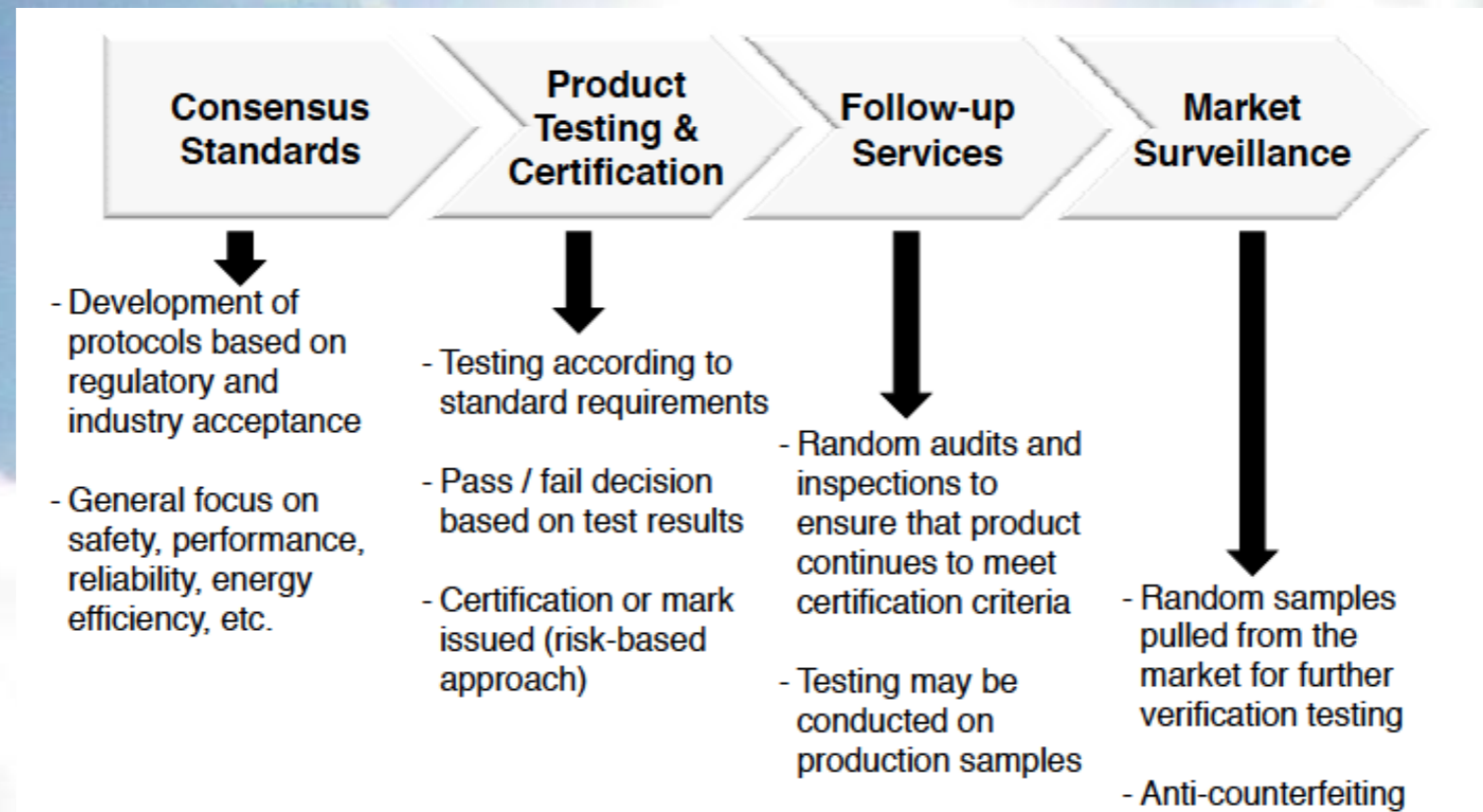
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## Asia CFLs and Compliance – Where Next?

### Possible Next Steps:

- Expand voluntary testing: industry adoption of US' PEARL-model.
- Seek support for region-wide check testing regime.





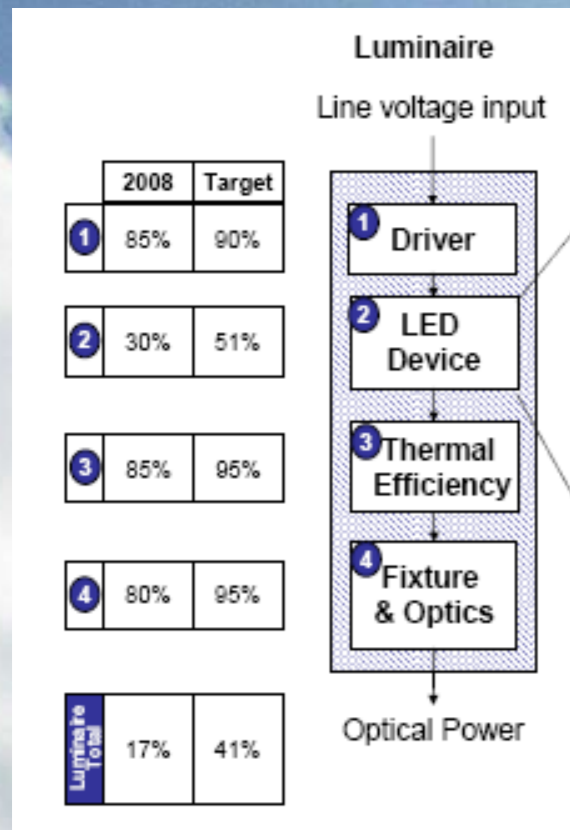
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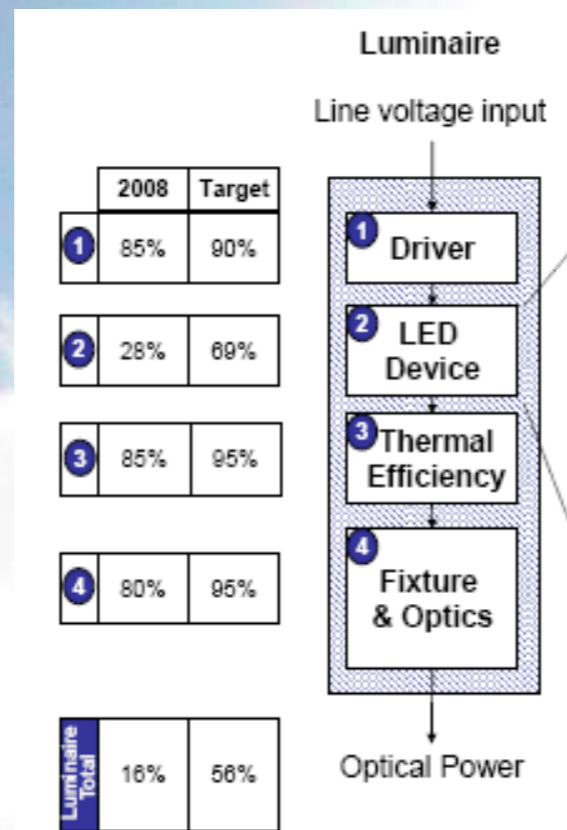
## Asia CFLs – Some Parting Thoughts

- lites.asia: Coordination and harmonization of IEC input
- Lighting Africa: qualification of regional testing facilities
- LEDs: Horses are out of the gates.

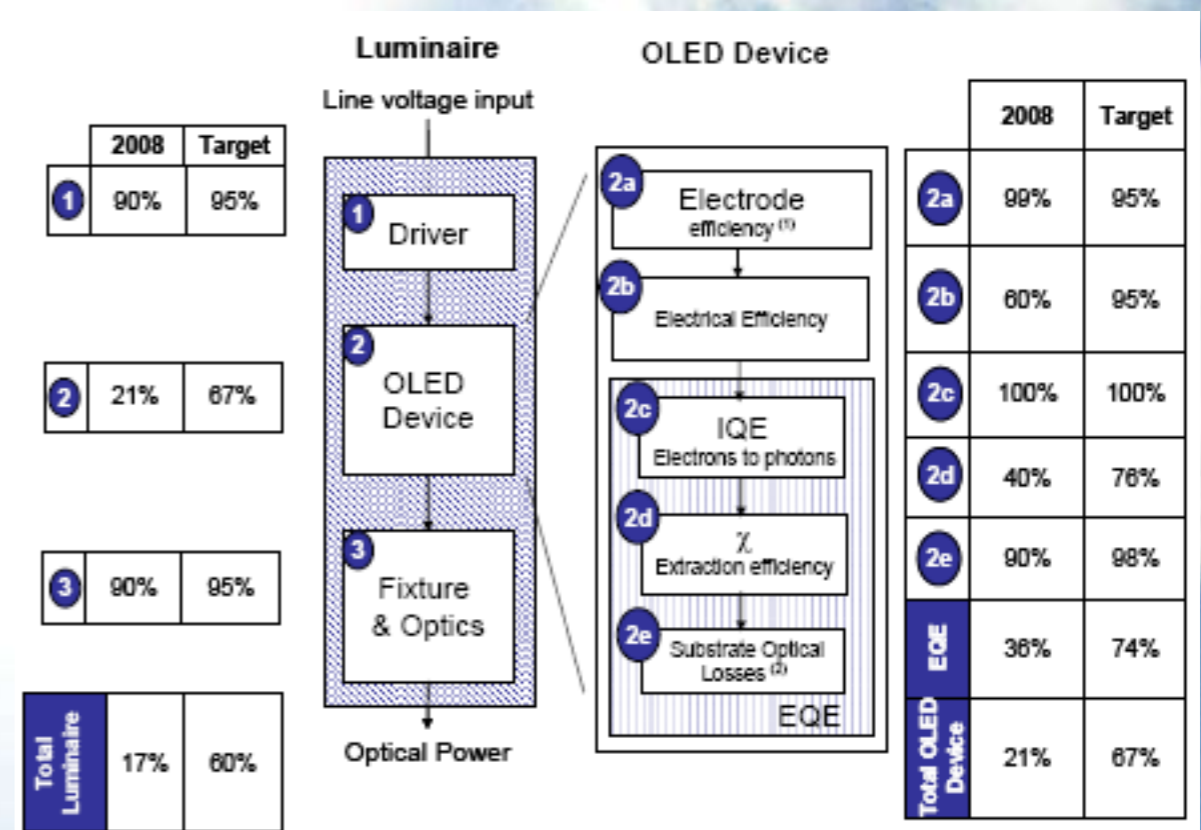
### Color Mixing



### Phosphor Based



### OLEDs





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**Questions & Comments?**

Thank You!

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