Agenda

• Introduction to the IAPMO Group
• What is at Stake?
  – Discussion framed around water/sanitation/plumbing
  – Confluence of Public Health and Sustainability
  – Conformity Assessment is Part of the Solution
• Lessons Learned - International Case Studies
  – United States
  – India
  – Guinea
  – Jordan
  – Indonesia
The IAPMO Group – Who We Are

COMPLETE INTERNATIONAL SERVICE ORGANIZATION

- Code Development
- Standards Development
- Industry-leading Training and Education
  - From market access to capacity building
- Accredited Industry Leading Compliance Programs
  - Test Labs, 3rd Party Certification Program, Continuous Compliance Inspection Program
- We Focus On Where People Come In Contact With Water
Confluence of Public Health & Sustainability
UNEP: Access to Sanitation

Urban access to...

<table>
<thead>
<tr>
<th>Year</th>
<th>Improved Water Source</th>
<th>Improved Sanitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>100%</td>
<td>60%</td>
</tr>
<tr>
<td>2004</td>
<td>100%</td>
<td>70%</td>
</tr>
</tbody>
</table>

Rural access to...

<table>
<thead>
<tr>
<th>Year</th>
<th>Improved Water Source</th>
<th>Improved Sanitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>60%</td>
<td>20%</td>
</tr>
<tr>
<td>2004</td>
<td>70%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Sources: Meeting the MDG Drinking Water and Sanitation Target, World Health Organisation (WHO) and United Nations International Children's Emergency Fund (Unicef), 2005.
The Big Question – How to Develop an Industry?

Codes and Regulations

Product Standards

Conformity Assessment

- Each plays a vital role
- Effective framework
- Level playing field
- Substantial industry involvement

Codes and Regulations are intended to protect health and safety

Standards dictate specific product performance requirements within the codes

Conformity assessment is a process to help to insure the mandates within the codes, standards and regulations are met.
Standards = Foundation for CA Activities

- Becomes national framework to which regulators, labor, manufacturers, and educators can respond.
- Creates a level playing field – open, transparent, equal treatment
- Promotes public health and access to clean water & sanitation
- Encourages the development of a skilled workforce
- Aligns market access requirements with international community and protects market from inferior goods
- Provides a pathway for innovative, sustainable products and services to be utilized

Projected US Demand & Shipment of Plumbing Products in 2016

<table>
<thead>
<tr>
<th>Shipment</th>
<th>Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>$8,600,000,000</td>
<td>$10,700,000,000</td>
</tr>
</tbody>
</table>
Standards Usage in the United States

• **Adoption:** Jurisdiction may adopt a voluntary consensus standard by incorporating it directly into its regulation.

• **Basis for rulemaking:** Uses a VSC as the foundation to a public rulemaking. May make small alterations in the drafting state and as it receives public comments. Occurs at State level as well.

• **Regulatory guides:** Agency may recognize adherence to a standard as a noncompulsory pathway to complying with a regulation.

• **Guidelines:** Agency may use standards as guidelines for complying with general requirements. Guidelines are advisory only and does not necessitate that the general requirement has been met.

• **Deference in lieu of developing a mandatory standard:** Agency decides that it does not need to issue a mandatory requirement because voluntary compliance with either an existing standard will suffice.
United States – Energy Star

Since 1992—good for the environment; good for the bottom line.

- More than 60 different categories of ENERGY STAR qualified products.
- Tens of thousands of ENERGY STAR certified buildings.
- More than 1 million ENERGY STAR qualified homes.

Healthier environment for American families
# United States – Energy Star

## Key Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2000</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Emissions Reductions (MMTCO\textsubscript{2}e)</td>
<td>54</td>
<td>&gt; 283</td>
</tr>
<tr>
<td>Cumulative Emissions Reductions (MMTCO\textsubscript{2}e)</td>
<td>&gt; 160 million</td>
<td>&gt; 2.4 billion</td>
</tr>
<tr>
<td>Annual Net Energy Bill Savings\textsuperscript{1}</td>
<td>$10 billion</td>
<td>&gt; $31 billion</td>
</tr>
<tr>
<td>Cumulative Utility Bill Savings\textsuperscript{1}</td>
<td>$19 billion</td>
<td>$362 billion</td>
</tr>
<tr>
<td>Annual Societal Benefits\textsuperscript{1}</td>
<td>—</td>
<td>$11 billion</td>
</tr>
<tr>
<td>Electricity Savings as % of Total U.S. Electricity Demand</td>
<td>&gt;1%</td>
<td>~ 5%</td>
</tr>
<tr>
<td>Brand Awareness Among American Households</td>
<td>40%</td>
<td>&gt; 85%</td>
</tr>
<tr>
<td>Cumulative Individuals Taking the ENERGY STAR Pledge</td>
<td>—</td>
<td>&gt; 3.2 million</td>
</tr>
</tbody>
</table>

## Energy Star Certified Products

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2000</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative Certified Products Sold\textsuperscript{2}</td>
<td>600 million</td>
<td>&gt; 5.2 billion\textsuperscript{3}</td>
</tr>
<tr>
<td>Annual Certified Products Sold</td>
<td>171 million</td>
<td>&gt; 320 million</td>
</tr>
<tr>
<td>Individual Certified Product Models</td>
<td>11,000</td>
<td>&gt; 45,000</td>
</tr>
<tr>
<td>Product Categories Eligible for ENERGY STAR</td>
<td>33</td>
<td>&gt; 70</td>
</tr>
<tr>
<td>Manufacturing Partners</td>
<td>1,600</td>
<td>&gt; 1,600</td>
</tr>
<tr>
<td>Retail Partners</td>
<td>550</td>
<td>&gt; 2,600</td>
</tr>
</tbody>
</table>

\textsuperscript{1}Savings based on 2014.

\textsuperscript{2}Cumulative sales as of December 31, 2014.

\textsuperscript{3}Projected through December 31, 2014.
United States - EPA WaterSense

• Voluntary partnership and labeling program launched by U.S. EPA in 2006 designed to reduce municipal water use across the country

• Simple way for consumers to identify products that use 20% less water and perform well

• A label with integrity - third-party certified, not only for efficiency, but for performance too

• 346 billion gallons saved by WaterSense in 2014 alone, 1.1 trillion gallons since 2006.
  - Saves water, reduces energy consumption, saves consumers money

• 5.5 percent of California’s 33.5 million installed residential and commercial toilets the WaterSense standard (1.28 gallons per flush/4.28 liters), 21.1% of bathroom faucets (1.5 gpm/5.68 lpm), 23.9% of showerheads (2.0 gpm/7.57 lpm) (Source: GMP Research/PMI)
Guinea – Impact on Rural Communities

• 2015 Study looked at hand pump standards in Africa.
• Standardization types: regulation, endorsement, recommendations, de facto
  - Guinea: First to formally standardize hand pumps in Africa in 1982.
  - Boasts the highest functionality on the continent at 90%. Pumps provide water access for 65% of the population.
  - Policy is mandatory for organizations working within Guinea. Received government support and implementer compliance.
  - Pumps benefit from aftersales support from manufacturers.
  - Practitioners believe that the strict policy in conjunction with the appropriate technology selections has been the recipe for success in Guinea.
• Key finding: Variety of mechanisms (formal and informal) to recognize standards
• Key finding: Institutional champion is required.

• **Water**
  - 88% of the population of 1.2 billion has access to drinking water from improved sources in 2008, as compared to 68% in 1990.
  - 25% of total population in India has drinking water on their premise.
  - Sixty seven per cent of Indian households do not treat their drinking water, even though it could be chemically or bacterially contaminated.

• **Sanitation**
  - India is home to 594 million people defecating in the open; over 50% of the population.
  - Only 31% of India’s population use improved sanitation (2008)
  - 211 million people in India gained access to improved sanitation between 1990-2008

Source: UNICEF
Private/Public Sector Cannot Do It Alone
• **Conformity Assessment is Key**
  - Jordanian plumbing code, incomplete references to product standards
  - Personnel certification criteria and training programs in place
  - Challenges with enforcement during construction phases
  - Current Market = Plumbing product market is saturated with unsafe and unreliable products

• **Water Scarcity**
  - Considered one of the most water-scarce countries in the world.
  - Population depends on groundwater for 80 percent of their freshwater, levels are dropping 3 feet each year and will likely be depleted by 30 to 40 percent within the next 15 years.

Source: UNICEF
Indonesia – A Public/Private Partnership

STANDARD DEVELOPMENT

HEALTH AND SAFETY OF INDONESIAN CITIZENS

Necessary Steps to Achieve Goal

- Product Testing and Certification
- Personnel Training and Certification
- Enforcement
- Public Outreach
Step #1

Development of SNI for Plumbing through an open consensus process

Standar Nasional Indonesia (SNI) 8153:2015 Plumbing Systems for Building

Published on March 2015
Step #2

Adopt the SNI locally and nationally - Work with BSN, the Ministry of Public Works, and the Ministry of Industry to have the SNI implemented.
Step #3

Development educational and training programs – work with national institutions to develop training and certificate programs to help ensure that the SNI is understood and applied

UII Yogyakarta

University Maharasaswati (Bali)

University Muhammadiyah and University Trisakti (Jakarta)

ITS (Surabaya)
Step #4

Develop a third party testing and certification program for plumbing products
Standards developed specific to the needs of Indonesia through open consensus process

Appropriate Ministries & Regional Government Authorities implement and adopt the Standard through Regulations

Personnel Certification Program trains designer, installer and enforcement officials

Independent testing laboratory and certification ensuring plumbing products meet the standards

FULL CIRCLE OF STANDARDIZATION
THANK YOU

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