Environmental Education in TVET

Presented by:

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INTERNATIONAL EXPERTS’ MEETING IN REORIENTING TVET POLICY TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT

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BERLIN, GERMANY
“Nature is a borrowed Wealth that has to be returned to the future generation”
Section 2 of RA 7796 specifically declared the State policy to provide relevant, accessible, high quality and efficient technical education and skills development in support of the development of high quality Filipino middle-level manpower responsive to and in accordance with Philippine development goals and priorities.
TESDA VISION

TESDA is a leading partner and catalyst in the development of the Filipino workforce with world-class competence and positive work values.
TESDA MISSION

TESDA provides direction, policies, programs and standards towards quality technical education and skills development
TVET DELIVERY NETWORK

Institution-based
- Schools
  - TESDA Schools (60)
  - Private Tech-voc Schools (1,500)
  - Other Projects (HEIs, DECS)
- Training Centers
  - RTESD Centers (15)
  - PTESD Centers (47)
  - Private TCs, ATI, DTI, Other Gov’t TCs
  - Satellite TCs

Enterprise-based
- Industry Training Centers
- Workplace-based Training Projects

Community-based
- CTECs
- NGOs/POs
- LGUs
- Government Agency Projects

Educated and Trained Workforce
The Competency Assessment and Certification System

**Development of Competency Standards**
- TAP/TEP
- Industry Experts
- Industry Association

**Development of Competency Assessment Instruments**
- TAP/TEP
- Industry Experts
- Academe

**Certification**

**Conduct of Competency Assessment**
- Demonstration
- Questioning
  - Oral
  - Written
  - Interview
- Portfolio
- Observation

**Accreditation of Assessors and Assessment Centers**
- Guidelines prepared by CO
- RO, POs train assessors
- ROs, POs accredit assessors and assessment centers

**Approval of the TESDA Board**
- TAP/TEP
- Technical Committee on Quality
- TESDA Board
TESDA’s commitment to Environmental Protection

- National CFC Phase-out Plan
- Motor Vehicle Emission Control
TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY AND THE NATIONAL CFC PHASE OUT PLAN
SKIN CANCER

HUNGER

DO YOU WANT THESE?

CATARACT

DIE YOUNG BY RAPID AGING
YOU ARE PART OF THE ROOT CAUSES…

- AIR FRESHENER/AEROSOLS
  - R-12 (Hydrocarbon & R-134a)

- FIRE EXTINGUISHERS
  - Halons (R-123)

- FOAMS
  - R-11 (R-141b & Methylene Chloride)

- INHALERS (Metered Dose Inhalers)
  - R-12 (Hydrocarbons & R-134a)

- REFRIGERATORS
  - R-12 (Hydrocarbon & R-134A)

- AIR CONDITIONERS
  - R-22 (RS44 or Hydrocarbon & R-410a)

- CLEANING SOLVENTS
  - Carbon Tetra Chloride (CTC) (R-141b)

IMPROPER USE OF THESE PRODUCTS WILL LEAD TO OZONE LAYER DEPLETION!!!
UV-B attacks our immune system making us prone to:
- skin cancer
- eye cataracts
- rapid aging
- other serious diseases

UV-B arrests the growth of plants and trees and phytoplankton

UV-B degrades building materials
The Ozone Layer is a thin, fragile shield that envelops the entire earth which efficiently and effectively filters and screens almost all of the harmful ultraviolet rays.

The depletion or the loss of the blocking effect of the ozone layer against ultraviolet rays caused by the emission of the ODS results in the puncturing of the ozone layer producing to what we call “OZONE HOLE”.

The ozone hole is almost thrice as big as the continental USA.
THE MONTREAL PROTOCOL

“WITH THE ALARMING THREAT ON ENVIRONMENTAL ISSUE, ON SEPTEMBER 16, 1987, 24 COUNTRIES SIGNED A LANDMARK AGREEMENT KNOWN AS THE “MONTREAL PROTOCOL ON SUBSTANCES THAT DEPLETE THE OZONE LAYER” AND WAS AMENDED AND EXTENDED TO 186 COUNTRIES INCLUDING THE PHILIPPINES”
ACTION OF THE PHILIPPINE GOVERNMENT IN COMPLIANCE WITH THE MONTREAL PROTOCOL

ACTION OF THE PHILIPPINE GOVERNMENT IN COMPLIANCE WITH THE MONTREAL PROTOCOL

• **IN NOVEMBER 2002, THE NATIONAL CFC PHASE OUT PLAN (NCPP) WAS APPROVED WITH A TOTAL GRANT ASSISTANCE OF US $10.53 M FROM THE MULTILATERAL FUND OF THE MONTREAL PROTOCOL ADMINISTERED BY THE WORLD BANK.** IT AIMS TO PHASE OUT THE REMAINING CFCs IN THE PHILIPPINES BY 2010 THROUGH A GRADUAL PHASE OUT SCHEDULE.
MULTIPARTITE AGREEMENT WAS SIGNED LAST MARCH 23, 2003
Philippine Ozone Desk
NCPP Project Management Unit

- September 2003- DENR Admin. Order No. 2003-43 established the NCPP PMU
- PMU is tasked to implement the Philippine National CFC Phase-Out Plan
Prohibits the entry of CFCs in the country
Bureau of Trade Regulation and Consumer Protection (BTRCP)

Accreditation of Air Conditioning Service Providers

- National Certification (TESDA)
- Mandatory equipment
  - Recovery machine
  - Recovery/recycling machine
  - Vacuum pump, etc
Bureau of Product Standards (BPS)

Develop standards pertaining to Refrigeration and Air Conditioning, Aerosols and Mobile Air Conditioning, Aerosols and Mobile Air Conditioners.
Bureau of Import Services (BIS)

Guidelines to Implement Executive Order No. 156, Providing a Comprehensive Industrial Policy and Directions for the Motor Vehicle Development Program

• Ban the import of second hand equipment and motor vehicles for 5 years from January 1, 2004 to December 31, 2008 (manufactured from 1995 and before that with ODS)
DOTC – Land Transportation Office (LTO)

Inspection of air conditioning systems in motor vehicles as a requirement to renew vehicle registration

DOH – Bureau of Food and Drugs (BFAD)

• The CFC phase-out strategy in Metered-Dose Inhaler (MDI); Ban the importation of CFC MDI by 2007
ASSESSMENT AND CERTIFICATION OF 3000 OR MORE RAC/MAC TECHNICIANS NATIONWIDE
“THE BIGGEST CONTRIBUTORS TO OZONE DEPLETION ARE THE TECHNICIANS”

VENTING OF REFRIGERANTS IS ONE OF THE PRIMARY CAUSES OF OZONE DEPLETION
CRITICAL COMPETENCIES IN THE COMPETENCY STANDARDS IDENTIFIED

Refrigerant Recovery

• Is the process of *removing refrigerant* from a system and *properly storing* and *labeling* in a sealed cylinder.

Refrigerant Recycling

• Is the process of *ridding collected refrigerants of contaminants* by oil separation through the use of filter driers to reduce moisture, acidity and particles to be reused.

Retrofitting

• Is the process of converting CFC RAC Equipment to Non-CFC RAC Equipment.
STRATEGY: TESDA COMMITMENT ON NCPP IMPLEMENTATION

300 TRAINERS TRAINED AND CERTIFIED AS ASSESSORS

150 IDENTIFIED TVIs

TRAIN 3000 + RAC/MAC TECHNICIANS
• Equipment
• Logistics

BE ALLOWED TO PRACTICE TRADE

BE ALLOWED TO PURCHASE REFRIGERANT

Assessment Tools
Curriculum
Training Standards
Competency Standards
Recovery & Recycling
Retrofitting

Estimated 12,000 Graduated per year
TESDA’S ROLE IN THE IMPLEMENTATION OF THE NCPP

- Upgrade the existing training regulations
- Prepare training curriculum
- Conduct trainers training
- Conduct competency assessment of RAC and MAC technicians for certification
- Public awareness and outreach program
- Formulation and development of code of practice in RAC and MAC sector
ACCOMPLISHMENT REPORT ON TVET COMPONENT OF THE NATIONAL CFC PHASEOUT PLAN FOR THE YEAR 2003

1. COMPETENCY STANDARDS
   - Developed Competency Standards (CS) for HVAC/R
   - Developed Assessment Instruments for NCPP required competencies in cooperation with the SSCO of TESDA

2. CURRICULUM
   - Developed competency-based curriculum on RAC and MAC
     - Recovery/Recycling of Refrigerants
     - Retrofitting of RAC and MAC System
   - Developed learning materials on Recovery/Recycling of Refrigerants and Retrofitting of RAC and MAC system
   - Developed Trainers Guide on the conduct of Trainer’s and Technician Training
ACCOMPLISHMENT...

3. TRAINERS’ TRAINING
- Trained 358 RAC and MAC Trainers out of 300 targeted trainers within 2 years (August 2003-August 2005)
- Trained 25 industry Trainers from service shops, manufacturers and associations

4. ADVOCACY
- Participated in the exhibit of “Clean Air Now!” sponsored by SWISSCONTACT
- Conducted orientation programs on refrigerant identification for LTO, DTI and BOC inspectors

5. CODE OF PRACTICE
- As Technical Working Group member, participated in the formulation and development of Code of Practice for RAC and MAC Technicians
1. CURRICULUM AND TRAINING MATERIALS

- Reproduction of learning materials in CD format and hard copy
- Pilot testing of curriculum and learning materials developed for technicians
- Inclusion of the 2 critical competencies in the promulgation and adaptation to National HVACR curriculum

2. TECHNICIAN TRAINING

- Trained 2800 technicians as of December 2006
3. ASSESSMENT AND CERTIFICATION

- Facilitate competency assessment of NCPP trained trainers in coordination with Assessment Board as National Assessors of technicians
- Facilitate accreditation of assessment centers in cooperation with Assessment Board
- Conduct competency assessment of technicians/graduates. Certification is a requirement by the Department of Trade and Industry in renewing the business permit to operate a RAC/MAC service shop
4. CODE OF PRACTICE

- Contribute in the development of Code of Practices
- Adoption of Code of Practices as learning material supplement of the HVACR sector
- Inclusion of Good Practices in all the core competencies of the HVACR curriculum
<p>| Ako ay Pilipino Buong katapatang nanunumpa Sa watawat ng Pilipinas At sa bansang kanyang sinasagisag Na may dangal, katarungan at kalayaan Na ipinakikilos ng sambayanang Maka-Diyos, Makakalikasan, Makatao at, Makabansa. | I am a Filipino I pledge my allegiance To the flag of the And to the country it represents With honor, justice and freedom That is put in motion by one nation For the love of God, Nature, People and Country. |</p>
<table>
<thead>
<tr>
<th>Sector/Title of Qualification</th>
<th>Number of Workers Assessed and Certified</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>May-09</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>C</td>
<td>Rate</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>HVAC</td>
<td></td>
<td>A</td>
<td>C</td>
<td>Rate</td>
<td>A</td>
<td>C</td>
</tr>
<tr>
<td>1. RAC (Window AC/Domestic Ref) Servicing NC I</td>
<td>HVAC</td>
<td>6</td>
<td>6</td>
<td>100.0%</td>
<td>1,021</td>
<td>770</td>
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<tr>
<td>2. RAC (PACU/CRE) Servicing NC II</td>
<td>HVAC</td>
<td>57</td>
<td>56</td>
<td>98.2%</td>
<td>616</td>
<td>567</td>
</tr>
<tr>
<td>3. Transport RAC Servicing NC II</td>
<td>HVAC</td>
<td>10</td>
<td>9</td>
<td>90.0%</td>
<td>188</td>
<td>179</td>
</tr>
<tr>
<td>TOTAL</td>
<td>HVAC</td>
<td>73</td>
<td>71</td>
<td>97.3%</td>
<td>1,825</td>
<td>1,516</td>
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Competency Assessment and Certification Office (CACO), TESDA
## National TVET Trainers and Assessors Qualification Program
### 2006 - June 2009

<table>
<thead>
<tr>
<th>QUALIFICATIONS</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>TOTAL</th>
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<tbody>
<tr>
<td><strong>ALL</strong></td>
<td>780</td>
<td>3,193</td>
<td>4,511</td>
<td>4,819</td>
<td>13,303</td>
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<tr>
<td>Automotive Servicing NC I</td>
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<td>0</td>
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<td>1</td>
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<tr>
<td>Automotive Servicing NC II</td>
<td>46</td>
<td>230</td>
<td>166</td>
<td>167</td>
<td>609</td>
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<tr>
<td>RAC Servicing NC I</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<tr>
<td>RAC(PACU/CRE) Servicing NC II</td>
<td>46</td>
<td>23</td>
<td>37</td>
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<td>133</td>
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<tr>
<td>Transport RAC Servicing NC II</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td><strong>RAC/MAC</strong></td>
<td>97</td>
<td>257</td>
<td>208</td>
<td>198</td>
<td>760</td>
</tr>
<tr>
<td><strong>RAC/MAC</strong>%</td>
<td>12.44%</td>
<td>8.05%</td>
<td>4.61%</td>
<td>4.11%</td>
<td>5.71%</td>
</tr>
</tbody>
</table>

Source: Competency Assessment and Certification Office (CACO), TESDA
ANNEX III : Good Practices in TVET-ESD

**BEST PRACTICE in Education for Sustainable Development**

This diagram is a representation of an example of the contributions of TVET in Sustainable Development. The Government of the Philippines (GOP) commitments to the Montreal Protocol prompted the creation of a National Chlоро Fluoro Carbon Phase-Out Plan (NCPP) with the Department of Environment and Natural Resources (DENR) at the helm poised to eradicate CFC use in the country by 2010. This program, supported by World Bank, started 2002 and will directly affect the economic sectors in Automotive and HVAC (Heating, Ventilation and Air-Conditioning) By January 2010, the GOP will not allow any importation of CFC. The use of CFC will only be allowed until February 2012.

Good Practice in Education for Sustainable Development: 
- **Dev’t. of standards/course and TRAINING REGULATION on 3Rs (Recovery, Recycling, Retrofit)**
- **Bu. Of CUSTOMS** requested for a training program on 3Rs for customs personnel
- **Increased number of trainers & assessors in RAC & MAC with 3Rs**
- **Bu. Of CUSTOMS** personnel trained on 3Rs
- **Heightened awareness/competencies of CUSTOMS personnel in the identification of Ozone Depleting Substances (ODS)**
- **Apprehended illegal shipment of prohibited/banned ODS**
- **Increase in number of trained & certified workers in RAC & MAC with 3Rs**
- **Lessen use of prohibited ODS**

TESDA Central Office member on Natl. CFC Phase Out Plan w/ DENR as lead & with members DTI, Bu. Of Customs, etc.
1. Developed economies support in Educ. & Trng. Progs in ESD of developing countries

2. Phis. encourages WB and int’l donor agencies to replicate NCPP in other sectors

3. EMB-DENR to popularize the Code of Practice

4. TESDA ensures widen use of COP in TVIs

5. TESDA ensures that all TRs are environment-wise

6. TESDA incorporates 50 in NTESDP 2010-2015

Recommendation: TVET in ESD Philippines
THANK YOU