

Environmental Education in TVET



Presented by:

ELMER K. TALAVERA, CESO III

Regional Director
TESDA Davao Region, Philippines

Presented during the

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

**26-30 AUGUST 2009
BERLIN, GERMANY**

“ Nature is a borrowed
Wealth that has to be
returned to the
future generation”

MANDATE

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**

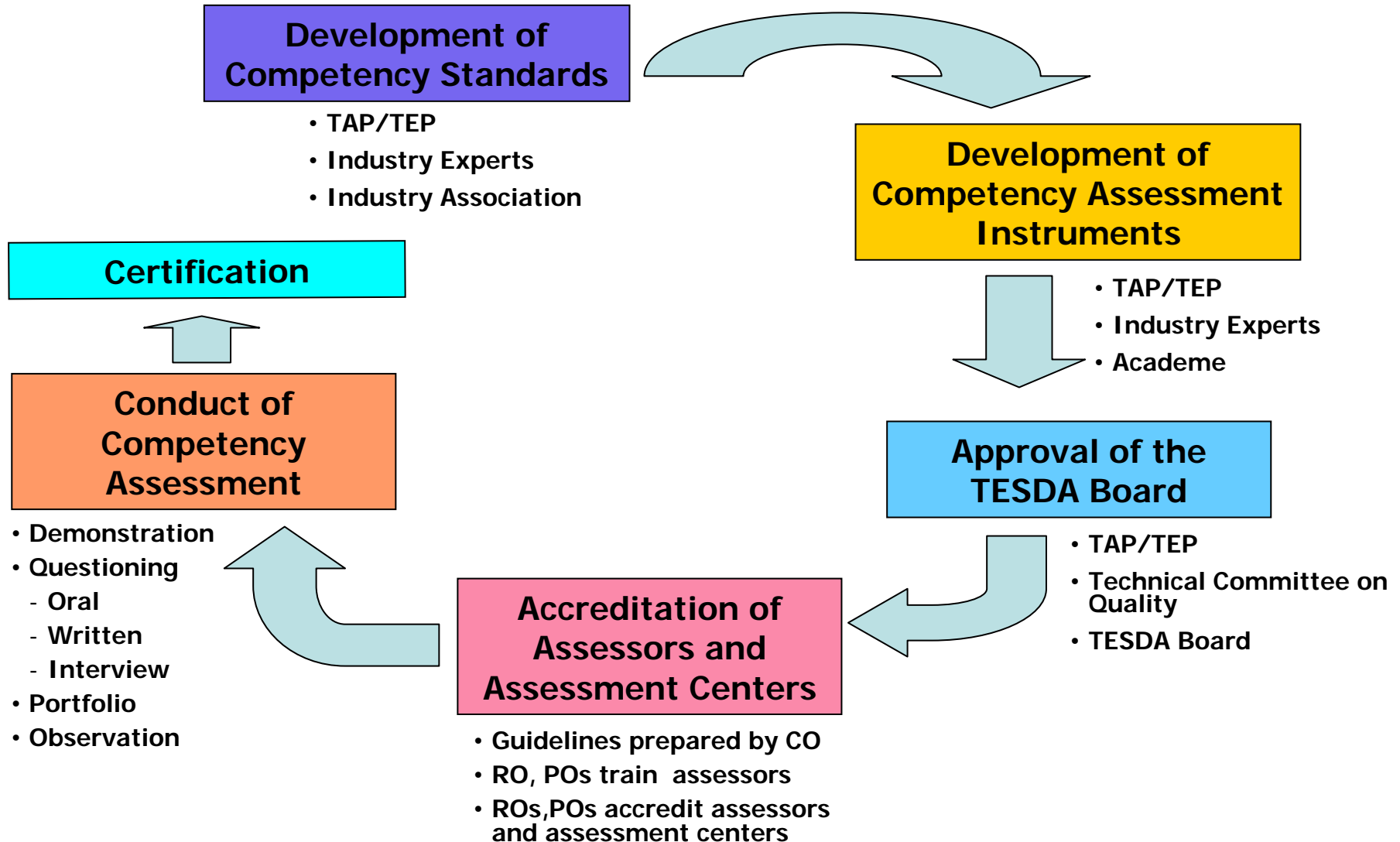
TVET DELIVERY NETWORK

Institution-based	<u>Schools</u> <ul style="list-style-type: none">● TESDA Schools (60)● Private Tech-voc Schools (1,500)● Other Projects (HEIs, DECS)	<u>Training Centers</u> <ul style="list-style-type: none">● RTESD Centers (15)● PTESD Centers (47)● Private TCs, ATI, DTI, Other Gov't TCs● Satellite TCs
	<ul style="list-style-type: none">● Industry Training Centers● Workplace-based Training Projects	
Enterprise-based		
Community-based	<ul style="list-style-type: none">● CTECs● NGOs/POs● LGUs● Government Agency Projects	



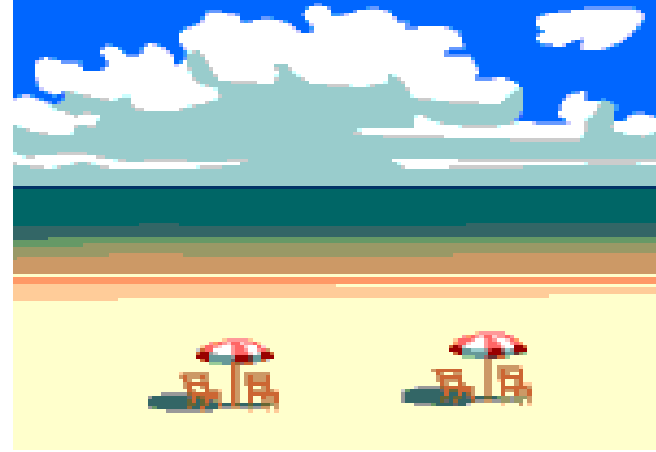
**Educated and
Trained
Workforce**

The Competency Assessment and Certification System



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

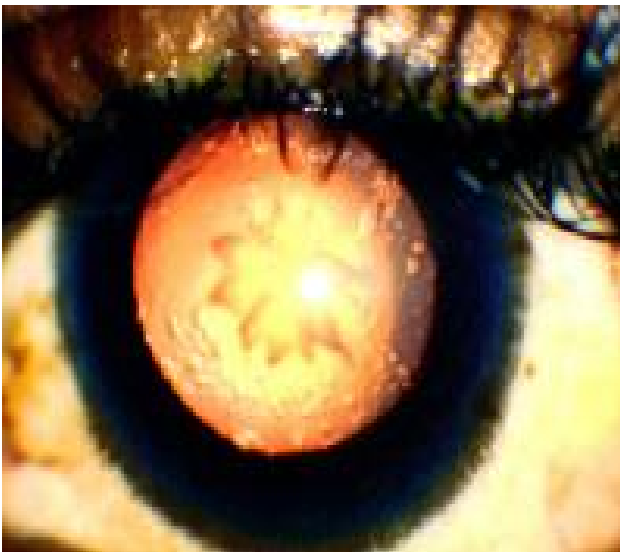


HUNGER

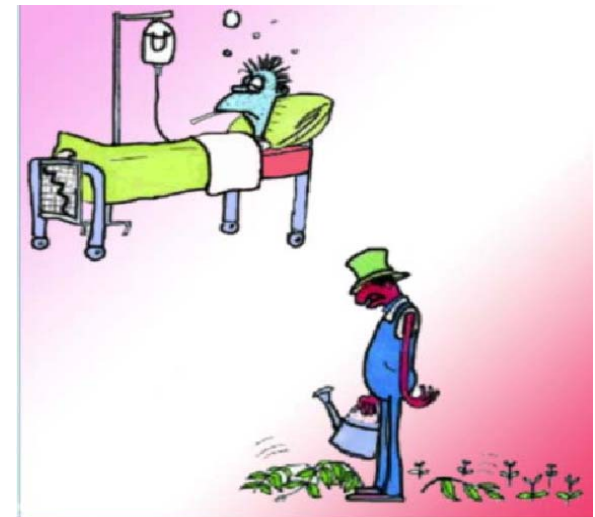


DO YOU WANT THESE ?

CATARACT

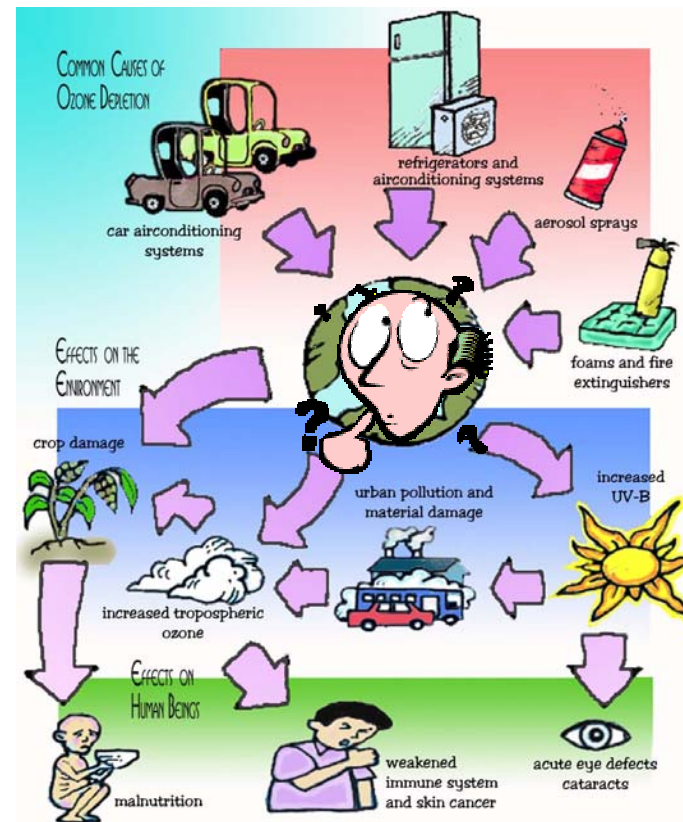


DIE YOUNG BY RAPID AGING



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 (R-22 or Hydrocarbon & R-410a)
- CLEANING SOLVENTS
 - Carbon Tetra Chloride (CTC) (R-141b)



**IMPROPER USE OF THESE PRODUCTS WILL
LEAD TO OZONE LAYER DEPLETION!!!**

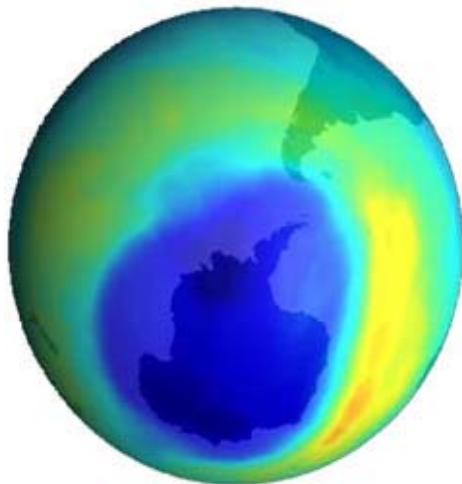


- UV-B attacks our immune system making us prone to:
 - skin cancer
 - eye cataracts
 - rapid aging
 - other serious diseases
- UV-B arrests the growth of plants and trees and phytoplankton
- UV-B degrades building materials



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



● ESTABLISHMENT OF AN OZONE PROTECTION UNIT KNOWN AS THE “*PHILIPPINE OZONE DESK*” UNDER THE ENVIRONMENTAL MANAGEMENT BUREAU OF THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR).

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 NCPD Project Management Unit

- coordinate the establishment of networks of authorized training centers, develop and maintain a database, and assist in training vehicle inspection stations of Mobile Air Conditioning (MAC) servicing sectors in cooperation with TESDA;
- facilitate the selection of qualified suppliers for MAC and Refrigeration and Air conditioning (RAC) servicing sectors to service shops;
- establish a code of practice for RAC and MAC technicians;
- advise and recommend the allocation of annual import quotas of CFCs;
- disseminate all the necessary information (government policies, availability of funds, accreditation system of service shops, and general information about the ozone layer depletion) regarding the implementation of NCPD;
- monitor the over-all consumption and importation of CFCs, and inspect warehouses and service shops and make necessary report on violations related to importation and consumption of CFCs.

Target Sectors

Several sectors will be affected by the CFC phase-out. NCPD aims to assist these sectors by providing technical and financial assistance as these sectors shift to ozone-friendly technology and lifestyle.

Manufacturing Sector – foam manufacturers, tear gas producers, refrigeration equipment manufacturers

Servicing Sector – mobile air conditioners, domestic refrigeration and air conditioners


General Public – users of Metered-Dose Inhalers, air conditioners, and refrigerators

Partner Government Agencies

NCPD is being implemented in coordination with:

DOLE – Technical Education and Skills Development Authority
DTI – Board of Investments, Bureau of Product Standards, Bureau of Trade Regulation and Consumer Protection, Bureau of Import Services
DOTC – Land Transportation Office
DOH – Bureau of Food and Drugs
DOF – Bureau of Customs

What is the
**NATIONAL
CFC
PHASE-OUT
PLAN?
NCPD**



Department of Environment and Natural Resources
 Philippine Ozone Desk – Project Management Unit
 DENR Compound, Vayas Avenue, Quezon City
 Tel no. (02) 826-4339

- September 2003-DENR Admin. Order No. 2003-43 established the NCPD PMU
- PMU is tasked to implement the Philippine National CFC Phase-Out Plan

The Ozone Layer and the Montreal Protocol

The ozone layer is a thin, fragile shield that envelops the entire earth. It efficiently and effectively filters and screens almost all of the harmful ultraviolet rays. In 1985, an ozone hole was discovered in Antarctica. Ozone hole is the loss of the blocking effect of the ozone layer against ultraviolet rays. This can cause serious damage to all life forms. Ozone depletion is caused by Ozone Depleting Substances (ODS) like chlorofluorocarbons or CFCs. Thus, in 1987 the Montreal Protocol on Substances that Deplete the Ozone Layer was drafted. It is an agreement of developed and developing countries to phase out Ozone Depleting Substances particularly CFCs by the year 2010.

Target 2010

The Philippines became a signatory to the Montreal Protocol in 1988. The country is committed to phase out CFC by 2010 following the schedule given by the protocol. This will be done through the National CFC Phase-out Plan or NCPD.

CFC Target Schedule

CFC CONSUMPTION PATTERN

Year	Freeze	Reduction
1999	Freeze	
2005		50% reduction
2007		85% reduction
2010		Phase out

National CFC Phase-Out Plan

The NCPD is a comprehensive national CFC phase-out strategy that employs a combination of policy and regulatory interventions, investment and non-investment activities, and technical assistance. The Multilateral Fund of the Montreal Protocol on Substances that Deplete the Ozone Layer funds this and is being implemented by World Bank and the government of Sweden in a cooperative undertaking.

Philippine Ozone Desk-Project Management Unit (POD-PMU)

The Philippine Ozone Desk (POD), formerly the Montreal Protocol Secretariat, was established in 1992 to act as the national coordinator for the implementation of the Montreal Protocol. This is under the Environmental Management Bureau of the Department of Environment and Natural Resources. In September 2003, DENR Administrative Order No. 2003-43 established the POD-Project Management Unit (PMU). The PMU is tasked to implement the Philippine National CFC Phase-out Plan and to ensure that the country follows the phase-out schedule set by the Montreal Protocol.

Functions of POD-PMU NCPD

The Project Management Unit carries out the following functions:

- prepare the standard implementation procedures, assist in preparation of, review, and approve proposals, and arrange technical support for eligible enterprises that would seek project funding from Multilateral Fund;




Bureau of Customs (BOC)




Prohibits the entry of
CFCs in the country

Bureau of Trade Regulation and Consumer Protection (BTRCP)





Department of Environment and Natural Resources
Environmental Management Bureau



Department of Trade and Industry
Bureau of Trade Regulation and Consumer Protection

ANNOUNCEMENT

Accreditation of Air Conditioning and Refrigeration Service Providers

The Bureau of Trade Regulation and Consumer Protection (BTRCP) of the Department of Trade and Industry (DTI) in cooperation with the National Chlorofluorocarbon Phase-Out Plan (NCPPOP) project of the Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR), is currently working on the amendment of the Implementing Rules and Regulations (IRR) of the Presidential Decree (P.D.) 1572, as amended. This project is in support to the Philippine commitment to the Montreal Protocol on Substances that Deplete the Ozone Layer.

Based on the DENR Study, the servicing sector accounts for 74.7% consumption of chlorofluorocarbon (CFC), a chemical substance used as refrigerant in air condition and refrigeration equipment and when released in the air causes ozone depletion and may endanger all life forms. The amendments will specifically include the accreditation system of all service providers working with Ozone Depleting Substances or ODSs in stationary and mobile equipment. This aims to reduce the consumption of ODSs in the servicing sector. This is targeted for implementation by the second semester of 2004.

P.D. 1572 empowers the Secretary of the Trade to regulate and control the operation of service and repair enterprises for motor vehicles, heavy equipment and engines and engineering works; electronics and electrical, air-conditioning and refrigeration, office equipment, medical and dental equipment, and other consumer mechanical and industrial equipment, appliances or devices, including the technical personnel employed therein.

Upon finalization of the IRR, all service providers active in installation and/or service of air-conditioning and refrigeration systems (e.g. working with ODS such as CFC-12, CFC-11, R-502, HCFC-22, etc.) will be required to comply with upgraded requirements and undergo reclassification when they file for accreditation. This will enable DENR and DTI to ensure that good practice is implemented and to monitor and regulate the use of CFCs in this sector.

(Sgd.) JULIAN D. AMADOR
Director, EMB

(Sgd.) JAIME LASARO L. OLMOS
Assistant Director/Caretaker, BTRCP

PS Dec 26, 2003

Accreditation of Air Conditioning Service Providers

- National Certification (TESDA)
- Mandatory equipment
 - Recovery machine
 - Recovery/recycling machine
 - Vacuum pump, etc

Bureau of Product Standards (BPS)

PHILIPPINE NATIONAL STANDARD

BPS

BUREAU OF PRODUCT STANDARDS

your partner in quality



CERTIFIED
Product Quality

The use of the PS Certification Mark is governed by the provisions of Department Administrative Order No. 01 series of 1997 - Revised Rules and Regulations Concerning the Philippine Standard (PS) Quality and / or Safety Certification Mark Scheme by the Bureau of Product Standards. This mark on a product/container is an assurance by the manufacturer/producer that the product conforms with the requirements of a Philippine standard. Details of conditions under which a license to use the PS Certification Mark may be granted can be obtained from the Bureau of Product Standards, Department of Trade and Industry, 361 Sen. Gil J. Puyat Avenue, Makati City.



CERTIFIED
Product Safety

Develop standards pertaining to Refrigeration and Air Conditioning, Aerosols and Mobile Air Conditioning, Aerosols and Mobile Air Conditioners, 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

Pursuant to the provisions of Executive Order 156 (the EO), the following guidelines (the Guidelines) are hereby issued to effectively implement the EO and attain the following objectives:

1. To adopt a clear and stable industrial policy framework consistent with the core requirements of the laws and executive issuances promulgated for the development of the Philippine motor vehicle industry;
2. To create a level-playing field both within and outside among competitors; and
3. To encourage proactive participation among players and ensure success of the Motor Vehicle Development Program to enhance capabilities of the Philippine motor vehicle manufacturing firms to be globally competitive producers of completely-built-up (CBU) units and their parts and components for the local and export markets

Part I – Restructuring of the Motor Vehicle Development Program (MVDP)

Section 1. Implementing Agency

The Department of Trade and Industry (DTI), through the Board of Investments (BOI) shall continue to implement the Guidelines for the MVDP.

Section 2. Definition of Terms

- a. Participant shall refer to a domestic enterprise formed, organized or existing under the laws of the Philippines engaged in the manufacture/assembly operation of passenger cars, commercial vehicles and/or motorcycles, collectively referred to as motor vehicles, and duly registered under the MVDP.
- b. Passenger car shall be as defined under Section 1, Article 1 of the EO and referred to as any four-wheeled motor vehicle, which is propelled by gasoline, diesel, electricity or any other motive power and principally designed to transport persons and not primarily to transport goods.
- c. Commercial Vehicle shall be as defined under Section 1, Article 1 of the EO and referred to as any four or more wheeled motor vehicle, which is propelled by gasoline, diesel, electricity and any other motive power and principally designed to transport persons and/or goods/cargoes, such as light commercial vehicles, buses, trucks, and special purpose vehicles (for example, ambulances, fire trucks, and the like). Trucks shall include but not limited to cab chassis and chassis cowl.
- d. Light Commercial Vehicle shall be as defined under Section 1, Article 1 of the EO and referred to as vehicles whether 4-wheeled drive or not, which may be classified under but not limited to the following: utility vehicles, sports utility vehicles, Asian Utility Vehicles, commuter vans, pick-ups, which are designed to carry both passengers and goods/cargoes.
- e. Motorcycle shall be as defined under Section 1, Article 1 of the EO and referred to as any two or three-wheeler vehicle fitted with an auxiliary motor, with or without sidecars.
- f. CKD shall be as defined under Section 1, Article 1 of the EO and referred to as completely knocked-down parts and components that are either locally produced or imported for assembly purposes by registered participant of the MVDP.
- g. Imported CKD shall be as defined under Section 1, Article 1, of the EO and referred to as sub-parts/parts and sub-assemblies/assemblies/components minus local parts and components, as may be determined by the Board of Investments.
- h. Sub-assemblies/assemblies/components shall be as defined under Section 1, Article 1 of the EO and referred to as major parts and components such as engines, transmissions, axle assemblies, chassis, body assemblies and the like.
- i. Sub-parts/parts shall be as defined under Section 1, Article 1 of the EO and referred to as parts that are necessary for producing sub-assemblies/assemblies/components and/or other parts forming part of the CKD pack.
- j. Assembly operation shall be as defined under Section 1, Article 1 of the EO and referred to as the activity by which the participant of the MVDP shall engage into which shall involve at least the basic assembly processes, i.e., welding, painting, trimmings, final assembly, and quality testing/inspection to produce completely-built-up (CBU) motor vehicles.
- k. CBU shall refer to a vehicle in completely assembled form.

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**



**TECHNICAL EDUCATION & SKILLS
DEVELOPMENT AUTHORITY (TESDA)**

**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

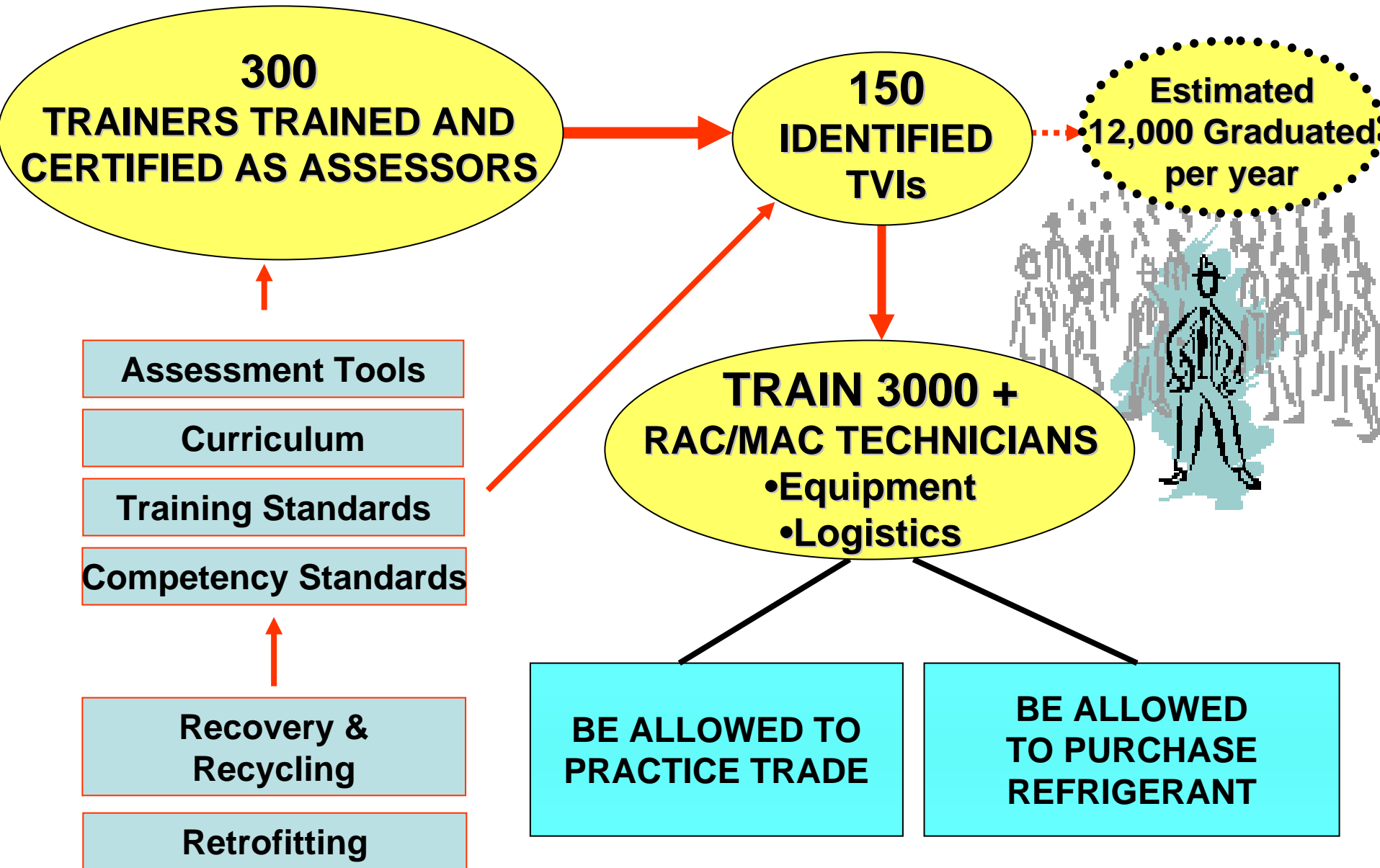
- Is the process of ridding collected refrigerants of contaminants by oil separation through the use of filter driers to reduce moisture, acidity and particles to be reused



Retrofitting

- Is the process of converting CFC RAC Equipment to Non-CFC RAC Equipment

STRATEGY: TESDA COMMITMENT ON NCPP IMPLEMENTATION



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
- 9TH OSH NATIONAL CONGRESS

5. CODE OF PRACTICE

- As Technical Working Group member, participated in the formulation and development of Code of Practice for RAC and MAC Technicians



ACCOMPLISHMENT(2005-present)

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

Pledge of Allegiance to the Philippine flag

*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.**

Sector/ Title of Qualification	Number of Workers Assessed and Certified														
	2006			2007			2008			May-09			Total		
	A	C	rate	A	C	Rate	A	C	Rate	A	C	Rate	A	C	Rate
HVAC															
1. RAC (Window AC/Domestic Ref) Servicing NC I	6	6	100.0 %	1,021	770	75.4%	1,591	1,293	81.3 %	141	101	71.6%	2,759	2,170	78.7%
2. RAC (PACU/CRE) Servicing NC II	57	56	98.2%	616	567	92.0%	1,292	1,153	89.2 %	259	249	96.1%	2,224	2,025	91.1%
3. Transport RAC Servicing NC II	10	9	90.0%	188	179	95.2%	129	128	99.2 %	107	107	100.0 %	434	423	97.5%
TOTAL	73	71	97.3%	1,825	1,516	83.1%	3,012	2,574	85.5 %	507	457	90.1%	5,417	4,618	85.3%

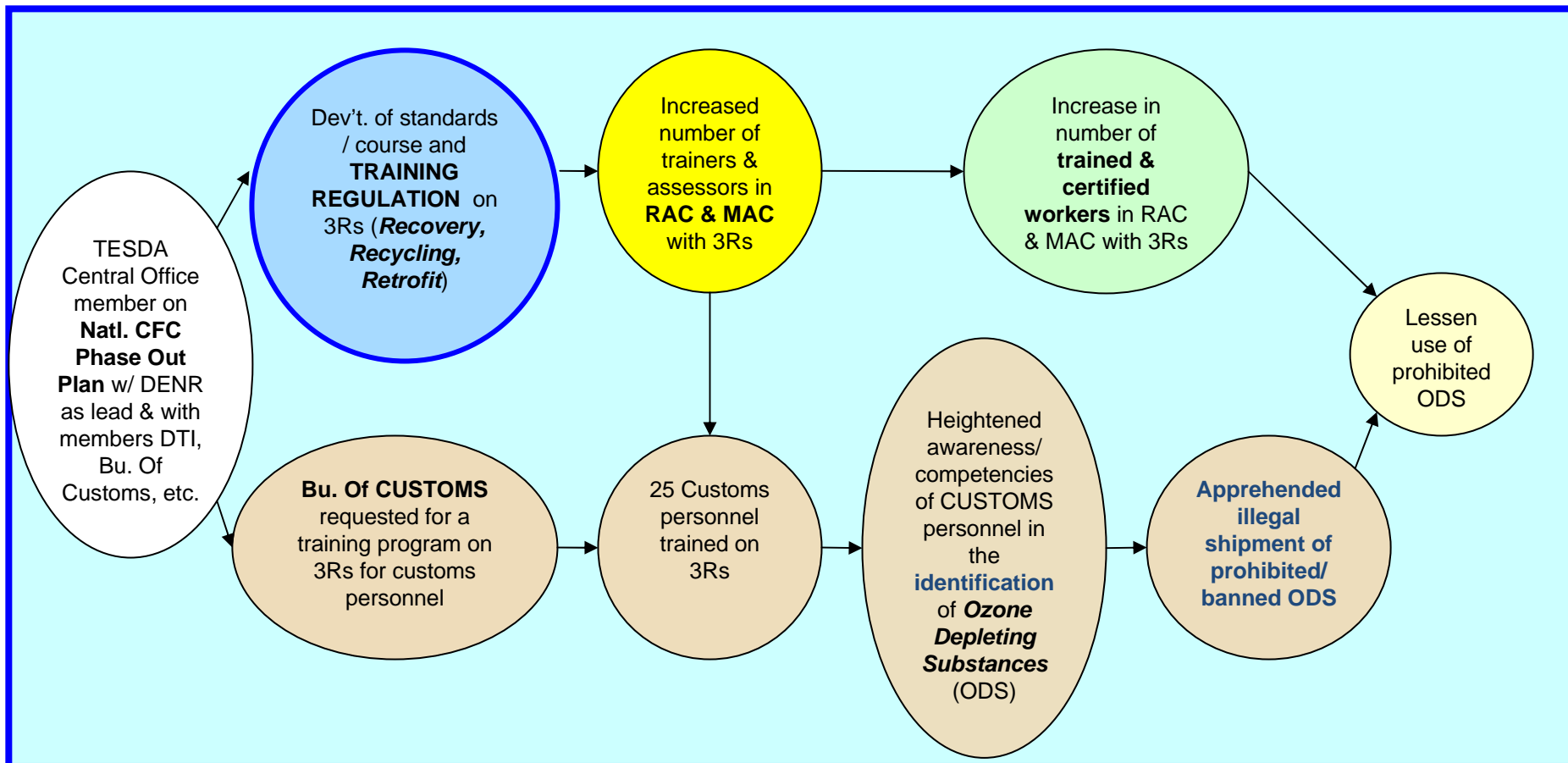
Competency Assessment and Certification Office (CACO), TESDA

**National TVET Trainers and Assessors Qualification Program
2006 - June 2009**

QUALIFICATIONS	2006	2007	2008	2009	TOTAL
ALL	780	3,193	4,511	4,819	13,303
Automotive Servicing NC I	0	0	0	1	1
Automotive Servicing NC II	46	230	166	167	609
RAC Servicing NC I	0	1	0	0	1
RAC(PACU/CRE) Servicing NC II	46	23	37	27	133
Transport RAC Servicing NC II	5	3	5	3	16
RAC/MAC	97	257	208	198	760
	12.44%	8.05%	4.61%	4.11%	5.71%

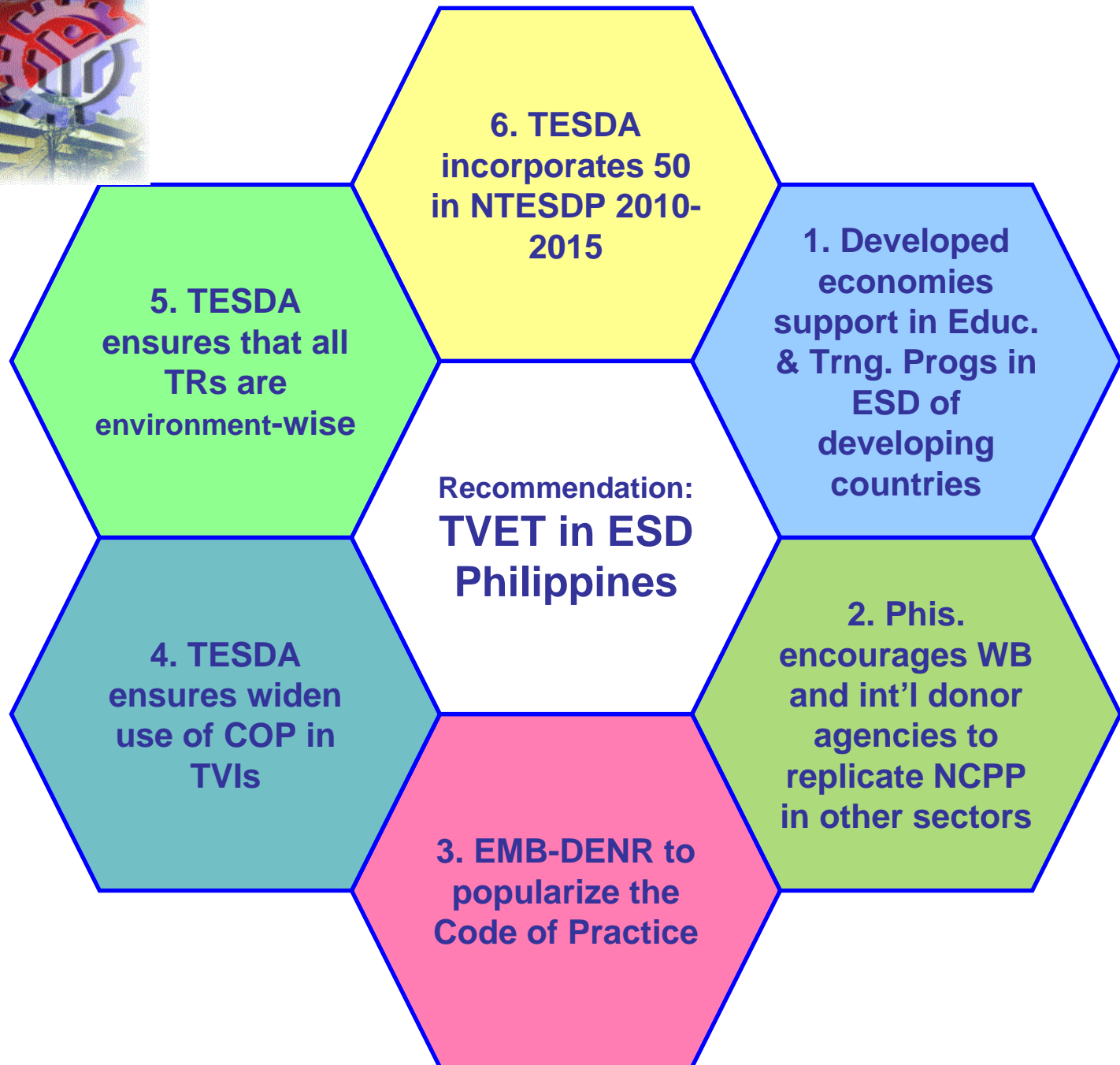
Source: Competency Assessment and Certification Office (CACO), TESDA

ANNEX III : Good Practices in TVET-ESD



BEST PRACTICE in Education for Sustainable Development

Good 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 Chloro Fluoro Carbon Phase-Out Plan** (NCP) 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.





THANK YOU