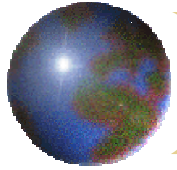


*THE PHILIPPINE
ENVIRONMENTAL
TECHNOLOGY VERIFICATION
(ETV) PROGRAM*

Dr. ROGELIO A. PANLASIGUI

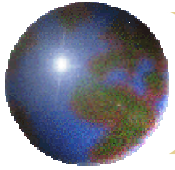
Undersecretary for Research and Development

Department of Science and Technology



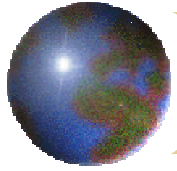
VERIFICATION

- ✚ Process of developing and implementing real world test and demonstration to verify/prove performance of a particular technology with regard to all relevant parameters
- ✚ Aims to promote environmental protection by significantly accelerating acceptance and use of improved and cost-effective technologies



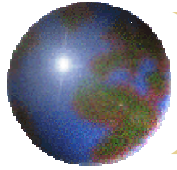
ETV BENEFITS

- ❖ Safeguard from phased out or outdated technologies and other technologies that can cause environmental detriments
- ❖ Provide objective and credible performance data
- ❖ Open and transparent information sharing among interested parties
- ❖ Reduce time and expense in market introduction
- ❖ Enhance industry incentives to invest in environmental technology R&D



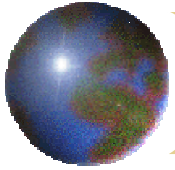
Fundamentals of the ETV Program

- ✚ Identifying and partnering with stakeholders is vital for a successful implementation of the program
- ✚ Science and technology prudently applied is part of the sustainable process
- ✚ The process of the ETV Program is a value-adding activity
- ✚ ETV is a dynamic process

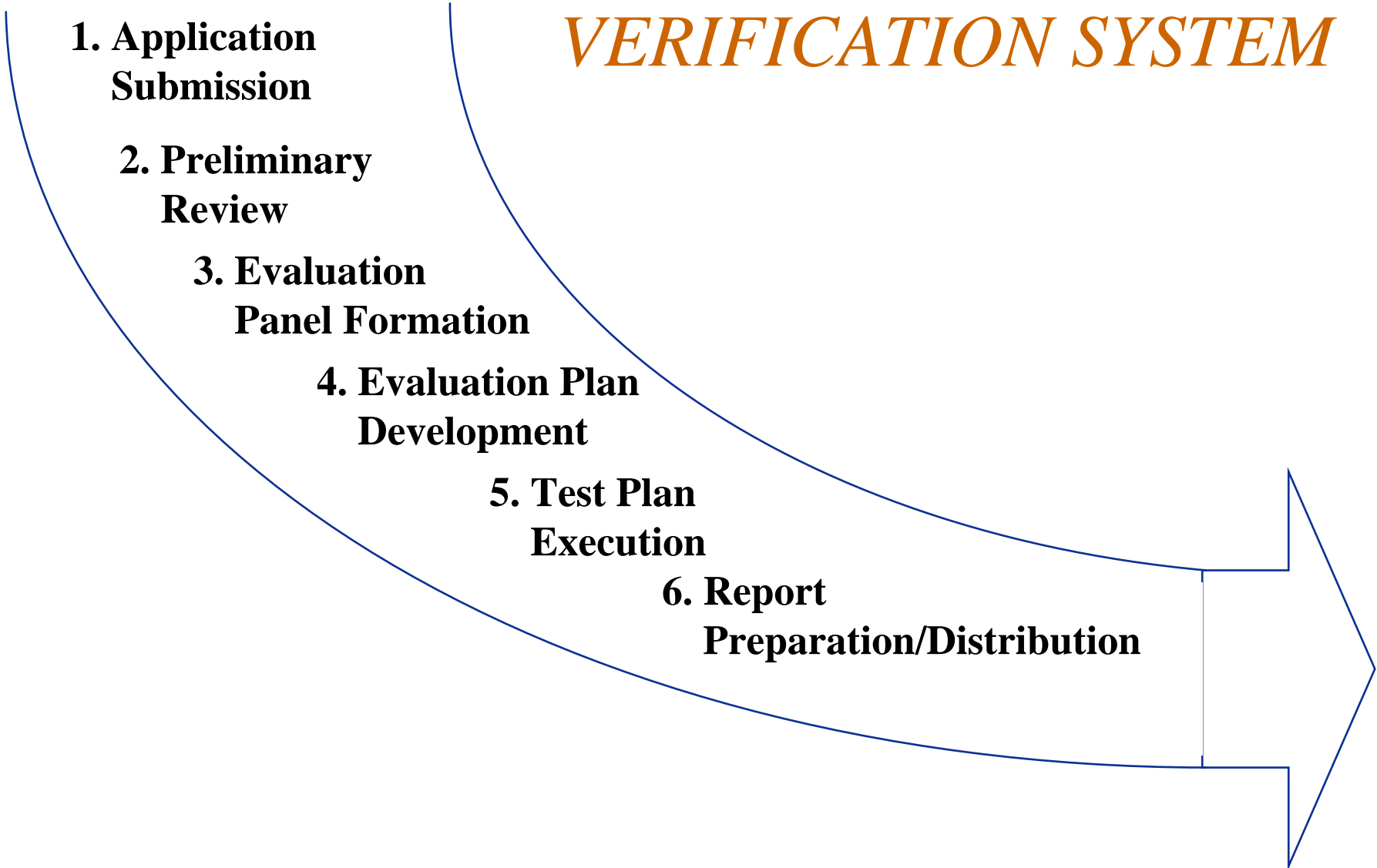


Background on the Philippine ETV Program Development

- ✿ Groundwork by which Industrial Technology Development Institute (ITDI) initiated the program
 - Principles of sustainable development of Philippine Agenda 21
 - Department of Science and Technology (DOST)'s mandate by virtue of Executive Order (EO) No. 128
 - Preparatory study on Environmental Technology Assessment System funded by UNIDO



VERIFICATION SYSTEM



**1. Application
Submission**

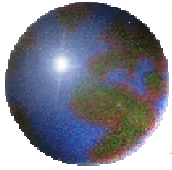
**2. Preliminary
Review**

**3. Evaluation
Panel Formation**

**4. Evaluation Plan
Development**

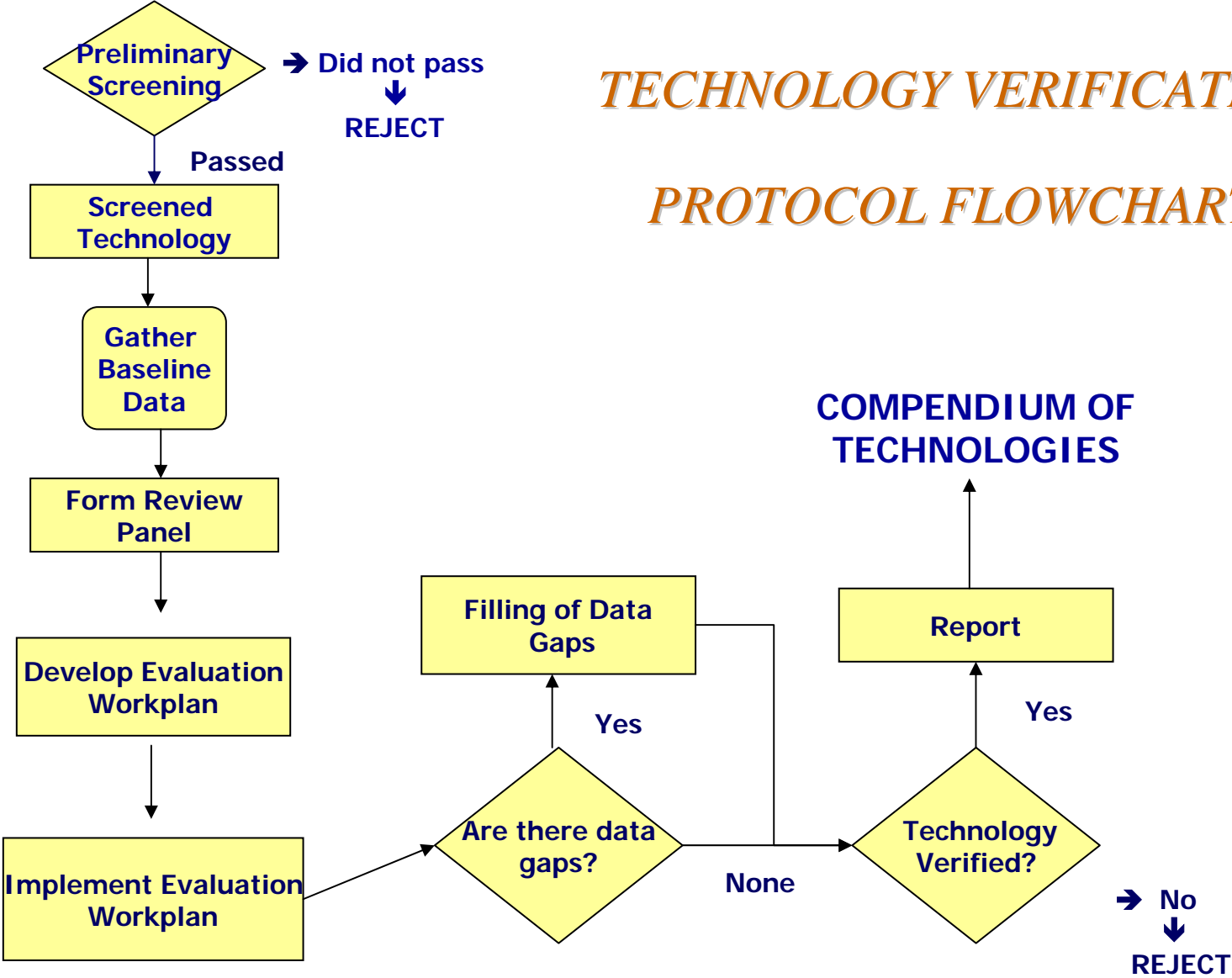
**5. Test Plan
Execution**

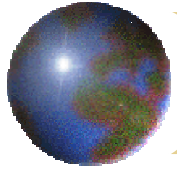
**6. Report
Preparation/Distribution**



TECHNOLOGY VERIFICATION

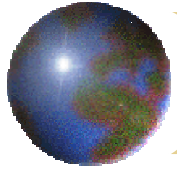
PROTOCOL FLOWCHART





Application Submission

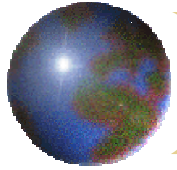
- Technology developers and providers submit candidate product for verification
- Applicant agree and comply with terms and conditions stipulated in Operating Policies



Preliminary Review

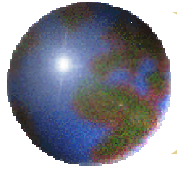
- ⊕ Review and evaluation of submitted data based on set primary criteria that includes
 - ⊞ Technology's marketability
 - ⊞ Proprietary factor
 - ⊞ Positive environmental performance

- ⊕ Customized service provision to each applicant, depending on the technology



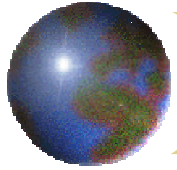
Expert Panel Formation

- Each panel has a core group of industry users, public interest, and other stakeholders
- Goal is to establish a panel that is diverse with respect to organization, expertise, experience, and geographic region
- Avoid potential conflicts of interest, ETV Program will require all panelists to complete disclosure forms and confidentiality agreements, and comply with the ETV Program Governing Principles



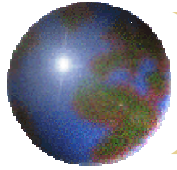
Test Plan Development

- Formulation of test plan customized for technology or product, following ETV Program's Technical Protocol
- Performance criteria to address issues such as:
 - Technology's functional performance
 - Environmental benefits
 - Implementability
 - Regulatory aspects
 - Maintenance requirements
 - Costs



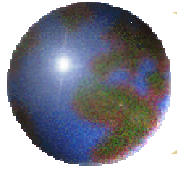
Test Plan Development

- Test plan must include appropriate quality assurance/control (QA/QC) procedures
- Upon applicant's approval of initial plan, and resolution of funding issues, final plan will be developed and executed
- Final plan will identify scope, schedule, and costs of field or laboratory testing, sampling, in-service demonstrations, etc.



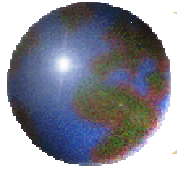
Test Plan Execution

- ✿ Subcontracting of the following activities to consultants or other organizations
 - ▣ Field tests and sampling
 - ▣ Laboratory analysis
 - ▣ Demonstration projects
- ✿ Typically, applicant is responsible for financing the tasks



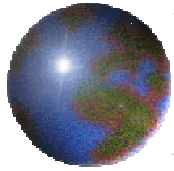
Report Preparation and Distribution

- Preparation of the ETV report and ETV statement
- Active distribution of report through ETV Program's networks to key stakeholders:
 - Regulatory offices
 - Facility owners and operators
 - Consulting engineering firms
- Distribution through DOST publications and website



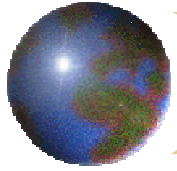
Application of the ETV Process

- Use of alternative fuels and raw materials (AFR) in the cement industry
 - Agricultural chemical company wanted to dispose its herbicide
 - Send to Europe or use as AFR in cement kilns
 - Formation of expert panel from EMB (regulatory agency), cement company (technology supplier), agricultural company (technology user), and a laboratory (testing and evaluation)



Application of the ETV Process

- ETV of an enhanced biogas digester design
 - Panel of experts composed of representatives from Fertilizer and Pesticide Authority, Bureau of Soils and Water Management, Department of Energy, EMB, and academe
 - Verification coverage included the following areas:
 - ⓧ Wastewater generation and characteristics
 - ⓧ Biogas quality and quantity
 - ⓧ Biogas utilization and consumption
 - ⓧ Organic fertilizer quality
 - ⓧ Pollution reduction
 - verification process has successfully confirmed several claims and advantages of installed biogas digester at test facility



Promoting Collaborative Approach

- ⊕ Economics and environment can be complementary
- ⊕ Issues to be addressed
 - Establish minimum parameters for transfer
 - Define quality management needs and requirements
 - Develop cooperation among interests
 - Incorporate objectivity and independence
 - Define methods for assessing parameters to the extent possible
 - Establish communication approaches
 - Identify and mobilize resources and funds