

FINAL REPORT

Ex-Post Evaluation Study

of

The Project on Electrical and Electronics Appliances Testing in the Republic of the Philippines

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ABBREVIATIONS AND ACRONYMS

ASEAN MRA	Association of Southeast Asian Nations Mutual Recognition Agreement
BPS	Bureau of Product Standards
BPSTC	Bureau of Product Standards Testing Center
CALABARZON	Cavite, Laguna, Batangas, Rizal, and Quezon
C/P	Counterpart Personnel
DAO	Department Administrative Order
DTI	Department of Trade and Industry
CMC	Certification Management Committee
EMC	Electromagnetic Compatibility
EPZ	Export Processing Zone
FGD	Focus Group Discussion
GOJ	Government of Japan
GOP	Government of the Philippines
HRD	Human Resource Development
IECEE-CB	International Electro technical Commissions' Worldwide System for Conformity Testing and Certification of Electrical Equipment-Certification Body
ISO	International Organization for Standardization
JICA	Japan International Cooperation Agency
KII	Key Informant Interviews
LGU	Local Government Unit
MIRDC	Metals Industry Research and Development Center
NCR	National Capital Region
OFW	Overseas Filipino Worker
PDM	Project Design Matrix
PDMe	Project Design Matrix for Evaluation
PNS	Philippine National Standards
PTTC	Project Type Technical Cooperation
TVET	Technical Vocational Education and Training
WTO	World Trade Organization

GEOGRAPHICAL LOCATION OF CALABARZON AREA



I. OUTLINE OF THE PROJECT	
Country: Philippines	Project Title: The Project on Electrical and Electronics Appliances Testing
Issue/Sector: Private Sector Development	Cooperation Scheme: Project Type Technical Cooperation
Division in Charge: First Technical Cooperation Division, Mining and Industrial Development Cooperation Department	Total Cost: 498 Million Yen
Period of Cooperation: 1 April 1999 to 31 March 2003	Partner Country's Implementing Organization: Bureau of Product Standards- Department of Trade and Industry (BPS-DTI)
	Supporting organization in Japan: Electrical Power Safety Division, Nuclear and Industrial Safety Agency (NISA), Ministry of Economy, Trade and Industry (METI)
Related Cooperation: (1) Project Type Technical Cooperation: Industrial Standardization and Electrical Testing Project, 1993-1997 (2) Technical Cooperation Project: Capacity Building for Philippine Standards and Conformity Assessment Program (SCAP), 2005-2008	
<p>Background of the Project</p> <p>In order to improve the testing capability on electrical and electronics appliances and enhance the industrial standardization and certification system, the Government of the Philippines (GOP) requested the Government of Japan (GOJ) for a technical cooperation in 1991. Based on the request, the GOJ, through JICA, extended to BPS-DTI a 4-year project-type technical cooperation titled, Industrial Standardization and Electrical Testing Project, from 1993 to 1997. With the success of the project, the GOP planned to enhance the testing functions of the BPS laboratory in examining and testing home electrical appliances. The testing techniques on this field however were found insufficient. Under this circumstance, the GOP again requested the GOJ for another technical cooperation in 1998. Based on this request, the GOJ, through JICA, extended to BPS-DTI another project-type technical cooperation titled, the Project on Electrical and Electronics Appliances Testing, from 1999 to 2003.</p>	
<p>Project Overview</p> <p>In order to improve the testing techniques on electrical and electronic appliances in the Philippines, the project transferred technologies to BPS counterpart staff through on-the-job training and seminars.</p> <p>Overall Goal The safety of the electrical and electronic appliances in the market of the Philippines is improved.</p> <p>Project Purpose The BPS laboratory is able to provide appropriate technical services on electrical and electronic appliances testing.</p> <p>Outputs</p> <ol style="list-style-type: none"> 1. The machinery and equipment related to electrical and electronic appliances testing is provided, installed, operated and maintained properly 2. Testing of main electrical and electronic appliances is implemented by counterpart personnel 3. Seminars and training courses related to electrical and electronic appliances testing are implemented. 	

Inputs

Japanese side:

Long-term Experts	7
Short-term Experts	15
Trainees	15
Equipment	157 Million Yen
Local Cost	13 Million Yen

Philippine side were:

Counterparts	32
Land and Facilities	
Local Cost	Approximately, 79 Million Yen (30,336,316 peso)

II. EVALUATOR

Local Consultant	Mr Alexander Flor Shinfield Consultancy Philippines, Inc.	
Period of Evaluation	November 8, 2005 to January 6 2006	Type of Evaluation Ex-Post Evaluation by Overseas Office

III. RESULTS OF EVALUATION**3-1 Summary of Evaluation Results****(1) Impact**

By conducting on-the-job trainings and by providing BPS with testing equipment, the project had enabled the BPS laboratory staff to set testing standards for electrical and electronics home appliances such as airpots, microwave ovens, oven toasters, washing machines, rice cookers, refrigerators, flat irons, etc. It also enabled BPS staff to continuously conduct testing activities for such products and likewise conduct trainings to manufacturers, accredited testing laboratories and DTI product inspectors in the Regions. Through the standards set by BPS and its continued testing services, manufacturers adjusted and improved their safety design techniques in producing electrical and electronic home appliances. This resulted to a decrease in failure rates on tested similar items by 20 to 30% and consequently, an increase of certified products over the years, thus contributing to the improvement of safety measures on electrical and electronics appliances in the Philippine market. With the testing capability being improved through the project, BPS laboratory staff continues to contribute to the formulation of Philippine National Standards on electrical and electronics home appliances, such as the DTI Department Order No. 02, defining the responsibilities and liabilities of manufacturers and sellers of products under mandatory product certification. In accrediting private testing centers, BPS applies the guidelines and procedures set by the International Standards Organization (ISO 17025) such that all the 69 private testing laboratories comply with the international testing standards, thus further ensuring the safety of electrical and electronics home appliances in the Philippine market.

There was no negative impact produced by the project.

(2) Sustainability:

The Project is technically sustainable. The DTI BPS management is capable of maintaining the benefits accrued as a result of achieving the purpose and overall goal because: management has prioritized the transfer of knowledge and skills between the trained counterparts and other staff; the knowledge and skills learned can be applied to a wide range of types and models of electrical and electronic appliances; the services provided by the BPS are more than acceptable to its clients; and the equipment is being used maximally.

The project is organizationally sustainable. The proactive response of the management to the situation has contributed to the organizational sustainability. As such, there has been no change in the organizational structure of BPS and the same staff still holds the same position.

The BPSTC is financially limited. Based on the Actual Budget and Income of the Center, there is a consistent deficit in their budget for the period 1994-2005. The budget includes personnel services, maintenance and operating expenses and capital/equipment outlay. Their income comes solely from the testing fees. The situation is critical considering that there was a huge gap between the income and the required budget. On the average, there is an annual deficit of PhP 6,613,000 in the budget of BPSTC covering the period 1994-2005.

3-2 Factors affecting Impact and Sustainability

The timing of the Project and the enforcement of mandatory policy for testing of manufacturers' products by the BPS were the two factors that promoted impact. The approval of PTTC in 1999 enabled the Philippines to apply safety standards to these appliances to protect consumers. While the two factors promoting sustainability were management prioritization of the transfer of skills in and outside of the organization and availability of testing equipment. On the other hand, economic trends in the Philippines have hindered impact and sustainability. The budget deficit of the GOP has prevented the appropriation of the required budget for the BPS.

3-3 Conclusion

The overall goal of the Project is being achieved given the decrease in failure rate of items tested and an increase of certified electrical and electronic appliances in the market (as attested by the manufacturers and C/Ps). On the project purpose level, increased competencies for electrical or electronic testing to ensure safety and compliance with international standards contributed to the attainment of the overall goal. These factors are highly correlated with the realization of the project purpose. On the output level, the factors namely: availability of equipment for electrical and manual for electronic testing and testing operations within the industry contributed to the attainment of the overall goal.

The Project likewise resulted in five significant effects that were not anticipated at project completion. It has influenced the development of national policies on the responsibilities and liabilities of manufacturers and sellers of products for mandatory testing. It has resulted in the development of national standards. It has increased the capability of the DTI to develop standards. It has increased the capability of the private sector for product testing. Lastly, it has contributed to the HRD, specifically technical vocational education and training.

The Project is technically sustainable. The DTI BPS management is capable of maintaining the benefits accrued as a result of achieving the purpose and overall goal because: the transfer of knowledge and skills between the trained counterparts and other staff has been prioritized by management; the knowledge and skills learned can be applied to a wide range of types and models of electrical and electronic appliances; the services provided by the BPS are more than acceptable to its clients; and the equipment use is being maximized.

The Project is organizationally sustainable. The proactive response of the management to the situation has contributed to the organizational sustainability. As such, there has been no change in the organizational structure of BPS and the same staff still holds the same position. The financial sustainability of the BPS is also limited. Based on the Actual Budget and Income of the BPSTC, there is a consistent deficit in their budget for the period 1994-2005. Likewise, there was a huge difference between the income and the required budget.

3-4 Recommendations

(1) Recommendations for the Implementing Agency.

Until at present, the BPS is operating with a very limited budget that effectively prevented the hiring of necessary number of testing engineers and the repair or purchase of new testing equipment. This budget limitation has been hindering the continued production of positive effects the project had started. In view of this, it is recommended that BPS has to come up with a long-term sustainability plan (on electrical and electronics home appliances testing), through which operations and maintenance (O&M) budget requirements every year are clarified and alternatives for revenue utilization are identified. Such alternatives may include the adoption of a new law by Philippine Congress authorizing the BPS to use its generated revenues and deposit the same through a trust account system instead of remitting such incomes to the Bureau of Treasury. After the formulation of a well-thought Sustainability Plan, BPS has to intensify its advocacy activities not only at the DTI level but also at the Philippine Congress as well to ensure the passage of such law that may secure financial independence of BPS in the future.

(2) Recommendations for JICA

The Japan International Cooperation Agency should consider the lessons learned during planning and implementation of the project and apply them to future projects with the BPS to ensure success, impact generation, project sustainability. If still applicable, the lessons learned should also be applied to the on-going TCP Project with the BPS. In the formulation of future projects, JICA should also consider conducting continuous training to equip participants with required knowledge and skills. JICA should also consider including representatives from manufacturers and DTI regional and provincial offices staff as training participants for the smooth flow of the testing procedures.

3-5 Lessons Learned

- (1) In project formulation process, it is important to establish baseline information of every project indicator being identified. In this project, base information about test failure rates and certified appliances had not been established before the project started.
- (2) Beneficiary-oriented indicators are important indicators at the Project Purpose and Overall Goal. For example, capability-enhancing indicators at the Project Purpose level for this project could have included the frequency and quality of developing standards by BPS counterparts including the quantity and quality of trainings extended by BPS counterpart staff to manufacturers, private testing centers and DTI staff in the Regions. At the Overall Goal level, this project could have included the level of satisfaction of consumers on tested and certified appliances.

1. Outline of the Ex-Post Evaluation Study

1.1 Background and purpose of the study

This study is an ex-post evaluation of a four-year Project Type Technical Cooperation (PTTC) between the Government of Japan (GOJ) and the Government of the Philippines (GOP) aimed at strengthening the capability of the Department of Trade and Industry - Bureau of Product Standards (DTI-BPS) laboratory in examining and testing home electrical appliances. The PTTC underwent a terminal evaluation in October 2002, which concluded that the Project improved the capacity of the DTI-BPS laboratory to respond to industry needs.

This evaluation sought to assess the impact and sustainability of the PTTC on Electrical and Electronics Appliances Testing. Furthermore, the study aimed to draw lessons and formulate recommendations for the improvement of planning and implementation of similar projects.

1.2 Evaluation Team and Study Period

JICA commissioned Shinfield Consultancy Philippines, Inc. to undertake the study from 8 November 2005 to 6 January 2006.

1.3 Study Scope and Methodology

Technically, the ex-post evaluation covered a set of questions relating to impact and sustainability. Questions relating to impact were:

- Is the Overall Goal of “improving the safety of electrical and electronics appliances in the Philippine market” being achieved?
- To what extent has the Project contributed to the achievement of the Overall Goal? Are there external factors that influenced the achievement of the Overall Goal?
- Are there other impacts (positive, negative or unintended) that can be attributed to the Project?

On the other hand, questions relating to sustainability were:

- To what extent has the implementing agency been able to sustain the outcomes/effects of the Project?
- How likely are the outcomes/effects of the Project to be sustained?
- What are the factors that contribute or inhibit the sustainability of the Project outcomes/effects?

Geographically, the study covered the DTI-BPS and its clients in the NCR, Calabarzon area.

The study employed the following methods: secondary data analysis; one-shot survey; Key Informant Interviews (KII); and Focus Group Discussion (FGD).

Secondary data of testing records were analyzed to determine impact on the safety of electrical and electronics appliances in the Philippine market. The secondary data were supplied by the DTI-BPS.

Additionally, the study team conducted a *one-shot survey* of project stakeholders, specifically direct counterparts and manufacturers, to determine both impact and sustainability. A two-page self-administered questionnaire was distributed to the 11 direct counterparts (C/Ps) who were still connected with the BPS Testing Center in Bicutan. Seven out of the 11 questionnaires were returned. Another set of questionnaires was distributed to manufacturers. Only 12 out of 44 questionnaires were returned. The summary of survey results is found in ANNEX 1.

An FGD and KIIs were conducted to determine organizational, technical and financial sustainability of the Project. The group met on 23 November 2005 at the Department of Trade and Industry (DTI) office in Makati City. This was participated in by the management personnel of the Bureau of Product Standards (BPS), namely: Engr. Jesus Motoomull, Bureau Director; Engr. Jerry Maglalang, Senior Product Manager; and Engr. Gerardo Panopio, Chief of the BPS Testing Center.

A series of interviews were also done with the following key informants: Ms. Marilou Juliet Evangelista, Senior Trade and Industry Development Specialist of the DTI-Cavite Provincial office; Mr. Noli Manalo, Quality Management System and Product Assessor of the DTI Region IV-A office; Engr. Gerardo Panopio, Chief of the BPS Testing Center; and Mr. Peter Wong, Quality Control Supervisor of Camville Manufacturing Corporation. ANNEX 2 summarizes the results of the FGD and KIIs.

2. Overview of the Project

2.1 Background of the Project

Based on the GOP request, the GOJ, through JICA, supported the DTI-BPS in carrying out a project titled *Industrial Standardization and Electrical Testing Project* under JICA's PTTC program. In 1999, the GOJ once again approved another technical cooperation project now aimed at strengthening the capability of the BPS laboratory in examining and testing home electrical appliances. The PTTC was implemented from April 1999 to March 2003.

The GOP requested the GOJ to conduct this PTTC as a follow through to the earlier Industrial Standardization and Electrical Testing Project but this time focusing specifically on the DTI-BPS laboratory.

2.2 Project Framework

The overall goal of the project is to improve the safety of electrical and electronic

appliances in the Philippine market. The verifiable indicators of this goal are: a decrease in failure rate of items tested; and an increase of certified electrical and electronic appliances in the market. The means of verification are: testing records; and a survey of certified electrical and electronic appliances and manufacturers.

There were three major assumptions in achieving this goal. Firstly, political and economic condition in the Philippines will continue to be stable. Secondly, current policies with emphasis on establishing overall electric sector and ensuring safety will continue to be stable. Lastly, national consciousness on safety of electrical and electronic appliances will be enhanced.

The objective of the PTTC is to enable the BPS to provide technical services in the field of electrical and electronic appliances testing. Indicators of success are: an increase of items which can be tested; an increase in the number of tests; and a reduction in processing time from the receipt of samples to the release of testing reports.

In attaining this purpose, the Project assumed that manufacturing technology of private electrical and electronics companies will be improved. Furthermore, manufacturing facilities of private companies will be properly improved and renovated. Lastly, support and cooperation of domestic industries will be secured. Thus, project stakeholders include: the Department of Trade and Industry - Bureau of Product Standards (DTI-BPS); electrical and electronic appliances manufacturers.

The PTTC has four major expected outputs.

1. The BPS project operation unit will be enhanced. The verifiable indicators for this output are the number of personnel, the BPS budget, and the ability of the management staff to control operations.
2. The machinery and equipment related to electrical and electronic appliances testing will be provided, installed, operated, and maintained properly. The type and number of equipment introduced; the number and contents of manuals developed; and the procedure and status of securing spare parts will verify this output.
3. Counterpart personnel will implement the testing of main electrical and electronic appliances. The following indicators were identified for this output: the number of items that can be tested; operation ratios of the equipment; and manuals, textbooks and training materials developed.
4. Seminars and training courses related to electrical and electronic appliances testing will be conducted. This output will be verified by the number of textbooks and teaching materials prepared as well as the number of seminars and training courses implemented in and outside the Project site.

Additionally, a set of activities were identified to produce these outputs:

1. Allocate the necessary personnel;

2. Formulate the plans of activities;
3. Prepare the budget plan and execute it properly;
4. Prepare facility refurbishment plan and implement as planned;
5. Identify specifications of equipment;
6. Implement tenders and select traders;
7. Install and adjust equipment;
8. Evaluate technical capacity of the C/P;
9. Make technical cooperation program;
10. Implement technology transfer to the C/P;
11. Review present seminar and training courses;
12. Prepare the implementation plan of seminars training courses in line with needs related to electrical and electronic appliances testing in the Republic of the Philippines;
13. Prepare textbooks and teaching materials for seminars and training courses;
14. Conduct seminars and training courses; and
15. Evaluate seminars and training courses.

The GOJ would provide equipment, expertise and training. It dispatched long-term Japanese Chief Advisor, Coordinator, Electrical and Electronic Appliances Testing Expert, and appropriate number of short-term experts when needed. Counterpart training in Japan and in the Philippines was provided under the PTTC. There are also provisions for machinery and equipment.

On the other hand, the GOP would provide counterpart personnel, budgeting, office space and support systems.

3. Study Results

3.1. Impact

Impact Attained at Overall Goal. The overall goal of the Project is to improve the safety of electrical and electronic appliances in the Philippine market. The given verifiable indicators of this goal are: the decrease in failure rates of items tested and an increase of certified electrical and electronic appliances in the market. Statistics on failure rates are not available because this is based on the total number of appliances, which were tested and have failed the tests, compared over a period of time relative to the total number of appliances introduced in the market. Such figures are unavailable given the drastic increase of appliances during the period under study.

Based on secondary data and key informant interviews, however, failure rates are highest during the introduction of new types of appliances in the market as well as the adoption of new standards. Manufacturers and importers learn from these failure rates and automatically adjust their standards to remain in the market. From the base year of 1999 until 2005, several new types of appliances have been included for mandatory testing. Additional standards have also been implemented. Failure rates were thus expected to rise, level-off and then decline at several points within the six-year span as a result. Although anecdotal evidence has been gathered by

this study pointing to a drop in failure rates among manufacturers (Please refer to ANNEX 2), these can only be partially indicative of the impact of the PTTC. The use of this indicator may be considered thoroughly to further improve the project design.

Increased competencies for electronic testing to ensure safety, and prompt compliance with international standards contributed to the attainment of the overall goal. These factors are highly correlated with the realization of the goal.

The in-country competency for electronic and electrical testing may be assessed through an increase in the volume of appliances tested. This indicator provides an accurate picture of the PTTC's impact on the overall goal. Based on key informant interviews, electronic and electrical appliance testing has significantly increased from the base year, 1999, to 2005. Furthermore, based on testing records, the number of appliances tested in 2005 increased by 550 percent compared to the base year of 1999 when the PTTC started. The increase was most pronounced during 2002-2003, when the Project ended. It may be noted that there was a decline of volume of appliances tested in 2001. This period may have been the year when the direct counterparts were receiving training and thus had little time for performing the tests.

However, the trend has steadily increased from 2002 to 2005, the latter having the most number of tests. Appliances such as air pots, microwave ovens, oven toasters and washing machines were only included in the testing and certification process in 2005. On the other hand, rice cookers, refrigerators, and flat irons were tested since 1999. Air conditioners were not included, as these are not yet subject to mandatory testing. Figure 1 presents tests done in electrical and electronic appliances.

On the other hand, the DTI implemented the guidelines and procedures set by the International Standards Organization under ISO 17025 and are now being enforced on accrediting private-sector testing and calibration laboratories. The ISO covers tests performed using standard methods, non-standard methods, and laboratory-developed methods. The ISO has served as the basis for accrediting 69 laboratories for electrical and electronic testing.

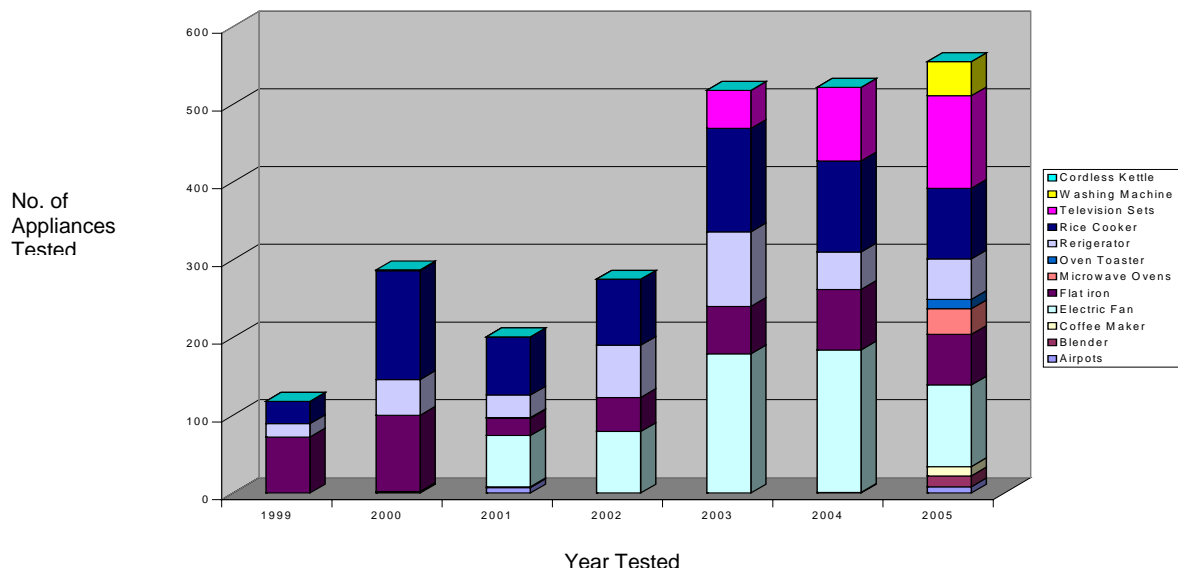


Figure 1. Tests Done in Electrical and Electronic Appliances (1999-2005) 12

With regards to equipment and facilities, the BPSTC in Bicutan is the only testing center of the DTI. However, the Department has accredited 69 laboratories from the private sector and other agencies. Also, the facilities and equipment provided by the Project have been maximized with the introduction of new types of products to be tested. Three years after the project completion, 97.5 percent of these equipment and facilities are still in good working condition while 72.3 percent are used regularly. ANNEX 3 summarizes the status or inventory of the equipment.

In summary, the Project contributed to the overall goal of improving the safety of electrical and electronic appliances in the Philippine market by: increasing the competencies of BPSTC staff and their partners to conduct electrical and electronic appliances testing; and strengthening the capacity of DTI to enforce international safety standards.

Impact Not Anticipated at Project Completion. Based on the key informant interviews, the Project resulted in five significant effects that were not anticipated at project completion:

- a) It has influenced the development of national policies on the responsibilities and liabilities of manufacturers and sellers of products for mandatory testing;
- b) It has resulted in the development of national standards;
- c) It has increased the capability of the DTI to develop standards;
- d) It has increased the capability of the private sector for product testing; and
- e) It has contributed to HRD, specifically technical on vocational education and training.

Also, although the development of operations manuals is not covered by the Project, testing procedures have been mainstreamed and compiled into a manual for use within the industry as guidance in keeping with quality assurance standards.

Impact on Policies. The Project has directly contributed to the development, implementation and conduct of Department Administrative Order No. 02, or the Responsibilities and Liabilities of manufacturers and sellers of products under mandatory product certification. This DAO provides for the formulation of product standards and guides the clients/manufacturers in mandatory standardized product safety testing, and is being enforced down to the provincial level, imposing legal liability to the private sector for non-compliance. Without the Project, DTI would not have had the expertise to formulate standards and to enforce them.

Impact on Capability to Develop Standards. The Department of Trade and Industry, in general, and the Bureau of Product Standards, in particular, are actively engaged in 69 technical committees tasked to develop product standards. BPS engineers and testers now actively participate not only in standards enforcement but also in product standards development.

Impact on Standards. The Philippine National Standards (PNS) were developed in conformity to the international safety standards. These standards likewise, are

presently being enforced strictly on the industry.

The DTI is also actively implementing an advocacy campaign for consumer awareness on the importance of the Philippine Standard (PS) mark or accreditation. A weekly radio program in DZMM (630 khz am channel) was created this year. The radio program is aired every Saturday from 10:00 am to 11:30 am and is intended primarily for students. In the program, test engineers explain over the radio how products are tested and evaluated before being considered as safe for use.

Impact on the Private Sector. The transfer of knowledge and skills has not been confined within the BPS only. BPS has conducted trainings attended by 29 private companies (Annex 7). The sharp increase of workloads, types and volumes of products under mandatory testing have also prompted its assimilation into the private sector. The BPS has established a training center for in-house testing engineers of manufacturers as well as private accreditation service providers. The situation necessitates an inter-sector cooperative arrangement to adequately cover standard electronic and electrical appliance testing. Manufacturers are obligated to conduct in-house testing prior to government testing. Additionally, the BPS encourages the services of private accreditation providers.

Impact on Human Resource Development. One other unanticipated impact is the localization of technology transfer particularly at the regional and provincial levels. Direct C/Ps train testing center personnel. The regional offices undertake auditing and verification of systems as well as witnessing of in-plant product testing. Product monitoring is done at the provincial level. Attendance to the training allows regional personnel to acquire the capability to audit in-plant product testing. Since the requirements of standards are highly technical, hands-on training is relevant. Training has given them more confidence in inter-acting with manufacturers during in-plant auditing. However, further training is needed because the regional and provincial staffs are the so-called “front-liners.”

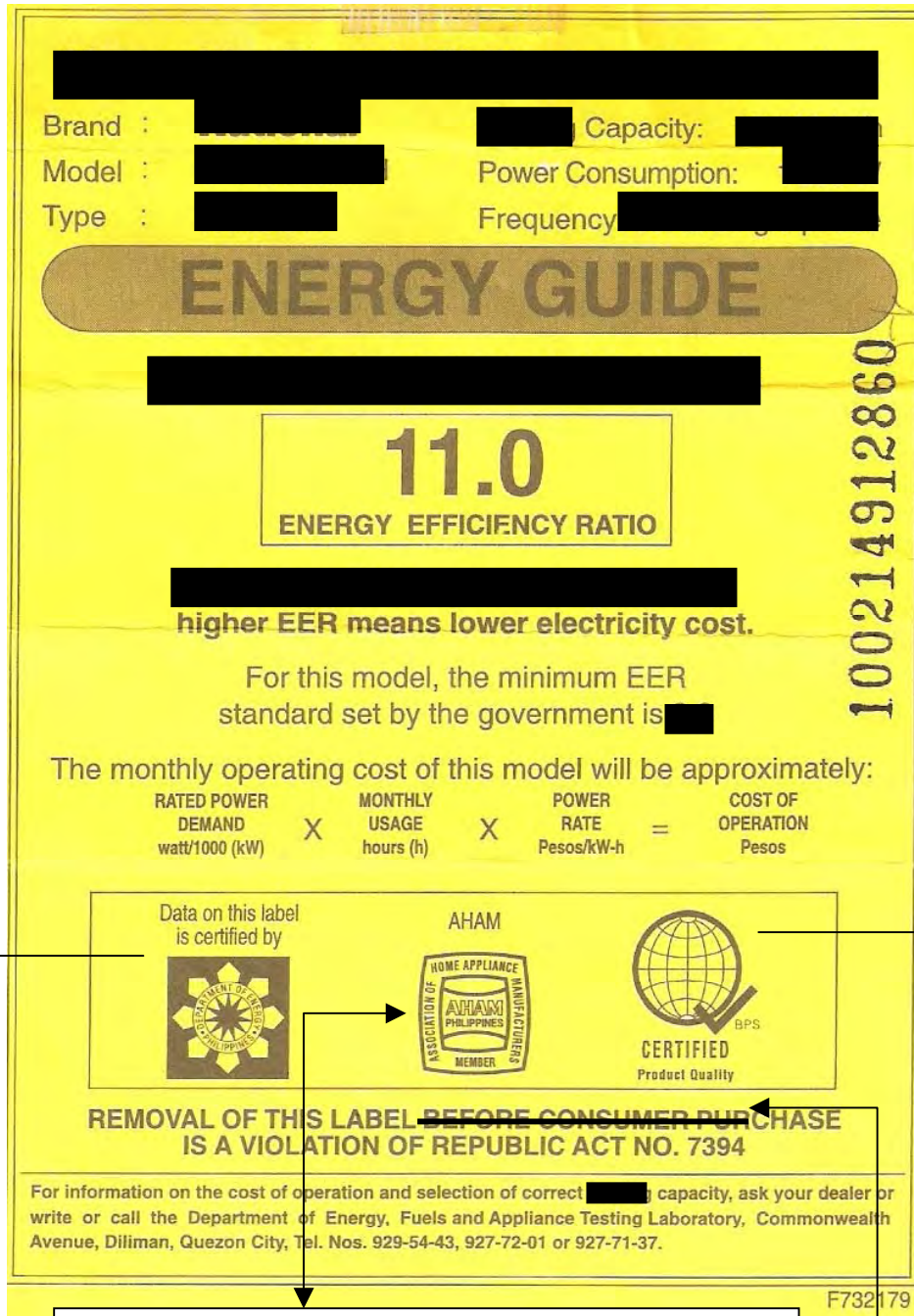
The DTI likewise accepts on-the-job trainees on a regular basis and contributes to the Technical and Vocational Education and Training (TVET) sector by assisting in the integration of industry standards in the curriculum.

Perceived Positive & Negative Effects. From the perspective of the stakeholders, specifically the direct counterparts, the Project had both positive and negative effects. The main positive effect of the JICA project as perceived by most of the counterparts was the increase in the competencies of staff in terms of technical knowledge, higher level of technical capability, and more competitive engineers. Two of the counterparts viewed that the project resulted to competitive/high quality of products, and it had also increase awareness of people to international standards and increase income for the BPSTC.

On the other hand, the main negative effect of the PTTC as perceived by most of the counterparts was the transfer of staff to other organizations here and abroad. However, this may also well be considered a positive effect of the PTTC because; these former staff also spread their technology know-how. Since the strategy employed by DTI in implementing and enforcing standards mandated public-private

sector partnerships, the expertise from DTI absorbed by the private sector eventually contributed to the overall goal of increasing the safety of electrical and electronic appliances in the Philippine market. Furthermore, those who transferred overseas eventually, also contribute to the Philippine economy through their regular remittances to the country's foreign reserves.

Figure 1-A
SAMPLE LABEL OF AN ELECTRICAL APPLIANCE
THAT PASSED THE SAFETY STANDARDS TEST



Certification Mark by the Department of Energy certifying that the Information above is accurate

BPS Mark of Safety & Product Quality certifying that the appliance passed testing

Mark of Accreditation of Home Appliance Manufacturer Certifying Marker Legitimacy

- Republic Act (R.A.) 7394 “Consumer Act”** is a Consumer Rights Legislation enacted in 1991 to achieve the following Objectives:
1. Protection against hazards to health and safety
 2. Protection against deceptive & unfair acts & practices
 3. Facilitation of accurate information
 4. Provision of rights & means of redress
 5. Involvement of Consumer Representative in Policy Formulation

3.2. Sustainability

Technical sustainability. The Project was technically sustainable. The DTI BPS management is capable of maintaining the benefits accrued as a result of achieving the purpose and overall goal because:

- a) the transfer of knowledge and skills between the trained counterparts and other staff has been prioritized by management;
- b) the knowledge and skills learned can be applied to a wide range of types and models of electrical and electronic appliances;
- c) the services provided by BPS are acceptable to its clients; and
- d) the use of equipment is being maximized.

Transfer of Knowledge and Skills. Measures have been taken to effect the transfer of knowledge between the direct counterparts and the indirect ones, even to other stakeholders through various trainings (Please refer to ANNEX 6). Direct C/Ps conduct training for other BPS staff who eventually serve as resource persons or trainers for manufacturers. Management's decision to prioritize knowledge transfer has been timely, considering that the knowledge and skills imbibed by the primary counterparts are highly specialized.

Applicability of Knowledge and Skills. Furthermore, the BPS believed that the knowledge and skills that were imbibed under the PTTC is still applicable and sufficient until now (Please refer to ANNEX 2). Among the 11 C/Ps who remained at the BPS, two were transferred to the certification group while the rest remained to apply their expertise in the appliance-testing group. Based on the survey, the knowledge and skills gained can be applied to a wide range of types and models of electrical and electronic appliances and can be adapted to changing standards (Please refer to ANNEX 1). Through the Philippine National Standards (PNS), more appliances such as flat irons, toasters, washing machines and heaters now undergo mandatory testing before certification. Relative to this, C/Ps are highly equipped and more confident to perform testing. Thus, the technical know-how is still valid. However, the BPS Director also feels that eventually the capability of the test engineer for testing in accordance with the changing standards may become insufficient in time. There may be a need for additional training in the future. Hence, the DTI-BPS can keep up with the technology changes up to a certain extent only.

Acceptability of BPS Services. Additionally, the services provided by the DTI-BPS have been acceptable to its clients as opined by the majority of respondents in a survey conducted among manufacturers (ANNEX 1). The services of the DTI-BPS extended beyond the electrical and electronic products industry to the regulatory and educational sectors.

Status of Equipment. Moreover, the equipment provided by the Project has been optimized. Of the 203 pieces of hardware provided, 152 are utilized regularly, 42 are used occasionally. Only five are non-functional due to overuse (Please refer to ANNEX 3). It may be concluded that the equipment has been fully utilized at present. Likewise, given the more number of functional equipment, it affirms that there has been proper maintenance and operation of the equipment by the BPS.

Organizational sustainability. The project is organizationally sustainable. The proactive response of the management to the situation has contributed to the organizational sustainability. As such, there has been no change in the organizational structure of the BPS.

The BPS Testing Center through its sub-units, namely: electrical testing laboratory, mechanical testing laboratory, and chemical testing laboratory still implement project activities. Figure 2 illustrates the organizational chart of the BPS and shows the number of personnel in each of the particular units of BPSTC. The figure also illustrates the turnover of trained counterparts since the project ended. Based on this, it can be deduced that staff turnover has been significant. Four out of the 15 direct counterparts trained under the project have resigned and are now working/migrated overseas (Please refer to ANNEX 1).

In spite of the turnover, the BPS has been able to cope with the increasing workload brought about by the influx of electrical and electronic appliances to the Philippines from Taiwan, China and Korea. Measures have been taken to effect the transfer of knowledge between the original staff to new ones as mentioned previously. Moreover, the BPS receives favorable support from the DTI in terms of technical capability. Since the DTI Secretary did not subject the BPS to staff rationalization, the number of personnel working in the BPS Testing Center remains the same.

Given the present situation, the BPS Testing Center in Bicutan continues to be the main testing center wherein all appliances are submitted for quality assurance. This is also justified through the responses of the manufacturers in the survey. They show preference in availing testing services from the BPS giving it precedence over other testing centers.

Financial sustainability. The project has limited financial sustainability. Based on the Actual Budget and Income of the BPSTC (Please refer to ANNEX 5), there is a consistent deficit for the period 1994-2005. The budget includes personnel services, maintenance and operating expenses and capital/equipment outlay. Their income comes mainly from the testing fees, which are remitted to the National Treasury. However, a portion of this is allocated back to the center through the Office of the DTI Secretary. This internally generated amount keeps the BPS afloat in spite of the reenacted budget.

The situation is to be noted considering that there has been a huge difference between their allocated share from the income and the required budget. On the average, there is an annual deficit of PhP 6,613,000 in the budget of the BPSTC covering the period 1994-2005.

It has been grossly affected by the GOP's budget deficit. Although the GOP has agreed to provide the required budget for standardization and electrical and electronic appliances testing, DTI has been allotted a reenacted budget that is deficient by PhP30M since 1998. A budget cut of PhP2.3M was earmarked for the testing center. The remainder is insufficient to cover laboratory space rental at PhP1.2M and power/electricity at PhP2M. It should also be noted that the BPS does

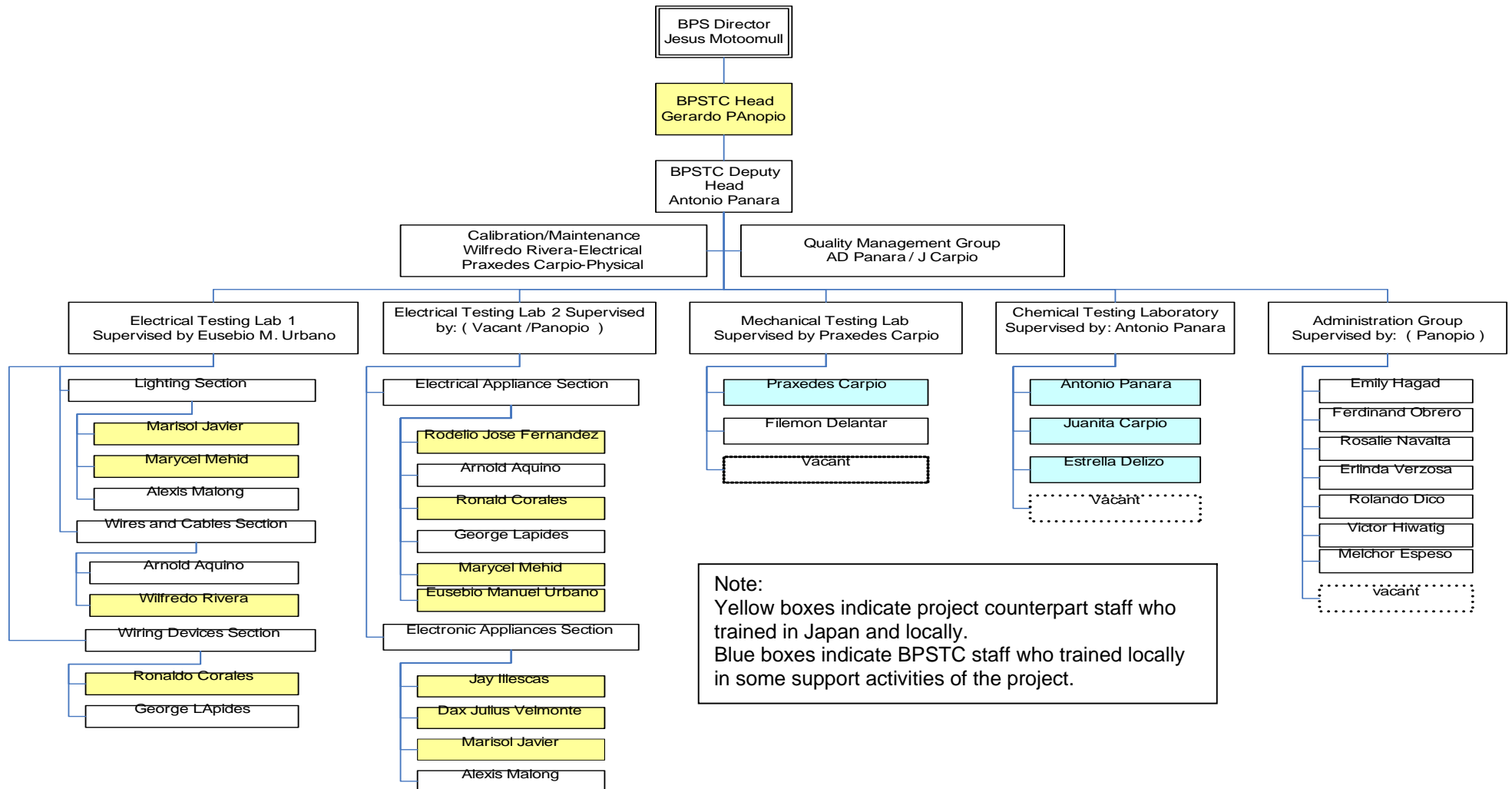
not have any other external sources of funding at present.

Sustainability of Project Effects. The following outputs are continuously being carried out by the BPS: testing of main electrical and electronic appliances implemented by counterpart personnel; and seminars and training courses related to electrical and electronic appliances testing implemented systematically.

However, the provision, installation, operation, and proper maintenance of machinery and equipment have been shelved due to unavailability of budget.

Although, technically and organizationally, the prospects for the sustainability of project effects are bright, such sustainability may be undermined by the financial situation. The direct counterparts are already feeling the pressure. In the survey, they noted that they are encountering obstacles in their work due to the tight budget. Majority of the C/Ps mentioned that more responsibilities on testing are given to them and that there are not enough personnel to perform the tasks. Others mentioned that they could not perform some testing due to lack of equipment and lack of funds from government.

Figure 2. BPSTC Organizational Chart



3.3. Analysis of Factors of Impact and Sustainability

Factors Promoting Impact. The timing of the Project and the enforcement of mandatory policies for testing of manufacturers' products by the BPS were auspicious. The PTTC was approved in 1999, one year before the dramatic rise of consumer goods from China, Taiwan and Korea brought about by trade agreements under the WTO. This included a significant influx of electronic and electrical products to the Philippines that are considered high risk but were below international safety standards such as hot water dispensers, hot water showers, toasters, microwave ovens and washing machines. This particular development influenced the gains during and after project termination. The PTTC enabled the Philippines to apply safety standards to these appliances to the benefit of the consumer.

Factors Promoting Sustainability. There were two factors promoting the sustainability of the Project. First, management initiatives proved to be a major factor in ensuring that the skills gained were shared to the rest of the organization. Perhaps management anticipated that the newly trained staff would now have knowledge and skills that would increase their marketability in the international manpower market. Thus, technology transfer within and beyond the agency was prioritized. This led to the widespread impact of the PTTC covering the private sector, the educational sector, and local governments. Secondly, the availability of testing equipment was able to compensate for the large number of appliances submitted by the clients.

Factors Hindering Impact and Sustainability. Downtrends in the country's economy have hindered impact and sustainability. The budget deficit of the GOP has prevented the appropriation of the required budget for the BPS. With minimal budget from the GOP, the BPS Testing Center could not maintain and expand the laboratory. They could not replace the already thinning ceiling of the laboratory, which prevents the adverse temperature from damaging the appliances. Also, they could not acquire bigger space and additional equipment, which would address the increasing volume of products to be tested.

The BPS charges fees for its testing services but these fees are remitted to the National treasury. As stated earlier, part of this remittance is allocated back to the Bureau through the Office of the Secretary. This is how the agency is able to sustain operations without external funding.

Likewise, the budget constraints led to the non-filling of vacated plantilla positions at BPS which could eventually affect the testing services of the organization since more appliances are submitted for testing, additional personnel are needed to perform the tasks. This lack of personnel is due to staff turnover and increased workloads and is observed both at the BPSTC and the manufacturers' levels. The direct and indirect counterparts, particularly the test engineers are offered better opportunities by the private sector. Furthermore, with added skills come added responsibilities. The situation has been exacerbated by additional workload from increased volumes and types of products for mandatory testing.

The above conditions were determined by the reenacted budget allotted to the DTI, which in turn, has been caused by the budget deficit, government priorities, and perhaps by the lack of advocacy.

These conditions contribute to the undermining of sustainability. Figure 3 provides a visual representation of the relationships between these issues and problems.

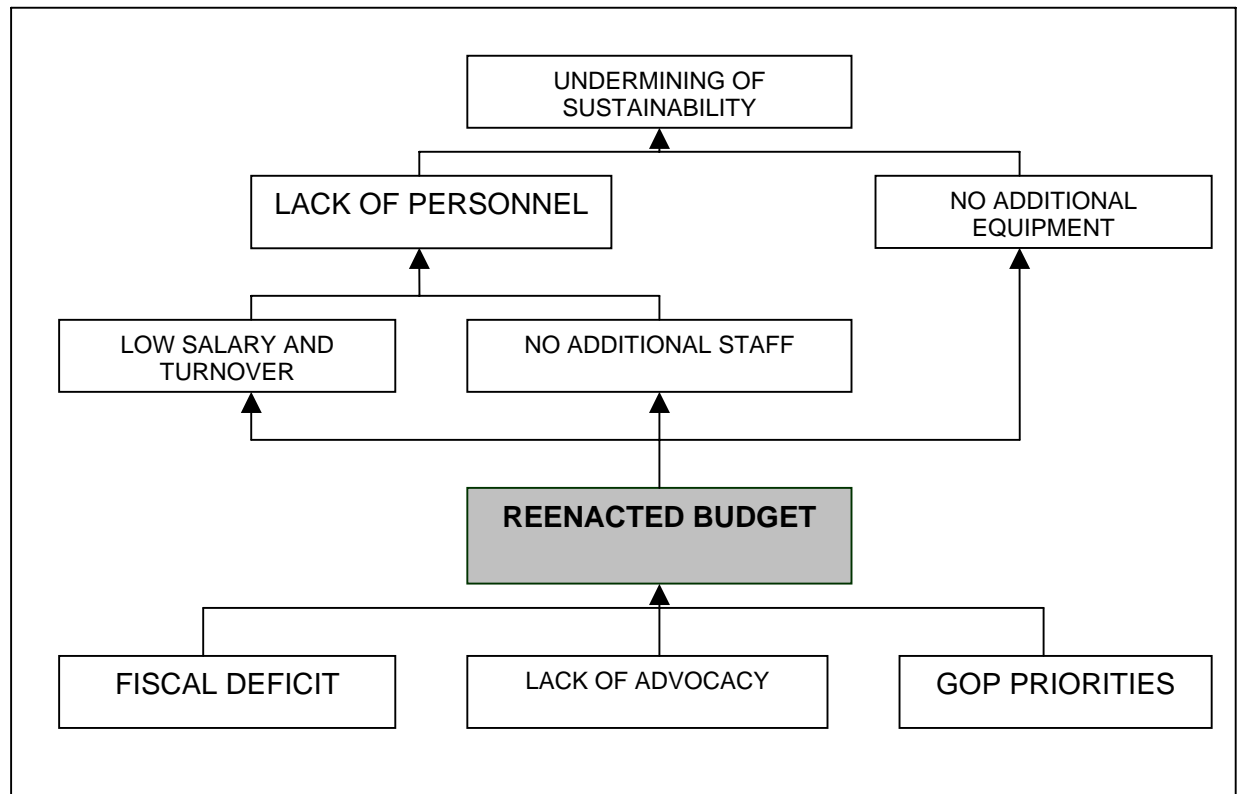


Figure 3. Sustainability Problem Tree

3.4. Conclusions

The study concludes that:

- a) The overall goal of improving the safety of electrical and electronic appliances in the Philippine market has been achieved. Employing the questions in the approved evaluation grid (Annex 5), the study found: increased in-country competencies for electrical and electronic testing to ensure safety; availability of equipment for electrical and electronic testing; the use of operations manuals in the testing industry; and compliance with international standards. Employing decreased failure rates as an indicator may be reconsidered for the improvement of the project design.
- b) The Project likewise resulted in five significant effects that were not anticipated at project completion:

- It has influenced the development of national policies on the responsibilities and liabilities of manufacturers and sellers of products for mandatory testing;
 - It has resulted in the development of national standards;
 - It has increased the capability of the DTI to develop standards;
 - It has increased the capability of the private sector for product testing; and
 - It has contributed to HRD, specifically technical vocational education and training.
- c) There was no direct negative impact brought about by the project.
- d) The Project was technically sustainable. The DTI-BPS management is capable of maintaining the benefits accrued as a result of achieving the purpose and overall goal because: the transfer of knowledge and skills between the trained counterparts and other staff has been prioritized by management; the knowledge and skills learned can be applied to a wide range of types and models of electrical and electronic appliances; the services provided by the BPS are more than acceptable to its clients; and the equipment is being maximally used.

The project is organizationally sustainable. The proactive response of the management to the situation has contributed to the organizational sustainability. As such, there has been no change in the organizational structure of the BPS.

The project's financial sustainability is limited. It has been grossly affected by the GOP's budget deficit. Based on the Actual Budget and Income of the BPSTC, there is a consistent deficit in their budget for the period 1994-2005. Likewise, there was a huge difference between the income and the required budget. Although, technically and organizationally, the prospects for the sustainability of project effects are bright, such sustainability may be undermined by the present financial situation.

4. RECOMMENDATIONS AND LESSONS LEARNED

4.1. Recommendations for the Implementing Agency

Until at present, the BPS is operating with a very limited budget that effectively prevented the hiring of necessary number of testing engineers and the repair or purchase of new testing equipment. This budget limitation has been hindering the continued production of positive effects the project had started. In view of this, it is recommended that BPS has to come up with a long-term sustainability plan (on electrical and electronics home appliances testing), through which operations and maintenance (O&M) budget requirements every year are clarified and alternatives for revenue utilization are identified. Such alternatives may include the adoption of a new law by Philippine Congress authorizing the BPS to use its generated revenues and deposit the same through a thrust account system instead of remitting such incomes to the Bureau of Treasury. After the formulation of a well-thought Sustainability Plan, BPS has to intensify its advocacy activities not only at the DTI level but also at the Philippine Congress as well to ensure the passage of such law that may secure financial independence of BPS in the future.

4.2. Recommendations for JICA

The Japan International Cooperation Agency should consider the lessons learned during planning and implementation of the project and apply them to future projects with the BPS to ensure success, impact generation, project sustainability. If still applicable, the lessons learned should also be applied to the on-going TCP Project with the BPS.

In the formulation of future projects, JICA should also consider conducting continuous training to equip participants with required knowledge and skills. JICA should also consider including representatives from manufacturers and DTI regional and provincial offices staff as training participants for the smooth flow of the testing procedures.

4.3. Lessons Learned

In project formulation process, it is important to establish baseline information of every project indicator being identified. In this project, base information about test failure rates and certified appliances had not been established before the project started.

Beneficiary-oriented indicators are important indicators at the Project Purpose and Overall Goal. For example, capability-enhancing indicators at the Project Purpose level for this project could have included the frequency and quality of developing standards by BPS counterparts including the quantity and quality of trainings extended by BPS counterpart staff to manufacturers, private testing centers and DTI staff in the Regions. At the Overall Goal level, this project could have included the level of satisfaction of consumers on tested and certified appliances.

ANNEXES

ANNEX 1

SUMMARY OF RESULTS OF THE SURVEY

Survey of Project Counterparts

Fifteen product test personnel were trained in Japan. These personnel are also referred to by the Project as the direct counterparts (C/Ps). According to management, four of the 15 direct C/Ps resigned due to higher salary offers abroad. On the other hand, two indirect C/Ps transferred to the certification group of BPSTC. Table 1 shows the status of the DTI BPS direct C/Ps.

Table 1. Status of DTI BPS Direct Counterparts (C/Ps)

	Freq.	Percent	Remarks
Still with BPS	11	73.33	2 were transferred to certification group of BPS.
Resigned	4	26.67	3 migrated to Dubai and 1 migrated to Canada
Total	15	100.00	

Source: DTI BPS

A two-page self-administered questionnaire was distributed to the 11 direct counterparts (C/Ps) who were based at the BPS Testing Center in Bicutan. Seven out of the 11 questionnaires were returned. Majority (5 out of 7) of the respondents were male and married. Most of them were in their early thirties.

Profile. All the C/Ps were trained in Japan and all were able to use the testing skills they have acquired. Likewise, the C/Ps had drastic changes in their workload. They were given additional assignments dealing with different products for testing. Table 2 shows the profile of the counterparts.

Table 2. Profile of Direct C/Ps still working at BPSTC

No.	Position	Age	Sex	Civil Status	Years in Work	Trained in Japan?	Able to use skills acquired in the JICA training?	Changes in Responsibilities?
1	Trade & Development Specialist	30	M	Single	8	Yes	Yes	Yes
2	Senior Trade & Development Specialist	46	M	Married	10	Yes	Yes	Yes
3	Trade & Development Specialist	30	M	Married	7+	Yes	Yes	Yes
4	Trade & Development Specialist	31	M	Married	7	Yes	Yes	Yes
5	Trade & Development Specialist	35	M	Married	7	Yes	Yes	Yes
6	Trade & Development Specialist	32	F	Single	7	Yes	Yes	Yes
7	Trade & Development Specialist	29	F	Single	7	Yes	Yes	Yes

Further Training. When asked whether they received further training after the JICA project, five had training while two had none. The training courses attended by the counterparts were on safety testing in Korea, product certification scheme (sponsored by JICA), Standardization Scheme in Japan, CMC testing, and electrical and electronic components testing. For those who did not receive any training after the JICA project, they relied on their colleagues' or peers' reviews and other local training program to improve their skills.

Table 3. Distribution of counterparts who received further training after 2002

	Freq.	Remarks (trainings attended)
Yes	5	Safety testing in Korea, product certification scheme (sponsored by JICA), Standardization Scheme in Japan, and EMC testing, electrical and electronic components testing
No	2	Colleagues' or peers' reviews and other local training
No answer	0	
Total	7	

Additional Staff Hired. With regard to staff turnover, five C/Ps said there were additional recruitments in their office after the JICA training. When asked how many, some answered three while some said five personnel were hired.

Perceived Positive and Negative Effects. The main positive effect of the JICA project as perceived by most (6 out of 7) of the counterparts was the increase in the competencies of staff in terms of technical knowledge, higher level of technical capability, and more competitive engineers. Two of the counterparts viewed that the project resulted to competitive/high quality of products as well as awareness of people to international standards and increase income for BPSTC. The rest of the counterparts volunteered the following positive effects: testing facilities improved; gained friendship; provision of equipment; conduct of training; increased coverage of regulated products; increased awareness of the public/ manufacturers about product safety; and increased testing capability.

On the other hand, the main negative effect of the JICA project as perceived by most of the counterparts was lesser staff or staff are pirated by other organizations. In addition, two C/Ps argued that there was a delay in the testing procedures due to increase in products to be tested and lack of manpower. However, another two C/Ps found no negative effects in the project. The rest of the counterparts gave the following negative effects: less output; increase of products to test with limited resources; cannot use income for maintaining facilities; no more space to expand; no support from Philippine Government; and too dependent on sponsor organization i.e. on enhancement of equipment, facilities, and/or personnel.

When asked whether BPSTC could keep up with the technology changes, six of the respondents said yes while the other one had no answer. Two of the C/Ps gave the following reasons: test engineers are receptive to change and learn more through training. The others who said yes provided that: needed funds are available; there is management commitment; a critical mass to do self-learning of testing techniques is created; most equipment are new and top of the line models; and there is continuous operation.

Table 4. Gains/Positive Effect(s) of the JICA Project as Perceived by the Counterparts

Gains	Freq.
Technical knowledge increased	3
Testing facilities improved	1
Friendship	1
Equipment	1
Training	1
Higher level of technical capability of staff	2
Increased coverage of regulated products	1
Increased income for BPSTC	2
Increased awareness of people/manufacturers about product safety	1
Competitive/high quality products	2
Competitive engineers	1
Awareness of international standards/additional knowledge on international standards	2
Increase testing capability	1

Table 5. Losses/Negative Effect(s) of the JICA Project as Perceived by the Counterparts

Losses	Freq.
None	2
Delay in testing	2
Less output	1
Less staff	1
Some staff have been pirated by foreign organizations	2
Increase of products to test with limited resources	1
Cannot use income for maintaining facilities	1
No more space to expand	1
No support from Philippine Government	1
Too dependent on sponsor organization i.e. on enhancement of equipment, facilities, and/or personnel	1

Obstacles. All of the counterparts noted that they encountered some obstacles in their work. Majority (4 out of 7) of the C/Ps mentioned that more responsibilities on testing were given to them while three believed that there were not enough personnel to do testing. On the other hand, the rest gave the following obstacles: cannot perform some testing due to lack of equipment; not enough benefits; lack of fund support from government; low salary for engineers; and too much paperwork.

Table 6. Counterpart's Obstacles in Work

	Freq.
Cannot perform some testing due to lack of equipment	1
More responsibilities/more load on testing work	4
Not enough personnel to do testing	3
Not enough benefits	1
Lack of fund support from government	1
Low salary for engineers	1
Too much paperwork	1

Survey of DTI BPS Clients/Manufacturers/Distributors

A list of clients/manufacturers was provided by BPS. There were 66 companies in the list but only 44 were identified as respondents for the study. Out of these 44, 32 did not return the questionnaire due to the following reasons: 1) contact person was no longer connected and has no replacement or did not leave duly filled-in questionnaire; 2) contact person is unavailable or on trip during the study period; 3) no answer at the office or auto fax only; 4) phone is no longer in service; 5) not interested to participate; and 6) office is no longer operational. Thus, a total of 12 questionnaires were returned.

Profile. Majority of the respondents are either in their 30s or 40s. Nine out of 12 of the respondents are male and majority (10) of the respondents are married.

Table 7. Profile of clients/manufacturers

Resp.	Position	Age	Sex	CS*	Company
1	Product Development Engineer	25	M	S	CYA Industries, Inc.
2	Legal Counsel	42	M	M	Pilipinas Makro, Inc
3	R&D Supervisor	30	M	M	Collins International Trading Corporation
4	Did not indicate	47	M	M	Camville Manufacturing Corporation
5	Import Officer	46	M	M	Hoa Industrial Hardware Co.
6	AVD-Operation	30+	F	S	Konka Three Dragon Electronics Philippines
7	QA-Head	33	M	M	Asahi Elect. Mnf. Corp.
8	Technical Regulations Specialist	35	F	M	Panasonic Manufacturing Phils. Corp.
9	Manager	47	M	M	Continental Sales Inc.
10	Management Representative	34	M	M	Omni Logistics Corp. (TCL TV)
11	Quality Assurance Manager	45	M	M	Union Home Appliances, Inc.
12	Supply Planner	46	F	M	Philips

* civil status: s-single and m-married

Training Availed by Manufacturers. Normally, the manufacturers request or avail training on product testing from BPS. The training usually takes place every six months. The last training offered by the project was in 2005 on standards and certification.

Results showed, only half of the respondents availed of training from BPS while the other half have not because they were either new to the company or their offices do not avail of such services from BPS (Table 8).

Table 8. Manufacturers' availment of training

	Freq.
Yes	6
No	6
No answer	0
Total	12

Products Testing. When asked whether their products underwent testing, nine of the respondents said that they did while two did not since products need not require any testing (Table 9). Likewise, all respondents have regularly availed of product testing services from BPS. In fact, majority (10 out of 12) of them had their products tested in 2005.

Table 9. Respondents' responses on product testing

	Freq.
Yes	9
No	3
No answer	0
Total	12

In terms of testing procedure, seven of the manufacturers had problems with BPSTC while five had none. The reasons or the problems encountered are the following: long queue of sample testing and the delay in the return or feedback of test results (around 2-3 months). Table 10 shows the responses of the manufacturers.

Table 10. Manufacturers' responses on whether there were problems encountered with BPSTC

	Freq.	Remarks
Yes	7	BPSTC needs additional manpower
No	5	BPSTC needs additional manpower; more testing centers and additional testing facilities
No answer	0	
Total	12	

When asked about the testing procedures of BPSTC, four of the respondents rated it as 2 or very good while another four rated it as 3 or good. On the other hand, two of the respondents gave BPSTC a rate of 4 or fair. Although one of the respondent gave BPSTC a high rating of 1 (excellent), another respondent gave it a failing rank because of the long feedback regarding their products (Table 11).

Table 11. Manufacturers' ratings of the testing of BPSTC

Ratings	Freq.
1	1
2	4
3	4
4	2
5	1
Total	12

Certified and Tested Products. Ten of the respondents experienced an increase in their certified products while two did not (Table 12).

Table 12. Manufacturers' responses on status of certified products

	Freq.
Yes	10
No	2
No answer	0
Total	12

Notably, half of the respondents had a decrease in the failure rate of their products during testing; five had none while one respondent gave no answer (Table 13).

Table 13. Respondents' responses on the status of failure rate of products tested at BPSTC

	Freq.
Yes	6
No	5
No answer	1
Total	12

International Standards. Eleven of the respondents were aware of the international standards (Table 14).

Table 14. Manufacturers' responses on awareness on any international standards

	Freq.
Yes	11
No	1
No answer	0
Total	12

When asked whether BPS comply with international standards, two of the respondents said no (Table 15).

Table 15. Manufacturers' responses on BPSTC's compliance with any International standards

	Freq.
Yes	10
No	2
No answer	0
Total	12

ANNEX 2

SUMMARY OF RESULTS OF FOCUS GROUP DISCUSSION AND KEY INFORMANT INTERVIEWS

A Focus Group Discussion (FGD) was held on 23 November 2005 at the Department of Trade and Industry (DTI) office in Makati City. This was participated in by the management of the Bureau of Product Standards (BPS), namely: Engr. Jesus Motoomull, Bureau Director; Engr. Jerry Maglalang, Senior Product Manager; and Engr. Gerardo Panopio, Chief of the BPS Testing Center.

A series of interviews was also done with the following key informants: Ms. Marilou Juliet Evangelista, Senior Trade and Industry Development Specialist of the DTI-Cavite Provincial Office; Mr. Noli Manalo, Quality Management System and Product Assessor of the DTI Region IV-A office; Engr. Gerardo Panopio, Chief of the BPS Testing Center; and Mr. Peter Wong, Quality Control Supervisor of Camville Manufacturing Corporation.

The study showed that there were 15 counterparts (C/Ps) under the JICA project (1999-2002) who were trained in Japan. Some of the C/Ps had left BPSTC but management had replaced them with newly trained staff. The most common reason for leaving BPSTC was higher salary offers from other companies based abroad.

With the knowledge gained from the training, C/Ps (also known as test engineers) are now members of the 69 technical committees that determine product standards. These 69 technical committees are composed of representatives from stakeholders including manufacturers, importers, consumer groups, and test engineers.

The training sponsored by JICA has benefited not only the C/Ps but also the manufacturers, DTI provincial office personnel and DTI regional office personnel. After attending the training, one interviewee, a test engineer from a manufacturing firm, realized the importance of product testing and was able to apply the knowledge and skills acquired in the in-plant testing in their company. Since they were able to do their own testing prior to auditing conducted by DTI personnel, the failure rate of their products has gone down from 30 percent to 10-20 percent.

Product Assessor Manalo, on the other hand, was able to gain more confidence to face the manufacturers during in-plant auditing. According to him, the hands-on training was a big help since the requirements of product testing standards are too technical. Ms. Evangelista realized an equally important outcome. She was able to acquire deeper understanding of the testing procedures when she participated in the JICA training. During auditing, it was easier for her to decide whether the testing procedure done by manufacturers is acceptable or not.

As the DTI BPS Management Personnel, manufacturers representative, DTI Regional and Provincial office representatives agreed on the importance of the training, all of them are also one in saying that more training are needed because standards change over time. As well, DTI provincial office personnel believed learning from the JICA training couldn't be echoed completely to other staff. The

DTI regional office personnel however, mentioned that they should get more training because they are the “front-liners” who deal directly with the manufacturers.

According to the DTI management, there is immense improvement in the services of BPSTC after the Project. In a separate interview, a manufacturer attested that he had observed improvement in the services of BPSTC.

Since the DTI regional and provincial office personnel observed delays in the release of testing results at BPSTC, they both agreed that it would be a great help if a testing center/laboratory is set up at the regional level to hasten product testing.

The DTI management has enumerated some unintended impacts of the project. According to them, DTI is now in the process of consumer advocacy for the importance of the ICC/PS marks or accreditation. They are currently airing a weekly radio program at DZMM about product testing and safety. On the manufacturer’s side, they believed that consumers buy their products because their products have Philippine Standards (PS) marks. Even if product testing costs much, it was proven beneficial because fewer products are returned by consumers.

The DTI management also mentioned their present problems. Due to the small budget provided by the GOP and other austerity measures, DTI cannot acquire equipment and hire additional personnel. According to Mr. Panopio, without these additional equipment and personnel, it would be very difficult to sustain the growth of testing activities. The Project’s operations have been institutionalized, hence, the continuation of project activities are somehow observed and further nurtured by BPS. Since they cannot rely on the GOP to provide more funds, DTI encourages the private sector to invest on laboratories. More so, management was aware that BPS required more resources to cope with the increasing testing demand.

Mr. Panopio emphasized that JICA continues to be the biggest source of foreign assistance to BPS in the implementation of its mandate of assisting the Philippine electronic appliance industry and to ensure consumer protection. As such, BPS continues to perform its role of preserving and sustaining these joint activities with JICA as a gesture of appreciation to the Japanese government and its people. They hope that after a few more years, the activities initiated by the Project will create further positive impact to the local industries and consumers, in addition to what it has already done during the project period up to the present. They also hope that JICA will continue to support them in their endeavors.

ANNEX 3

STATUS OF EQUIPMENT AND FACILITIES PROVIDED TO BPS

Property Name	Model No.	Qty.	Condition of Equipment		Frequency of use		
			Functional	Not Functional	Regularly	Occasionally	Rarely
Oscilloscope	DL1540	1	1		1		
Digital Power Meter	253630	2	2		2		
Temperature Recorder	DR-231-00-31-1D	5	5		5		
Leakage Current Meter	229-2	1	1		1		
Test Chamber, Walk-in Type	EBL-4H4G4A-38	1	1		1		
Isolating Transformer	SYT-300-60	1	1		1		
Flexing Test Apparatus	39.24	1	1		1		
Torque Tester	37.13	1	1		1		
Push Pull Scale	PS-5N	1	1		1		
Test Nail	P10.41	1	1		1		
Ammeter	2052	1	1		1		
Ammeter	2052	1	1		1		
Volt-Ammeter	2014	1	1		1		
Test Probe	P10.03	1	1		1		
Spray Nozzle	P05.24	1	1		1		
Digital MultiMate	7531-01	5	5		5		
Thermo hygrograph	ST-100V	3	3		3		
Long Test Pin	P10.02	1	1		1		
Hot Water Equipment	200L	1	1		1		
Tachometer	3404	1	1		1		
Apparatus for Water Evaporation		1	1		1		
Splash Test Apparatus	P07	1	1		1		
Variable Transformer	Ss-300-50	18	18		18		
Multifunction Calibrator	9100	1	1		1		
Computer System	Brio	3	2	1	2		
Motor Vehicle	Power Eagle II	1	1		1		
Water Pressure Apparatus	T-50K-P	1	1		1		
Printer, Inkjet	BJC-4550	1	1		1		
LCD Projector	LC-XNB1	1	1		1		
Visual Presenter System	V-5100	1	1		1		
Notebook Computer	Satellite 2060C	1		1	Not functional		
Hard Carrying Case	none	1	1		1		
Photocopier System	Document Center	1	1		1		
Accessories for Wavetek 9100 Calibrator		1	1		1		
Fourier Transform Infrared Spectrophotometer	FTIR-8300PC	1		1	Not functional		
Spectrum Library for Polymers	4107-W-2250	1		1	Not functional		
AC Voltage/Current Standard	255801-7/D	1	1		1		

Property Name	Model No.	Qty.	Condition of Equipment		Frequency of use		
			Functional	Not Functional	Regularly	Occasionally	Rarely
Current Shunt	2215-09	2	2		2		
Slide Resistor	2791-12	7	7		7		
Portable DC Ammeter	2011-37	6	6		6		
Small Test Finger	P-10.90	1	1		1		
Spring Balance		2	2		2		
Test Hook	P10.40	1	1		1		
Test Chain	P10.13	1	1		1		
Test Probe	P10.16	2	2		2		
Leakage Current Tester	3155-01	1	1		1		
Spark Generator	BD-10AS	1	1		1		
Resistor	20,30,300, 500, 750 Watts	16	16		16		
Test Plug for Antenna	165-12.5	1	1		1		
Steel Ball for Impact Test	TB-550	1	1		1		
Low Resistance Meter	3540	1	1		1		
Audio Generator	LAG-120B	2	2		2		
Audio transmitter	WM-1100	1	1			1	
Audio Receiver	WT-1101- 11C13	40	40			40	
Battery Charger	BC-1100- 12	1	1			1	
Vibration Test Machine	CV-600- 070	1	1		1		
Cable Flexing Test Apparatus	F43.01	1	1		1		
AC Power Supply System	4400	2	2		2		
Microwave Survey Meter	HI-1501	1	1		1		
Dielectric Strength Tester	TOS 5101	1	1		1		
Hardness Tester	GSD 720	1	1		1		
High Power Decade Resistance Substitute	HPRS-F-6- 0.01	1	1		1		
Scratch Test Apparatus	ST-001	1	1		1		
Winding Test Apparatus, Twist Method	D17.11	1	1				1
Winding Test Apparatus, Cylinder Type	D17.26	1	1				1
Dielectric Strength Test Jig	ZTTS- 100GF	1	1		1		
DC Power Supply	PS60-36	1	1		1		
X-Ray Measuring Apparatus	440RF/D	1	1		1		
Surge Test Apparatus	TS-EC0028	1	1		1		
Color Pattern Generator	CG-931	1	1		1		
High Voltage Probe	HV-P60	1	1		1		
Oscilloscope	CS4125	1	1		1		
Color Pattern Generator	CG-932	1	1		1		
Pink Noise Generator	WG- 722+3624	1	1		1		
Digital Multitester		1	1		1		
Static Voltage Meter		1	1		1		
Computer System		1		1	Not functional		

Property Name	Model No.	Qty.	Condition of Equipment		Frequency of use		
			Functional	Not Functional	Regularly	Occasionally	Rarely
Transducer		1	1		1		
Low Resistance Meter		1	1		1		
Programmable Logic Controller		2	2		2		
Dry Block Calibrator		1	1		1		
Thermal Recorder		3	3		3		
Portable Recorder		1	1		1		
Digital Power Meter		1	1		1		
Desoldering Station		2	2		2		
Rework Station		2	2		2		
RF Power Meter		1	1		1		
Power Sensor		2	2		2		
Multimeter, Digital		4	4		4		
Hot Line Resistance Meter		1	1		1		
Thermocouple	T35-SK-1-B-0.5-U	1	1		1		
Linear Variable Differential Transducer	D22-2.5H	1	1		1		
Glow Wire	HAT-214-Y1H	1	1		1		
Thermocouple		1	1		1		
TOTAL		203	198	5	155	42	2

ANNEX 4
Project Design Matrix for Evaluation

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
<p>Overall Goal</p> <p>The safety of the electrical and electronic appliances in the market of the Republic of the Philippines is improved.</p>	<p>Decrease in failure rate of items tested</p> <p>Increase of certified electrical and electronic appliances in the market.</p>	<p>Testing record</p> <p>Survey of Increase of certified electrical and electronic appliances in the market.</p>	<p>Political and economic situation of the Philippines will continue to be stable.</p> <p>Current policies with emphasis on establishing overall electric sector and ensuring safety will continue to be stable.</p> <p>Consciousness of nationals related to safety of electrical and electronic appliances will be enhanced.</p>
<p>Project Purpose</p> <p>BPS is able to provide appropriate technical service in the field of electrical and electronic appliances testing</p>	<p>Increase in items which can be tested</p> <p>Increase in the number of tests</p> <p>Reduction in processing time from the receipt of samples to the release of testing reports</p>	<p>Testing record, testing report and other related report</p>	<p>Manufacturing technology of private electrical and electronics companies will be improved.</p> <p>Manufacturing facilities of private companies will be properly improved and renovated.</p> <p>Support and cooperation of domestic industries will be secured.</p>
<p>Outputs</p> <p>Project operation unit will be enhanced.</p> <p>The machinery and equipment related to electrical and electronic appliances testing will be provided, installed, operated and maintained properly.</p> <p>Testing of main electrical and electronic appliances will be implemented by counterpart personnel (hereinafter referred to as "C/P").</p> <p>Seminars and training courses related to electrical and electronic appliances testing will be implemented systematically.</p>	<p>Personnel number, budget, control ability of management staff</p> <p>Contents and number of equipment introduced</p> <p>Number and contents of manuals developed</p> <p>Route to get spare parts and situation to secure spare parts</p> <p>Number of items to be able to be tested</p> <p>Operation ratios of the equipment</p> <p>Manuals, textbooks and training materials developed</p> <p>Number of textbooks and teaching materials prepared</p> <p>Number of seminars and training courses implemented in and outside the Project site</p>	<p>Organizational chart, Administration record, Personnel record</p> <p>Property record, operation & maintenance record</p> <p>List of manuals & hard copies</p> <p>Spare parts list, supplies list</p> <p>BPS record</p> <p>List of manuals, textbooks and training materials</p> <p>BPS record</p> <p>BPS record and evaluation/interview of participants</p>	<p>Standards related to electrical and electronic appliances testing will be improved.</p>

Activities	Inputs		a C/P will remain at BPSTC. b The Project site will be available in the long term
	The Philippine side	The Japanese side	
<p>0-1 Allocate the necessary personnel. 0-2 Formulate plans of activities. 0-3 Make the budget plan and execute properly.</p> <p>1-1 Make facility refurbishment plan and implement as planned. 1-2 Identify specifications of equipment. 1-3 Implement tenders and select traders. 1-4 Install and adjust equipment. 1-5 Operate and maintain facility and equipment.</p> <p>2-1 Evaluate technical capability of the C/P. 2-2 Make Technical Cooperation Program 2-3 Implement technology transfer to the C/P. 2-4 Evaluate result of implementation of technology transfer to the C/P.</p> <p>3-1 Review present seminar and training courses. 3-2 Prepare the Implementation plan of seminars and training courses in line with the needs related to electrical and electronic appliances testing in the Republic of the Philippines. 3-3 Prepare textbooks and teaching materials for seminars and training courses. 3-4 Implement seminars and training courses. 3-5 Evaluate seminars and training courses.</p>	<p>Provision of Building and Facilities</p> <p>Allocation of C/P and Administrative personnel Administrative C/P Technical C/P Administrative Staff a Sample Administrator b Test Report Clerk c Test Fee Collector d Driver</p> <p>Provision of Machinery & Equipment and their Maintenance</p> <p>Local Cost Necessary budget for the implementation of the Project</p>	<p>Dispatch of Japanese Experts Long-term Experts a Chief Advisor b Coordinator c Electrical and Electronic Appliances Testing Short-term Experts Appropriate number of short-term experts will be dispatched as necessity arises.</p> <p>Philippines C/P Training in Japan A certain number (0-3persons) of the C/P yearly</p> <p>Provisions of Machinery & Equipment</p> <p>4 Supporting Local Cost</p>	<p>(Preconditions) a Utilities of the Project site will be provided stably.</p>

**ANNEX 5.
Evaluation Grid**

Criteria	Evaluation Questions		Achievement Criteria/Measures	Data Needed	Data Sources	Data Collection Methods
	Main Questions	Sub-questions				
IMPACT	1. Is the Overall Goal of “improving the safety of electrical and electronics appliances in the Philippine market” being achieved?	1. Are DTI-BPS trained staff sufficient for electrical or electronic appliances testing? 2. Is the DTI-BPS sufficiently equipped for electrical and electronic appliances testing? 3. Are operations manualized? Does DTI-BPS comply with international standards?	Describe results of FGD, KII and survey	<ul style="list-style-type: none"> - Current staff complement - Current equipment and facilities complement - Operations Manual 	DTI-BPS Management Personnel DTI Regional/Provincial Office Personnel DTI-BPS C/Ps DTI-BPS Clients/Manufacturers	Secondary data Sub-questions 1 & 2: DTI-BPS Management Personnel – FGD DTI Regional/Provincial Office Personnel – KII Sub-question 3: DTI-BPS C/Ps - survey Sub-questions 1, 2 & 3: DTI-BPS Clients/Manufacturers –Survey/ KII
	2. To what extent has the Project contributed to the achievement of the Overall Goal? Are there external factors that influenced the achievement of the Overall Goal	1. Has there been an increase in the number of certified electrical and electronic products in the Philippine market? 2. Has there been a decrease in the failure rate of the appliances tested? 3. Are there any changes in the government policy that affect the project’s goals? 4. How did national economic trends affect the Project 5. What events or developments influenced Project gains after termination	Conduct annual trend analysis of certified products Describe results of FGD, KII and survey	<ul style="list-style-type: none"> - Total number of certified electrical & electronic products per year - Annual failure rates per year since 1999 - Government policy - National economic indicators per year since 1999 	DTI- BPS Management Personnel DTI Regional/Provincial Office Personnel DTI-BPS Clients/Manufacturers	Secondary data Sub-questions 1, 2, 3, 4 & 5: DTI-BPS Management Personnel - FGD Sub-questions 1, 2 & 3: DTI Regional/Provincial Office Personnel – KII Sub-questions 1 & 2: DTI-BPS Clients/Manufacturers – Survey/ KII
	3. Are there other impacts (positive, negative or unintended) that can be attributed to the Project?	1. How much of the functions of the DTI-BPS improved? 1. What are the gains or positive effects and losses or negative effects of the Project?	Describe results of FGD, KII and survey	<ul style="list-style-type: none"> - Level of satisfaction of agencies concerned 	DTI-BPS Management Personnel DTI Regional/Provincial Office Personnel DTI-BPS C/Ps	Sub-questions 1 & 2: DTI-BPS Management Personnel – FGD DTI-BPS Regional/Provincial Office Personnel - KII Sub-question 2: DTI-BPS C/Ps – Survey

ANNEX 6
Actual Budget and Income of BPSTC from 1994-2005

(Unit: in Thousand Pesos)

Budget	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
PERSONNEL SERVICES	617	1,730	1,730	1,815	2,319	2,319	2,319	2,319	2,319	2,319	2,319	2,319
MAINTENANCE AND OPERATING EXPENSES	2,856	5,642	5,642	7,967	7,030	7,733	8,506	6,817	9,856	10,963	11,963	12,322
CAPITAL/EQUIPMENT OUTLAY	1,386			4,093	21,450	0	0	0	0	0	0	0
BPSTC TOTAL	4,859	7,372	7,372	13,875	30,799	10,052	10,825	9,136	12,175	13,282	14,282	14,641
TOTAL												
2. Income (as of July 2001)	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Testing Fee	839	1,020	2,048	2,360	3,567	4,756	6,264	4,729	6,570	7,358	9,122	11,400
TOTAL DEFICIT	-4,020	-6,352	-5,324	-11,515	-27,232	-5,296	-4,561	-4,407	-3,286	-3,605	-2,841	-922

NOTE: Deficit could have been higher if all required expenses are funded. The BPS Head Office strictly controls BPSTC expenses. Necessary expenses for equipment maintenance and calibration are sometimes not funded to give way to other BPS expense priorities. Request to DBM for the retention of 25% revenues was not acted upon by DBM. Every year this was requested in order to supplement the GAA Allotted budget for BPS.

SOURCE: BPSTC Records

ANNEX 7
List of Trainings Conducted by BPS

Training Course Title	Date	Companies attending the training	Name of Trainee
Training Course on Heating Appliance Testing	November 0 2000	Asahi Electrical Manufacturig Corp.	James Mallen
		Focus Global Incorporated	Anotnio Tolentino
		Nova Commodities	Jonathan Yu
		Nova Commodities	Ramil Barcellano
		Union Industries Inc.	Fernando Vargas
		Vigor Manufacturing Corporation	Meliton Tiopes
Training Course on Heating Appliance Testing	17-19 January 2001	Vigor Manufacturing Corporation	Janie Ferl Calapit
		Marusi	Lerdo Famular
			Dennis Reyes
		Mitsukoshi Industries Corp. Philippines	Renie Loteria Jr.
			Fernando Mampo
		Durastar	Israel Mercado
		Silverforge Manufacturing Corporation	Edwin Rectra
		Kinsonic Philippines, Inc.	Arnold Tomas
			Edwin Bernaldez
Training Course on Electric Fan Safety Testing	9-10 May 2001	Asahi Electrical Manufacturig Corp.	James Mallen
		Asahi Electrical Manufacturig Corp.	Nicolas Gaveria
		Camel Appliance Corporation	Espiritu Ymasa
		Camel Appliance Corporation	Randy fernandez
		Camville Manufaturing Corp.	Peter Wong
		Chin Yi Export Import Co.	Ricardo Reyes
		Durastar Corp.	Jim Maceda
		Hanabishi Philippines	Henry Bongot
		JMS-Marusi Philippines Corp.	Cuariano Maceda
		JMS-Marusi Philippines Corp.	Dennis Reyes
		Matsushita Electric Philippines Corp.	Homer Manalaotao
		Matsushita Electric Philippines Corp.	Myra Cuenco
		Matsushita Electric Philippines Corp.	Reuel Aqui
		Mitsuboshi Appliance Corporation	Renie Amata
		Mitsukoshi Industries Corp. Philippines	Reny Loteria Jr.
		Mitsukoshi Industries Corp. Philippines	Rommel Delgado
		Nova Commodities	Jonathan Yu
		Nova Commodities	Ramil Barcellano
		Silverforge Manufacturing Corporation	David Chan
		Silverforge Manufacturing Corporation	Edwin Rectra
		Singer Philippines	Alain Marfil
		Singer Philippines	Danilo Retiro
		Standard Electric Manufacturing Corp.	Rolando Nepumuceno
			Alfonso Fernando
			Danilo Vargas
			Janie Ferl Calapit

Training Course Title	Date	Companies attending the training	Name of Trainee
Training Course on Refrigerator Safety Testing	26 and 28 June 2002	Asian Durables	Alvan Garcia
		Electrolux Philippines	Dante Sioson
		Excellence Appliances Tech. Inc.	Wesly Amora
		LG Collins	Norman Anday
			Hubert Mendez
		Sanyo Philippines	Marlon BaloBalo
Training Course on Refrigerator Safety Testing	01-02 July 2002	Concepcion Industries	Raymond Khan
		Continental Sales	Librado Dimaliat
		Matsushita Electric Philippines Corp.	Reuel Aqui
			Ghenal Rivera
		Concepcion Industries	Raymond Khan
		Continental Sales	Librado Dimaliat
		Matsushita Electric Philippines Corp.	Reuel Aqui
			Ghenal Rivera
		Sharp Philippines	Rommel Arbulante
		Unimagna Philippines	Nomerto Pacquil
	Unisphere Holdings Corp.	Marshall Lim	
	Union Industries Inc.	Danilo Vargas	
Training on Heating Appliances		3D Industries Inc.	Jaime Aparte
			Gershon Buban
			Ildy Galo
			Necitas Manila

PHOTO-DOCUMENTATION

of

The Project on Electrical and Electronics Appliances Testing in the Republic of the Philippines

January 2006

Alexander G. Flor, Ph.D.
Consultant

**shinfield consultancy
philippines inc.**







Equipment they use for in-house product testing



Closer view of the equipment used for testing electric fans



Manuals developed for and under the JICA project.



Closer look: DTI BPS Manuals



Equipment: 3-in-1
Photocopier/scanner
Status: Functional
Location: BPSTC office



Equipment in one of their mechanical test rooms



Other functional equipment located at the mechanical test room of BPSTC





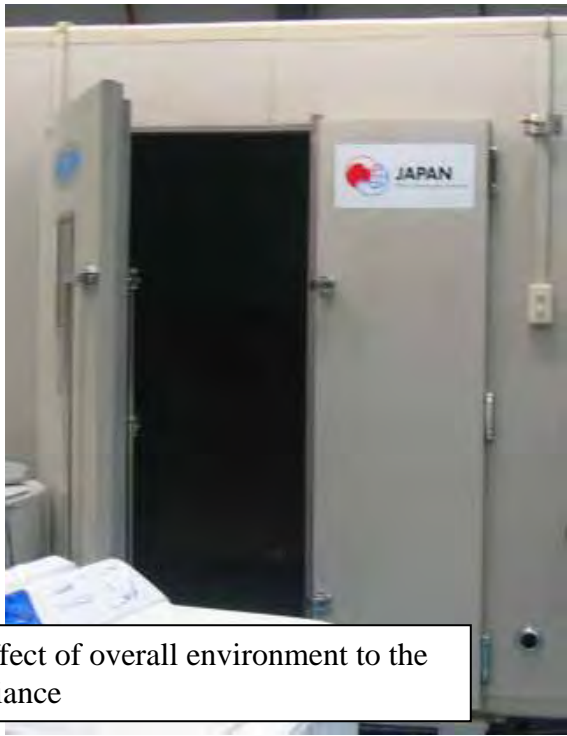
Area outside the BPS laboratory wherein some of the submitted products for testing are kept.



Some of the products submitted for testing.



Vibration machine used for checking big appliances (e.g. washing machine) under great pressure. The purpose of this test is to check the capacity of appliance to withstand distant travels during delivery.

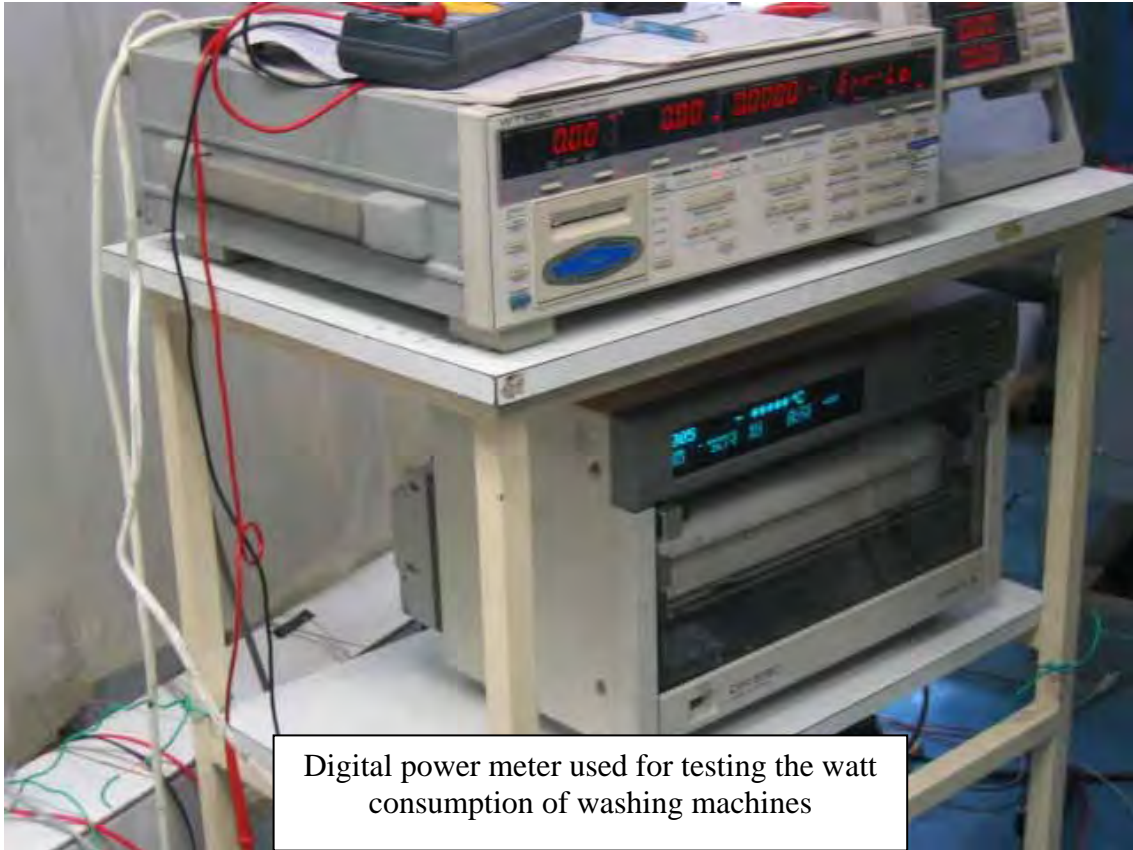


Equipment used for testing the effect of overall environment to the appliance



Volt slider used for current/power regulating of washing machine





Digital power meter used for testing the watt consumption of washing machines

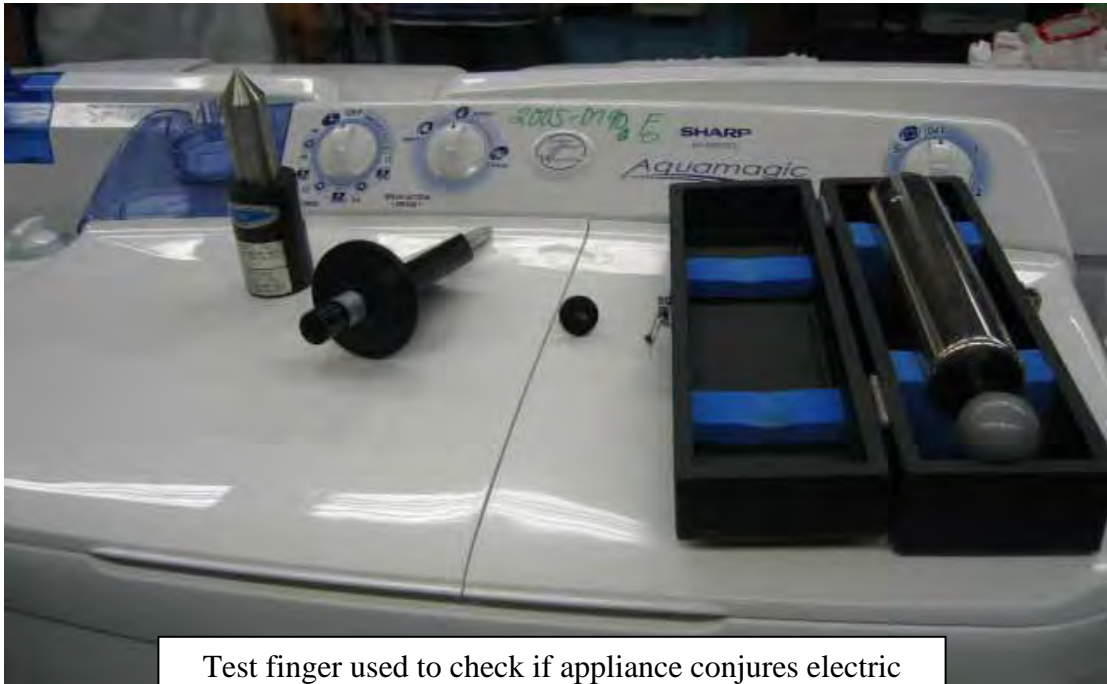




Type of cloth used for testing the performance of washing machines



Spray nozzle for uniform application of water to the washing machine



Test finger used to check if appliance conjures electric shock to user.





Demonstrating an actual force tester on a washing machine



Wire Flexibility Tester



Safety Standard Tester



Hybrid Recorder



Leak Current Tester





Microwave Survey Meter



Color Pattern Generator used for televisions



Power Supply Cord Tester



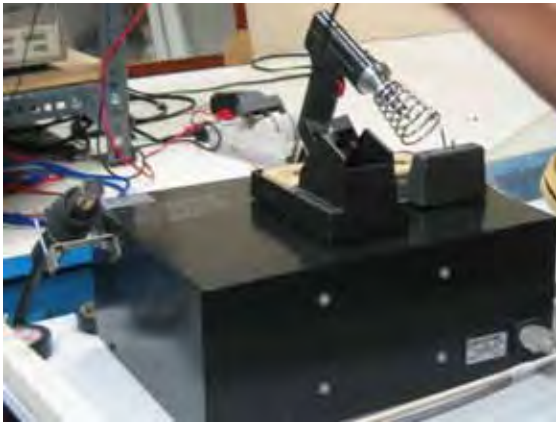
Isolating transformer to test insulation level of appliance



Flexibility Tester



Hot Line Coil Resistance and Temperature Meter



Equipment used to measure rise in temperature which is critical for testing televisions.



Heat Distortion Tester and Computer from the JICA project. Both are still in good condition.



Canon printer donated by JICA



Worn out ceiling of the BPS testing center



A closer view of the worn out ceiling



Inside the BPSTC: Cramped space where most of the products that need to be tested are stored

Not functional



Infrared Spectro Photometer