Role of In-service Teacher Training in International Aid Projects in Science Education: A Case Study on Historical Transition in the Philippines

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Abstract

This paper describes the role that in-service teacher training (INSET) has played in international aid projects in science education. Reviewing the history of international aid and science education development in the Philippines, it illustrates background, purposes, and approaches taken by each aid project. INSET has served as: dissemination and evaluation system for new curriculum and textbooks; capacity building for trainers and teachers; and empowerment of local initiatives. To achieve each purpose, either a top-down or bottom-up training approach was employed. Targets of INSET have geographically been localized and the focus of INSET simultaneously has shifted from curriculum implementation to individual teacher’s professional development and teacher’s empowerment. Lessons from past aid projects suggest that ad-hocness and scatteredness are key issues to be discussed for the betterment of international aid in science education.

Key words: international aid, science education, in-service teacher training, Philippines

I. Introduction

Education has become globally recognized as one of the fundamental human rights, however, there are still huge gaps across the world in access to quality education, especially between developed and developing countries. Historically, international aid has tackled quantitative aspects of education, however, as articulated by UNESCO (2001) that “promoting access in the absence of quality is a hollow victory”, improvement of education quality is one of the current global agenda of international development. Although education quality can be described in various ways, there is no doubt that actual teaching and learning is the heart of educational quality. In school education, teaching of a specific curriculum subject takes up the everyday work of most teachers. Therefore, enhancement of subject teaching and learning has long been taken as teachers’ day-to-day issues, governmental matters for national development, and moreover, global concerns for improvement of “education quality” in developing countries.

There are three subjects central to international aid in education: language, mathematics, and science. Language and mathematics education is often discussed in relation with literacy and numeracy of a country, and are often cited as indicators of education or even national development. On the other hand, science education, which is the focus of this paper, is emphasized for two main reasons: first, at the individual level, science education plays an important role in cultivating learners’ science literacy which enables an individual to have “the knowledge and understanding of scientific concepts and processes required for personal decision making, participation in civic and cultural affairs, and economic productivity” (National Research Council, 1996); second, at the societal and national level, science education is emphasized to establish the foundation for science and technology that support the economic development of a country (JICA, 2007). Therefore, international aid in science education is an approach to fill up educational gaps between developed and developing countries, focusing on daily teaching and learning practices, and societal and environmental conditions surrounding them.

In its practical form, international aid in science education is broken down into implementable activities bundled into development projects. The in-service teacher training (INSET) component is, in most of the cases, one of the

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main project activities as well as facility provision and educational material development. In the context of project implementation, teachers have been regarded as fundamental means of conveying information and important agents for changing classroom practices. Therefore, INSET programs have provided such opportunities and teachers have been engaged in aid projects as a vehicle on one hand and as direct beneficiaries on the other hand. However, since a number of donor organizations conduct their own INSET programs in one developing country, this leads to difficulties in comprehending the facet of INSET in international aid in science education.

Thus, taking up the Philippines as a case study, this paper reviews the half-century history of international aid in science education in order to capture the historical transition of INSET programs in aid projects by focusing on similarities and differences in their purposes, approaches, and reasons behind the transition. On top of this, it also discusses lessons and legacies of past aid projects.

To accomplish the research purpose, the author first collected past project completion reports and related policy documents at the Department of Education’s Educational Development Project Implementing Task Force (EDITAF). Second, he conducted key-informant interviews at several institutions such as EDPITAF, the University of the Philippines National Institute for Science and Mathematics Education Development (UP NISMED), National Science Teaching Instrumentation Center (NSTIC), Australian Agency for International Development (AusAID) Manila office, and Japan International Cooperation Agency (JICA) Philippine office, in order to triangulate the documented data and to acquire supplementary information.

II. Brief History of Science Education in the Philippines

Science education as we perceive it today did not exist in the Philippines before the Second World War. Although mathematics and science education were regarded as important tools to acquire vocational skills, science was taught within vocational curricula but not as a separated subject (UP NISMED, 2001). After the end of the War, when the Philippines finally gained independence, the importance of an organized science education program was recognized (Maybury, 1975). This corresponded to the United States’ expansion of science education and research when the Soviet Union launched Sputnik 1 in 1957, the first artificial satellite. In 1958, The Republic Act 2067, known as the Science Act, was passed. The act recognized the need to strengthen the education system to attain the goal of providing a steady source of scientific and technological expertise. Since then, the Article related to science and technology has been embodied in constitutional changes, such as Section 7 and 9 of Article XV in the 1973 Constitution and Section 10 and 11 of Article XIV in the 1987 Constitution. Under these constitutions, various educational policies have been adopted and implemented in the form of programs and projects, with the support of international aid in some cases.

Table 1 shows major educational events and international aid projects in science education in the Philippines. Although this does not cover all the government’s actions, listed items provide background information on why and how aid projects were formulated in those days. These efforts can be classified into three eras. From the 1960s to the early 1980s, initial programs were carried out to organize the foundation of science education, such as development of the first curriculum and textbooks. The early 1980s to mid-1990s saw establishment of dissemination systems for those initial developments. In line with several curriculum revisions, the government made efforts in expanding science education nationwide. From mid-1990s, the focus shifted to enrichment of science education, especially at the local level. While the previous decades focused on the system and quantitative aspects, the current issues are more on qualitative aspects of science education.

Corresponding to the government moves, international aid projects were implemented by donor organizations, such as the Ford Foundation, UNICEF, UNESCO, the World Bank (WB), the Asian Development Bank (ADB), AusAID, JICA, and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). All listed projects were conducted under Official Development Assistance except the Ford Foundation project and all of them contained INSET components. The following section discusses these training
Table 1. History of international aid projects in science education and major educational events in the Philippines

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**Major educational events in the Philippines**

- The Revised Philippine Educational Program (Implemented: 1957-1973)
- Republic Act 2067 (1958)
- Establishment of the UP Science Teaching Center (1964)
- Development of the first generation textbooks (1965-1974)
- Revised Secondary Education Program (1973)
- Constitution (Section 7 and 9 of Article XV) (1973)
- Development of the second generation textbooks (1977-1981)
- New Elementary School Curriculum (1982)
- Constitution (Section 10 and 11 of Article XIV) (1987)
- Secondary Education Development Program (1988)
- Development of the third generation textbooks (1988-1992)
- Establishment of National Science Teaching Instrumentation Center (1994)
- Social Reform Agenda (1994)
- Basic Education Sector Reform Agenda (2006-2010)

Source: EDPITAF website and each project completion report
programs from three viewpoints: INSET as dissemination and evaluation system for new curriculum and textbooks; as capacity building for teachers and trainers; and as empowerment of local initiatives.

III. Roles of In-service Teacher Training in International Aid in Science Education

1. INSET as dissemination and evaluation system for new curriculum and textbooks

Before science education started as a school subject in 1958, there existed the Philippine Public School Curriculum for elementary and Secondary Education, introduced in 1949 and implemented from 1950 to 1957. The first cornerstone of international aid in science education in the Philippines was the Science Teaching Project conducted by the Ford Foundation from 1964. This project corresponded to the first curricular reform implemented from 1957 to 1973. A major accomplishment and contribution of the project was the establishment of a Curriculum Development Center in the University of the Philippines (UP), later renamed the Science Teaching Center (STC) in 1964, the Science Education Center (UP SEC) in 1967, and currently called UP NISMED. By 1974, the center developed initial science textbooks, so-called the first generation textbooks, which were influenced by or adapted from American science education reforms, such as the Biological Sciences Curriculum Studies (BSCS), Chemical Education Material Study (CHEMS), Earth Science Curriculum Project (ESCP), and Science Curriculum Improvement Study (SCIS) (Maybury, 1975). A subsequent aid project implemented by UNESCO and UNICEF from 1969 to 1974 was an extension of the Ford Foundation project that aimed to disseminate these accomplishments and developments nationwide. The second curricular reform in 1973 introduced the Revised Secondary Education Program (RSEP) which was implemented from 1974 to 1989, and the government made the first major textbook revision and developed the second generation textbooks with the support of the World Bank Textbook project from 1977 to 1981 (WB, 1981).

These aid projects represent an overview of international aid in the early stage of science education development in the Philippines. One common factor among them was that those projects were implemented in conjunction with major curricular changes and served as vehicles to develop new curricula, and to disseminate and embed them throughout the country. INSET programs in these projects had mainly two purposes. Since both the governments and donors tried to develop new curriculum and textbooks, adaptation and dissemination were the main issues. Therefore, on one hand, INSET served as a venue to disseminate the new curriculum and textbooks to local schools and teachers, and on the other hand, an opportunity to evaluate developed materials with trainees for the effective adaptation.

In the Ford Foundation project for instance, teaching materials developed by UP SEC were piloted at local schools in Manila for several times to check their relevance, as well as to reflect local teachers' opinions in the developing process. It was also strategically intended to introduce new concepts and materials at every training session to those who were unfamiliar with them (Maybury, 1975). In the case of UNESCO, UNICEF and WB projects, the focus of training was more on dissemination. Five universities served as intermediate institutions, as the Regional Science Teaching Centers established during the time of the Ford Foundation project, and played the role of connecting the central institution to the local teachers. This structure formulated a top-down system of INSET, so-called a cascade model as indicated in Figure 1. This model was employed in subsequent government-driven projects, such as the Sector Program for Elementary Education Project by WB from 1982 to 1988 and the Secondary Education Development Project by ADB from...
1988 to 1995, and it formed a system of national INSET which aims to mainly disseminate information from the central to the local nationwide.

2. **INSET as capacity building for science teachers and trainers**

The late 1980s saw an emergence of aid projects which had a different approach. In 1988, the Philippine government implemented a third curriculum reform, the New Secondary Education Curriculum (NSEC). To implement this, a governmental project, the Secondary Education Development Program (SEDP) was established and called in new external aid projects, represented by GTZ's Science teaching Improvement Project (STIP) from 1989 to 1996 and AusAID's Philippine-Australia Science and Mathematics Education Project (PASMEP) from 1989 to 1992. For instance, though GTZ recognized the importance of the curriculum reform, it describes the project outlook as follows:

[In the Philippines] Science teaching was ineffective not only because of inadequate textbooks, poor standards of teacher training for teachers but mainly due to the lack of experimental and demonstration materials. These materials, with limited production at the national level, had not been made available to the great majority of teachers in public schools. In addition, there was no sufficient personnel qualified to develop and produce such materials (DepEd, 1994).

In the case of AusAID's PASMEP, the project goal was “to upgrade the impact of the quality and effectiveness of science and mathematics education at the secondary education level” (DepEd, 1992), and to achieve this, one of the three project objectives was set as “to improve experimentation skills and attitudes through effective laboratory work” (DepEd, 1992). In conventional projects, INSET was used as an opportunity to disseminate information, such as new curriculum and textbooks, and teachers were regarded as endpoints and vehicles of the knowledge transmission process. However, INSET programs in the two new projects aimed to enhance daily teaching and learning processes by expanding and improving variations in teaching methods. Therefore, the target of training was individual teachers and their skills and abilities. This difference can be understood as a shift in INSET from curriculum implementation to individual capacity building. Further, as INSET began to focus on the teaching and learning process, the content of the training program had a greater focus on lesson planning, improvisation of hands-on activities, and laboratory management, which are directly connected to daily teaching.

This trend became conspicuous when JICA launched a project, the Science and Mathematics Education Manpower Development Project (SMEMDP) from 1994 to 1999 at the University of the Philippines Institute of Science and Mathematics Education Development (UP ISMED, formerly UP SEC) with the following purpose:

[UP ISMED] shall become a highly competent institute to train science and mathematics teacher trainers in the elementary and secondary levels who can play a leading role in the planning and management of teacher training courses that are focused on laboratory experiment and practical work, and in the development of instructional methods and materials (JICA, 1999).

Similar to STIP and PASMEP, SMEMDP concentrated on science activities. The term “practical work approach” operated as a key word throughout the project and it was to convey the concept and importance of science activities in science classes.

These projects still employed a top-down strategy for INSET, starting with overseas experts training for national trainers within leading institutions, UP ISMED for example. Subsequently, regional trainers came to such institutions to be trained by the national trainers, and they, in turn, conducted training for local teachers on their return. Hence, these projects formed another trend of INSET in international aid in science education which is characterized by various trainings aiming at individual capacity building, especially focusing on science activities. It was also the time that concrete teaching methods and concepts in science education were directly brought in from other countries via overseas experts dispatch.
3. INSET as empowerment of local initiatives

From the mid-1990s, aid projects have focused on localization of INSET programs. In 1994, the Philippine government declared that poverty reduction was one of its highest priorities (WB, 1994) and developed a strategy to address this, the Social Reform Agenda (SRA). Under the SRA, the Ministry of Education, Culture and Sports aimed to address the central issue of low completion rates and low learning achievements among rural children as an initial remedy to change the cycle of poverty. In line with this, the WB, the ADB, and JICA developed the Third Elementary Education Project (TEEP) from 1997 to 2006 (WB, 1994) and the Secondary Education Development Improvement Project (SEDIP) from 1999 to 2008 (ADB, 2009) respectively to provide support to the elementary and secondary education sectors. Although both projects focused on the elementary and secondary sectors as a whole, science education development was treated as a core activity within project frameworks. However, unlike past projects, they focused more on specific rural provinces which were identified by the government under the SRA. Rather than implementing staff development in central organizations and national INSET programs for teachers, regional and divisional training was conducted to bridge the gap between central and remote areas. Therefore, these projects intended to improve elementary and secondary education sectors by direct support in each region rather than being channeled through the central organization to each region.

The tendency towards decentralization or localization of aid projects became prominent in recent decades, represented in particular by one JICA project, the School Based Training Program for Elementary and Secondary Science and Mathematics Teachers (SBTP) from 2002 to 2006 and three AusAID projects, the Philippine-Australia Project in Basic Education (PROBE) from 1996 to 2001, the Philippine-Australia Basic Education Assistance for Mindanao (BEAM) from 2002 to 2010, and Strengthening Basic Education in the Visayas (STRIVE) from 2005 to 2009. SBTP was a subsequent project of the SMEMDP initiated by JICA. While the SMEMDP intended to cover all parts of the country by employing a top-down training system, SBTP targeted selected regions (Region V, VI, VII, and XI), by establishing a school-based training system in which overseas experts and local teachers collaboratively organized workshops and study sessions to discuss problems of daily teaching and learning, and ways to improve their pedagogical skills (JICA, 2005).

This school-based training system was similar to the cluster-based training system employed in the AusAID’s PROBE. The project consisted of four main activities: pre-service teacher education; in-service teacher education; teacher resource materials; and project management and monitoring. Although these activities are separated into different components, training was the medium of each component. The project established Teacher Support Units (TSUs), which were provided with basic equipment, as well as resources and items necessary for delivery of INSET. A TSU comprised of a central and leader school attached to five smaller schools, and this group implemented and supervised project activities with leader schools providing support to strengthen the smaller schools. As shown in Figure 2, AusAID called this model as a ‘cluster-based training system’ (DepEd, 2001).

The BEAM, which was formulated based on the prior success of AusAID’s PROBE, aimed to “improve the quality of, and access to, basic education in Mindanao thereby contributing to the attainment of peace and development in the Southern Philippines” (AusAID, 2007). BEAM has contributed to “empowering the schools, improving the quality of Basic Education and increasing access to education for the disadvantaged and isolated groups.

Figure 2. Bottom-up (cluster-based) training system
and communities" (AusAID, 2007). In an interview with AusAID staff at the AusAID Manila office, it is stated that, during BEAM, science education was considered one of the main pillars in improvement of basic education, and treated as a project activity alongside mathematics, English, and Islamic Education. Therefore, although science education does not appear in its project objectives as a specific objective, under the bigger agenda of peace development in Mindanao, science education development has been a core part of the BEAM strategy. Regarding INSET, the project also emphasized inquiry-based rather than transmissive-based teaching strategies in the same way as other international aid projects in the 1990s tried to disseminate activity-based teaching and learning. But the INSET of BEAM had a further aim to establish a partnership among related organizations, such as Teacher Education Institutions, National Educators Academy of the Philippines, and Regional Education Learning Center, in order to empower and reinforce INSET systems for enabling the dissemination and delivery of teacher training and support at the local level.

The other AusAID project, STRIVE, was launched in conjunction with the Philippine government's Basic Education Sector Reform Agenda (BESRA) which aims to attain the country's Education for All (EFA) objectives by the year 2015 (DepEd, STRIVE). This latest AusAID project is the most localized project in the series of international aid projects in science education. The trend toward localization of aid was seen in prior JICA and AusAID projects, such as SBTP and BEAM, which employed the term 'region' to identify the project target area. However, the focus of STRIVE has been narrowed further to the provincial level. During STRIVE, various school-based activities were conducted, such as professional development needs analysis for teachers, programs for in-service facilitators, and INSET for teachers by in-service facilitators. To support this, Material Resource Units (MRUs) were established in each province, to monitor the quality of school-based activities. Although MRUs came under the supervision of the Department of Education, adjustments and adaptations to local conditions were strongly emphasized (DepEd, STRIVE). From the overall project activity and viewpoint, it seems there was little difference between STRIVE and other international aid projects, but STRIVE actually addressed local needs at individual teacher, school and provincial levels.

This current trend toward localization changed INSET in aid projects from top-down to bottom-up approaches. There are two reasons behind it. Firstly, current aid projects tried to meet the needs of governmental and international development agenda, such as BESRA and EFA, and reinforcements of education in disadvantaged area was the main issue to achieve the objectives. Therefore, it was necessary to narrow down a project target to such area. Secondly, as the project area was focused, aid projects emphasized more teachers’ participatory and autonomous management of INSET that leads to endogenous movement or more self-directed continuous professional development. Traditionally, top-down INSET was employed to disseminate information including new curriculum and pedagogical methods and it could institutionalize and standardize information transmission to some extent. However, local teachers did not initiate those training programs. Therefore, current aid projects tried to prepare places where teachers can organize opportunities by themselves to improve their teaching practices and to solve problems they encounter in daily teaching. Thus, INSET in aid projects in the recent decade is not only for teacher’s capacity building by delivering training to them, but also establishment and reinforcement of a subnational INSET system to empower local initiatives.

IV. Lessons and Legacies from the Past Aid Projects

As described in the previous section, INSET has been a core project activity of aid projects, and has played several roles in science education development. Whichever purpose respective INSET programs had, they employed either top-down or bottom-up approaches. The top-down system had several layers of training, from overseas experts to national trainers, from national trainers to regional trainers, and from regional trainers to local school teachers. The top-down approach established a one-way transmission of information from the central to local level, and made it easy to supervise training content and assessment at the national level. By contrast, the bot-
bottom-up approach had several channels through which trainers, such as overseas experts, national trainers, and regional trainers directly approached local school teachers. The bottom-up approach enabled INSET to respond in more detailed and direct ways to local teachers' needs, and reflected their opinions in project framework and management.

One of the problems of the top-down approach was dilution and mis-transmission of information due to the multi-layered system, thus it operated like a broken telephone. Generally, trainer personnel had more teaching experience and a scientific background, but at local school level, a certain number of non-science major teachers were in charge of science classes. Therefore, during INSET, they needed extra time and instruction to make the training relevant. However, in most cases, a longer period of time was allocated for trainer-training, while local INSET was conducted over short periods. This required local INSET to select content that consequently impeded satisfactory knowledge transmission (JICA, 1999).

Another problem of INSET, both in top-down and bottom-up approaches, was the lack of establishment of a single firm training system. Although a top-down approach was employed in WB, ADB, AusAID, GTZ, and JICA projects, and a bottom-up system was utilized in AusAID and JICA projects, all were ad-hoc and established only for the project terms. There was no common system among donors. With regard to the top-down training system, the Department of Education and UP ISMED were the beginning point for training, where trainer-training was held. These starting points branch off at the regional level, as each project established intermediate institutions where regional trainers trained local school teachers. JICA's project established Regional Science Teaching Centers with the cooperation of universities in target regions, while the AusAID project established Regional Teacher Support Units or Material Resource Units under the regional offices of the Department of Education. These "systems" were established at each project implementation and discontinued after the projects ended, only to be re-established once a new project came in. Bilateral donors, such as AusAID and JICA, tend to succeed and expand systems from past projects to subsequent projects. However, if their aid policy changed or did not match with Philippine government policy, other donors could not operate or support their systems. In addition, the strict national budget, in most cases, does not allow the government to continue project activities as implemented during the project period. These circumstances resulted in inevitable ad-hoc training and impeded systematic accumulation of project experiences. How to sustain project outputs and outcomes is still a subject to be considered.

The bottom-up system was employed only in more recent projects, such as the Cluster-based training (AusAID) or School-based training (JICA). Both forms of training commonly formulated groups of schools, called clusters, consisting of a leader school and several smaller schools. More authority and freedom were given to each cluster to organize and supervise training programs, compared to the top-down system. Therefore, the bottom-up system was less influenced by central management, but, this led to a scatteredness of INSET. In Region VII for example, from 1989 to 2001, two bottom-up training systems were established by AusAID and JICA, and one top-down system was established by GTZ, and different forms of INSET were conducted simultaneously in the region. Teachers spent a lot of time attending training programs organized by different institutions, and learned different concepts and skills in science education. However, this resulted in confusion since each aid project developed its own educational materials and tried to disseminate them at INSET programs—the question became which program should teachers follow? Although the bottom-up approach tried to respond to local teachers' needs, due to the lack of central coordination of these projects, training co-existed, but the lack of a single training system resulted in scatteredness of training overall.

Based on these experiences, what could be next? After the termination of JICA's SBTP in 2005, AusAID became a single donor which continues implementing aid projects in science education. An AusAID personnel reviews past projects as follows:

Individually, PASMEP and PROBE would have helped immensely all of the participants, but as a project in-
fluence on policy or the whole education sector, it was too little in the big system. [And BEAM and STRIVE suggest that] Unified information system is necessary to integrate existing information since it is scattered in all over the places.6

The unified information system means Information and Technology, or an online system. This online system will be both a tool for project management and a new resource for teachers and trainers, where teachers all over the country can access to download materials. AusAID explained that it is necessary to launch a major project to act as a core for science education development in the future, rather than implementing small projects at the local level. If other stakeholders can use the system to upload developed teaching/learning materials, project information, and even problems they encounter, this can result in integration of individual projects, which respond to specific needs in a particular area, into a unified system.

This is not only the answer, however; one of the drastic changes over the next few decades is how we get, accumulate and release information using online media. This change is also happening at a rapid pace in developing countries and has even started influencing daily teaching practices. Therefore, the effective usage of online media may change the approaches of INSET in aid projects. It can shed light on valuable information kept in storage by uploading onto the web, systematize scattered information all over the country, and especially create a place for teachers to share their daily teaching practices and problems. INSET and even international aid based on such system will have a different feature from past aid projects. People-to-people exchanges are a core of teacher training which cannot be excluded, but future aid projects in science education may have another modality and possibility.

V. Conclusion

INSET has been one of the core components of international aid in science education. Although an aid project is just a part of the efforts in science education development in the Philippines, time, budget, and human resources that went into the series of projects are big enough to form an aid history. INSET in aid projects has responded to the needs of the times, such as phases of science education development, international development agenda, and social demands in the Philippines. Contents of the training has been framed by various purposes: dissemination and evaluation of new curriculum and textbooks; enhancement of teachers’ pedagogical skills and knowledge; and empowerment of local initiatives. With these purposes, either a top-down or bottom-up approach has been employed. As time went by, INSET in aid projects has been geographically localized and the focus has shifted from curriculum implementation to individual teacher’s capacity building and empowerment. Each effort has contributed to achieving respective project goals, however, ad-hocness and scatteredness of the projects have been revealed and sustainability of project outputs and outcomes is still a big agenda.

The future international aid in science education calls for research on the long-term impact of aid projects. This research collected past project completions reports, written immediately after the termination of each project, therefore, the evaluation of projects is limited to a narrow time span. The reports rarely describe the impact of projects in the medium to long term, and in particular, there is a lack of research about how INSET experiences have structured outcomes for individual institutions, schools, and teachers, and influenced their operation. Even if project impacts have not been sustained, it is important to investigate the reasons for this. For example, in project completion reports, outcomes of INSET mostly described numbers of participants, times and places, but did not describe to what extent teachers acquire new knowledge and skills, how they utilized this in class, or if not, what prevented this. These factors should be assessed after aid projects have ended for better understanding of the effectiveness and sustainability of educational development projects, as such information would reveal gaps between real recipients’ needs and what aid projects deliver.

Acknowledgement

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Notes
1) EDPITAF is a subordinate organization of the Department of Education. It was established in 1972 under the Ministry of Education and Culture, “charged with responsibility of delivering quality basic education through the implementation and management of foreign assisted projects” (DepEd, EDPITAF).

2) The five universities are St. Louis University in Northern Luzon, Aquinas University in Southern Luzon, Silliman University in Western Visayas, Ateneo de Davao University in Southern Mindanao, and Notre Dame of Marbel College in Central Mindanao.

3) These objectives are: i) Universal coverage of out-of-school youths and adults in the provision of basic learning needs; ii) Universal school participation and elimination of dropouts and repetition in first three grades; iii) Universal completion of the full cycle of basic education schooling with satisfactory achievement levels by all at every grade or year, and; iv) Total community commitment to attainment of basic education competencies for all (National Education for All Committee, 2006).

4) Two selected provinces are Bohol in Central Visayas (Region VII) and Northern Samar in Eastern Visayas (Region VIII).

5) Interview at the National Science Teaching Instrumentation Center in Region VII in 2011.

6) Interview at the AusAID Manila Office in 2011.

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