



Republic of the Philippines
NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

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MEMORANDUM

For: The Honorable Chair and Members
Investment Coordination Committee - Technical Board (ICC-TB)

Subject: Addendum to the Department of Education (DepEd)
Cyber Education Project (CEP) Socio-Economic Analysis

Date: 14 August 2007

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1. This is an addendum to the socio-economic analysis of the Cyber Education Project (CEP) of the Department of Education (DepEd).

ICC Action/Decision

2. It may be recalled that the ICC, in its 19 March 2007 Joint Technical Board (TB) and Cabinet Committee (CC) meeting, endorsed the CEP for NEDA Board Confirmation. However, the NEDA Secretariat was advised that "a fiscal elaboration of the project's IRR is needed" noting that the resulting economic NPV and IRR are negative PhP11,236.52 million and 5.12%, respectively, using the discount rate of 15%. (Attachment A: Base Case Scenario)

The computed economic NPV and IRR are based on the quantified potential savings that would accrue to the Department because of the project: (a) savings from the procurement/production of textbooks; (b) communication expenses; and (c) training expenses. These would amount to PhP60.32 billion for the 25-year duration of the project. The economic costs identified are the investment and operation and maintenance costs.

Project Description

3. The CEP aims to improve the delivery of and/or access to quality basic education services. Satellite-based equipment, computers and digital accessories will be deployed in public schools covered by the project. The public schools will be connected with central training studios where the lectures on Mathematics, Sciences, English, Filipino, Technical-Vocational skills, and other subjects of relevance will be conducted and recorded, as well as broadcasted via satellite.

The proposed project will be implemented in 37,794 schools outside the 1st and 2nd cities nationwide. The project will also cover 665 Alternative Learning System (ALS) learning centers (for out-of-school-youths and adults) with DepED mobile teachers/learning facilitators.

4. The total project cost is estimated at PhP26.48 billion where PhP22.77 billion will be financed through loan from the Peoples' Republic of China (PROC) and the remaining PhP 3.71 billion will be covered by the Government of the Philippines as counterpart.

Re-calibrated Project Benefits

5. Per ICC instructions, the NEDA Secretariat re-calibrated the project benefits to include the value of learning/education based on the results of the Third Elementary Education Project (TEEP).

The TEEP is the most recently-concluded project of DepEd, which was jointly funded by the World Bank and Japan Bank for International Cooperation (JBIC). It is the Flagship project of the DepEd in response to the Social Reform Agenda (SRA) initiatives of the Government. It provides technical and financial assistance to LGUs in the construction and rehabilitation of school buildings in 22 depressed provinces of the country. Its overall objective is to improve the quality of and access to elementary education, with the particular objectives of strengthening the capacity of DepEd to deliver elementary education more effectively; improving pupil participation, learning achievement and reducing dropout rate; and actively involving the community and local government units.

The CEP is assumed to demonstrate the same improvements in school children performance as those exhibited by the TEEP. The reported benefit of TEEP was an average of 5.78% increase in Mean Percentage Score (MPS) for recipient divisions during the 5-year project life or roughly 1.2% yearly. Post assessment reports also show that TEEP schools performed statistically better than non-TEEP schools during the same period.

On the other hand, the primary benefit from the CEP is the provision of access to quality education by all learners. From an equity perspective, this brings learners from the marginalized areas to equal footing with those in the first class cities in terms of access to high quality learning materials/resources.

To compute for the economic benefits, it was assumed that the CEP will result in improvements similar to or of the same level as those resulting from the TEEP. In order to arrive at an estimate of how much the government will spend for the increase in the MPS of schools covered by the TEEP, the total investment cost was taken into consideration. For a more conservative approach, the cost for the civil works was not included as part of the investment cost. The resulting cost (total project cost - cost of civil works) was divided by the number of schools covered by the project. The resulting figure, PhP465,722, is assumed as the cost of increasing the MPS of the recipient schools by 1.2%.

Under this premise, it was assumed that the PhP465,722 investment per school is the economic value of a 6% increase in MPS for every school at the outset and is expected to increase by 1.2% thereafter. This represents the value of learning for all direct recipients of the CEP.

Potential savings that would accrue to the Department due to savings from textbooks, communication, and training expenses, as assumed in the Base Case Scenario were also retained for this purpose.

6. Based on the above-mentioned assumptions, using the social discount rate of 15%, the computed economic NPV is PhP4,933.71 million while the economic IRR is 19.94%. (Attachment B: Scenario I)
7. The NEDA Secretariat made another scenario (Attachment C: Scenario II) of the economic analysis. Under this scenario it was assumed that the establishment of the project would not result in the elimination of textbooks. On the contrary, the NEDA believes that classroom learning through satellite broadcasts and internet access would become more effective if complemented by the use of textbooks and follow up lessons by the teachers. The resulting NPV under this scenario is PhP195.96 million while the economic IRR is 15.23%.
8. Results of the NPV and IRR of the re-calibrated benefits indicate that the project is economically viable. The table below summarizes the resulting economic NPV and IRR for each of the scenarios:

Parameter	Base Case Scenario*	Scenario I**	Scenario II***
NPV	-PhP 11,236.52 million	PhP 4,933.71 million	PhP 195.96 million
IRR	5.12%	19.94%	15.23%

*Base Case Scenario - As presented in the ICC, project benefits include savings in textbooks, training and communications

**Scenario I - Re-calibrated project benefits to include the value of learning/education based on the results of the Third Elementary Education Project (TEEP) and from savings on textbooks, training and communications

***Scenario II - This is Scenario I, excluding DepEd projected savings from textbooks

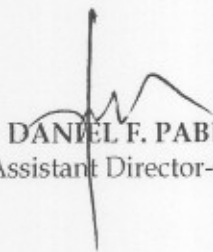
Other Project Benefits

9. In addition, though not implicitly computed, the economic benefits that may accrue from the project are the following:
 - a) The project supports the DepEd in accelerating the attainment of the goal of quality education for all. It will pave the way for strengthening the institutional ICT programs in terms of charting directions and adopting specific policies and programs on ICT as well as the structure that will take care of setting standards, policies and guidelines on the use of ICT in education, among others.
 - b) The project is envisioned to address the lack of basic resources such as competent teachers, academic classrooms and instructional materials which largely contribute to poor quality of education will be remedied by the satellite-based interactive facilities and courseware of the project.
 - c) The satellite-based interactive facilities of the project will not only be used as a tool for teaching but as a means for professional development. The lack of financial resources of DepEd for In-Service Training for Teachers (INSET) can also be remedied through distance training. This will not only increase, if not universalize the coverage of teachers, but it will not also provide to almost all teachers nationwide the opportunity to be trained/mentored/coached by the

best trainers in the country, through live satellite training for teachers/trainors broadcasts. The continuous application of satellite-based interactive materials in instruction by the teachers will also develop their competency on the use of technology as a tool for teaching.

- d) While the project's main purpose is to enhance the teaching-learning process, the facilities to be installed will contribute to the efficiency of operations as the schools, divisions, regions and central office will be connected like never before.
- e) On the side of the learners, the project will be able to equip teachers with new and better teaching techniques to capture the interest of the students. Since formal content delivery will be done through the technology, local teachers can focus on clarifying additional questions from the students and then conducting activities to supplement learnings made from the instructional broadcasts. More time will be allotted for activity-based collaborative learning has been proven to increase retention and understanding among students.
- f) The presence of computers and its connection to the internet will develop a culture of research and quest for answers to questions among students. After sufficient training, teachers will be able to guide students in maximizing the use of the equipment and technology provided in their schools. This will open the students' and pupils eyes to the endless possibilities that the current state of technology offers. The skills of "learning to learn independently" will be their most powerful tool in succeeding in their own personal lives. As other initiatives strive to provide more computers to more schools in the country, more user terminals can easily hook up to the system and more independent learning can take place.
- g) Lastly, quality education is envisioned to be accessible to all learners at the shortest possible time. In the past, DepEd had invested on expensive education projects that produced substantial benefits in terms of educational achievement for selected provinces. With the CEP, however, these same benefits will be expanded to a geometrically larger number of school and out-of-school youths. While other projects are dependent on classroom construction, delivery of textbooks and other conventional activities, the CEP utilizes technology in delivering high-quality instructional materials right inside the classrooms of school children, especially those in the rural areas who have little or no means of access to quality education. The opportunities and long-term social benefits that satellite-based interactive facilities could provide to our young yet deprived learners in 3rd and 4th class cities and municipalities of the country are therefore almost priceless.

For information.



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DEPED CYBER EDUCATION PROJECT ECONOMIC ANALYSIS (in million PhP)

BASE CASE: As presented in the ICC

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Benefit																										
Indirect		25.71	91.80	234.62	353.67	494.38	636.12	765.34	879.66	925.68	1,016.01	1,117.62	1,229.37	1,332.31	1,407.31	1,456.70	1,494.47	1,529.02	2,177.91	2,362.70	2,615.27	2,846.80	3,108.66	3,367.33	3,608.30	3,844.13
Direct		13.28	37.78	8.94	12.87	17.36	21.69	24.15	25.36	26.63	27.96	29.36	30.82	32.37	33.98	35.66	37.47	39.34	41.18	43.17	45.34	47.62	50.21	53.22	55.36	56.12
Total Benefit		43.81	141.75	358.13	527.60	738.90	966.51	1,135.14	1,247.45	1,378.93	1,506.69	1,653.94	1,829.69	2,000.56	2,176.99	2,417.19	2,617.13	2,918.97	3,211.10	3,529.14	3,846.99	4,266.31	4,696.16	5,137.70	5,570.33	5,928.15
Cost																										
Investment Cost	152.10	4,231.31	5,764.17	6,480.26	6,642.35	5,676.67	528.10	528.43	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40
Operating Cost	152.10	4,231.31	5,764.17	6,480.26	6,642.35	5,676.67	528.10	528.43	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40	528.40
Total Cost	152.10	8,462.62	11,528.34	12,960.52	13,324.70	11,353.34	1,056.50	1,056.83	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80	1,056.80
Net Benefit	(152.10)	(4,274.16)	(6,572.17)	(6,942.39)	(6,942.35)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)	(6,942.34)
NPV @ 15%	-61,336.52																									
IRR	5.12%																									

