No.

エジプト・アラブ共和国
小学校理数科教育改善プロジェクト
実施協議報告書
（付・第1次～第3次事前評価調査報告書）

平成15年10月
（2003年）

独立行政法人 国際協力機構
社会開発協力部

序　　文

エジプト・アラブ共和国では、国家施策の重要課題のひとつとして教育改革が実行され、1995/1996年度の教育予算は、国家予算の約15.6%を占めるに至っている（ちなみに日本の場合は2000年度の概算要求で約11%）。なかでも理科・算数（数学）の授業改善を重視しており、我が国に対して小学校の理科・算数を質的に向上させるための協力を要請してきた。

これに対して我が国は、1997年から2000年にかけて、国立教育研究開発センター（NCERD）をカウンターパート機関とする専門家チーム派遣（ミニプロジェクト）「小学校理数科授業改善」を実施した。そして、児童が自ら考え、自ら答えにたどりつくプロセスを重視した新しい授業法を導入するための教師用ガイドブック（英文）を作成した。この結果を受けた新たなプロジェクトを形成するため、第１次から第３次までの事前評価調査団を派遣し、現地での実施協議を行った。

本報告書は、実施協議に至るまでの調査・協議結果を取りまとめたものである。さらに、第１次から第３次までの事前評価調査報告書を収録し、経緯を明らかにするよう努めた。

ここに至るまでにご協力頂いた内外関係各機関に心より謝意を表するとともに、引き続き一層のご支援をお願いする次第である。

2003年10月

独立行政法人国際協力機構
社会開発協力部
部長　末　森　　満

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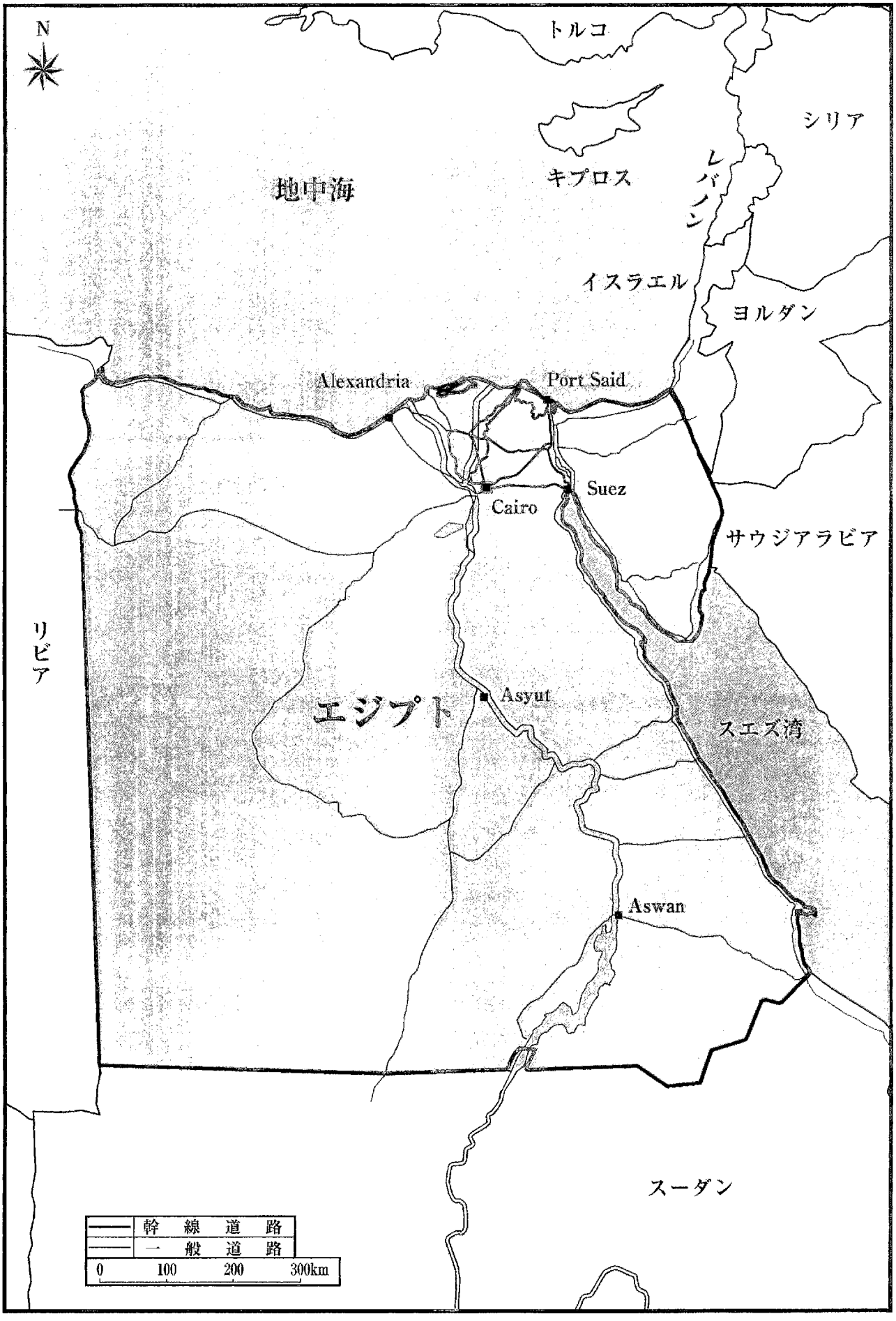
略　語　表

CCIMD	Center for Curriculum and Material Development	カリキュラム教材開発センター
EEP	Education Enhancement Programme	教育向上プログラム
EMIS	Education Management Information System	
EU	European Union	欧州連合
GAEB		学校建設公社
GDIST		教育省教員研修部
ITF	Interim Trust Fund	（世界銀行の関係機関）
NCEEE	National Center for Examination and Educational Evaluation	国立試験・教育評価センター
NCERD	National Center for Educational Research and Development	国立教育研究開発センター
PCU	Programme Coordination Unit	
PDM	Project Design Matrix	プロジェクト・デザイン・マトリックス
PPMU	Programme Planning Monitoring Unit	教育省のプログラム計画･モニタリングユニット
R／D	Record of Discussions	討議議事録
UNESCO	United Nations Educational, Scientific, and Cultural Organization	国連教育科学文化機関
UNICEF	United Nations International Children's Emergency Fund	国連児童基金
USAID	US Agency for International Development	米国国際開発庁
WB	World Bank	世界銀行
WHO	World Health Organization	世界保健機関

エジプト国の地図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トルコ
シリア
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Asyut
スエズ湾
Aswan
スーダン
幹線道路
一般道路
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第１章　背景と経緯

１－１　背　景

エジプト・アラブ共和国（以下、「エジプト」と記す）において教育の近代化は優先度の高い政策のひとつであり、理数科教育についても、従来の暗記的な手法のみに頼った授業法を質的に改善していくことが重要な課題となっている。

このため我が国は、1997年から2000年にかけて、国立教育研究開発センター（NCERD）をカウンターパート（C／P）機関として、専門家チーム派遣（ミニプロジェクト）「小学校理数科授業改善」を実施し、同国の理数科教育に、児童が自ら考え、自ら答えにたどりつくプロセスを重視した新たな授業法を導入すべく、小学校の教師用のガイドブック（英文）を作成した。

同ガイドブックは、協力終了後、エジプト側独自でアラビア語への翻訳作業が進められ、これを基に欧州連合（EU）・世界銀行の事業として一部の県でパイロット的に活用が行われるなど、現在、その普及に向けた取り組みが開始されている。

こうした取り組みがあるなか、エジプト政府は日本政府に対し、小学校理数科の教育改善についての協力を要請してきた。これを受けてJICAは、プロジェクト形成のための事前評価調査を行った。その結果、ミニプロジェクトで作成された教師用ガイドブックの提唱する新しい授業法を、本格的に定着・普及させるため、モデル校を設定し、そこでの授業実践を通して、NCERDスタッフの教育現場での指導力の一層の向上を図ることを目的とするプロジェクトを開始することとした。

１－２　経　緯

（1）専門家チーム派遣（ミニプロジェクト）「小学校理数科授業改善」（1997年10月～2000年11月）

エジプトにおいては、Mubarak政権の下、国家施策の重要課題のひとつとして教育改革が実行され、近年、教育予算も1995/1996年度で国家予算の15.6%を占めるほど増加している。こうしたなか、エジプト政府は基礎教育のなかでも理科・算数（数学）を生徒の将来を左右する科目として注目し、我が国に小学校理科、算数の質的向上に対する協力を要請してきた。

エジプトの初等教育（理数科）に対する我が国の協力としては、1996年に短期調査（北海道教育大学 小島 喜孝 教授、佐藤 有 助教授、横関 祐見子 JICA国際協力専門員）を行ったあとで、1997年10月から2000年11月までの３年間、北海道教育大学を国内支援機関とした専門家チーム派遣「小学校理数科授業改善」が実施された。ここでは、NCERDをC／P機関とし、エジプト教科書の各章の内容ごとに授業法をまとめた「小学校理数科教師用ガイドブック」を作成した。

（2）基礎調査（2000 年４月）

こうしたなかで、エジプト側より小学校理数科に関して更なる協力の要請があげられ、2000年４月には基礎調査団を派遣し、小学校理数科の質的向上に関して、プロジェクト方式技術協力による案件形成の可能性を技術的見地から調査した。

調査では、2002年９月より小学校が５年制から６年制に移行するのに伴い、新たな授業内容を検討し、新制度に備えることが必要であることから、我が国に理数科教育分野の支援について要請があった。これに対し、日本側から提示した教育の質的向上に向けた複数のアプローチ案のなかから、「小学校児童の学力評価調査」、「現職教員研修」、「教材の開発」の３つに関心が示され、同時に環境の異なる複数の公立小学校を「実験校」に指定して、教員及び児童のレベルの変化をモニタリングしていきたい、との提案があった。

一方で、エジプトの教育関係機関は部局・センターごとの縦割りの性格が極めて強いこと、教育省の調整能力が低いこと、情報に関する閉鎖性等が確認され、教育省の構造や事業全体の把握が極めて困難な状況であることが明らかになった。

調査終了後は、エジプト側から具体的要望の聴取を行いながら、日本側からプロジェクト案を提案する形で準備を計画していたが、エジプト側からの要望内容が中等教育にシフトしたりするなど統一性を欠き、プロジェクト案の形成は困難を極めた。

こうしたなか、専門家チーム派遣終了前の2000年11月には、終了時セミナーが開催され、開発された教師用ガイドブックが教育大臣をはじめとする教育省関係者及び他ドナーから高く評価された。これを受け、実施機関であったNCERDは本ガイドブックのアラビア語翻訳・印刷・配布・教員研修での普及を計画するに至った。

（3）第１次事前評価調査（2001 年４月）

かかる情勢のなか、成果が一般教員・児童レベルにまで裨益することを念頭に置いた日本側プロジェクト案をエジプト側に提示し、その実施の妥当性、必要な関係機関の連携を行う意思があるかどうかについてエジプト側と協議することを目的に、2001年４月に第１次短期調査団（2002 年度より事前評価調査団と名称変更）を派遣した。しかし、日本のもつ問題意識に対し、エジプト側関係者から一致した合意を取り付けることはできず、コンセプトに関する意見交換にまで至らなかった。

（4）第２次事前評価調査（2002 年４月）

日本側でプロジェクト案を検討した結果、関係機関の縦割りが極めて強いため、日本の協力成果を制度として確立させることは難しいと判断し、NCERD スタッフと共同で、カイロ県の実験校のなかから選定された複数のモデル校の教員に実践指導を行うというアプローチ

をとり、もってモデル校をエジプトにおける小学校理数科教育改善の基盤とするよう関係機関と協議を行った。

当初は効果の将来的な普及を考慮し、教育省等の機関もプロジェクト関係機関として位置づける計画だったが、上述のとおり行政機関の縦割りが激しく、組織間の横の連携がとりにくいことに加え、NCERDの強い意向もあり、NCERDのみをC／P機関とすることにした。

一方で、NCERDはミニプロジェクトで作成した教師用ガイドブックを活用して、EUと世界銀行の実施する教育向上プログラム（EEP）の一環として、イスマイリーヤ県及びケナ県の教員を対象としたパイロット研修を実施していた。EEPの実施機関である教育省のプログラム計画・モニタリングユニット（PPMU）はこの教師用ガイドブックを高く評価しており、今後15県でこのガイドブックを活用した教員研修を実施する予定である。しかし、ガイドブックの根本にある考え（underlying concept）を理解しているエジプト側の人材が少ないので、開発者であるJICA専門家に協力してもらいたい、という要望がPPMUのローカルコンサルタントよりあげられた。

JICAとPPMUの行う協力は相互補完的であるといえる。ガイドブックの提唱する授業方法を定着させる共通の目的を掲げ、JICAプロジェクトはモデル校に対して「狭く深く」定着させるというアプローチをとり、PPMU研修は「広く浅く」効果を普及させるアプローチをとっている。JICAの専門家がPPMU研修の講義を部分的に担当すること等により連携することとした。

（5）第３次事前評価調査（2002年８月）

第２次調査で合意したプロジェクト案をより具体化すべく、エジプト側が履行すべき条件や、実施体制の確認を行う目的で第３次事前評価調査を実施した。また、団員のうち北海道教育大学の教官は、調査期間の後半においてPPMU研修の講師を務めた。

調査期間中は小学校が夏期休暇中だったため、モデル校の候補となり得る学校関係者との協議はできなかった。これらは調査後引き続き企画調査員を通じてコンタクトすることとし、本調査ではもっぱらNCERDとプロジェクトの詳細について協議した。

PPMU研修への協力はこれが最初であり、事前の研修内容のすり合わせ等が十分行われなかったことがあったものの、教官の努力で大きな成果が達成されたものと思われる。

（6）実施協議（2003年２月）

第３次調査以降、企画調査員を通じてエジプト側と更に協議を重ね、2003年２月に実施協議の討議議事録（R／D）をJICAエジプト事務所長とNCERD所長とで署名・交換した。署名式には北海道教育大学の学長と在エジプト日本国大使も出席した。

１－３　実施協議について

（1）署名日：2003 年 2 月 19 日

（2）協議参加者

〈エジプト側〉

国立教育研究開発センター（NCERD）

Dr.Nadia Gamal El Din	所　長

〈日本側〉

JICA エジプト事務所

下村　則夫	所　長
岩間　敏之	次　長
宇多　智之	所　員
橋本　和明	企画調査員

第２章　討議議事録の交渉経緯

２－１　プロジェクトの目標設定について

本プロジェクトは新しい授業方法を導入することを目的とするものであることから、教育現場で必ずしも好意的、積極的な支持を得られないケースが発生する可能性がある。特にエジプトでは教師からの一方通行の教授法が一般的であるといわれている。また教師の権威が強いため、ガイドブックに紹介されている双方向性の授業形態は今のところ実践されているケースが少なく、同コンセプトの導入、関係者への周知には相当な時間がかかると予想される。

上記の点に加えて、これまでのエジプトにおける他分野の技術協力プロジェクトの経験からいえば、効率的に物事が進むことは少なく、エジプト側の実施体制に係る一貫性の欠如、相矛盾する業務指示、関係者の責任範囲の不明確さ等の問題点が指摘されている。他国での日本のこれまでの協力経験、手法がエジプトでは生かされないことが多々見受けられる。

これらのエジプトの事情と、本プロジェクトに係る日本側の投入規模を考慮した結果、プロジェクト目標は「新しい授業方法がモデル校に定着し、普及のための基盤が整備される」こととし、上位目標は「カイロ県及び教育省のプログラム計画・モニタリングユニット（PPMU）研修の対象県において新しい授業方法が活用される」ことが妥当との結論に達した。

２－２　PPMU と JICA の相互協力位置づけ

本プロジェクトが投入・裨益対象を絞り、質的進化を図っていくことから、PPMU との相互協力は、量的拡大・面的広がりをもたせる意味で、また PPMU から一定の便宜（ガイドブックの印刷、研究・授業視察等）を得ることができるという点で、非常に重要である。しかしながらPPMU研修の JICA と PPMU の責任分担は明確でなく、JICA は同研修全体に対する法的権限、拘束力もないため、討議議事録（R／D）に盛り込むことは困難と思われた。

したがって、JICAプロジェクトのみに関する記述及びプロジェクト・デザイン・マトリックス（PDM）を盛り込んだ R／D に、日本側と国立教育研究開発センター（NCERD）所長が署名し、PPMU研修に関しては、JICAプロジェクトとの相互協力に言及したミニッツを作成し、日本側と PPMU の責任者（Dr. Nadia）とで署名した（付属資料５．参照）。

２－３　モデル校の教員に対する手当について

エジプトでは、教師の放課後のアルバイトは法律で禁じられているが、大半の教師は放課後に個人授業を行っており、その収入が生活の大きな糧となっている。このような現状を考えると、モデル校での実践指導は勤務時間内に行い、残業時間を減らし、NCERD スタッフ及び教員のモチベーションを維持すべきである。しかしながら、勤務時間内に実践指導ができず、残業が続く

ようなことがあれば、教員のモチベーションを維持するために、生活の実質的な収入の部分で柔軟に手当を支給する可能性は残しておくべきだと考える。

今後プロジェクトチームがモデル校と具体的な交渉を進める際に、勤務時間内での協力が非常に困難と判断された場合には、手当を支給することについて前向きに検討することとした。

第３章　プロジェクト概要

３－１　目　標

（1）上位目標

理数科のガイドブックを用いた新しい教授法が、カイロ県及び教育省のプログラム計画・モニタリングユニット（PPMU）研修の対象県の小学校で活用される（※上位目標はJICAとPPMUとで共有する。これを達成するために両者は協力・連携するが、一方は他方の成果に対する責任は負わない）。

（2）プロジェクト目標

理数科のガイドブックを用いた新しい教授法がモデル校において定着し、更なる普及のための基盤が整備される。

３－２　期待される成果

（1）国立教育研究開発センター（NCERD）スタッフが教員に対して、新しい教授法を的確に指導できる。

（2）モデル校の教員が新しい教授法を習得し、授業で実践できる。

（3）新しい教授法が効果的であることが検証される。

（4）理数科ガイドブックが改訂される。

（5）モデル校でガイドブックの教授法が伝達されるシステムが確立される。

（6）新しい教授法が教育関係者によって理解される。

３－３　協力活動内容

（1）NCERDスタッフと協力して、モデル校の教員に対して理数科の新しい教授法の実践指導を行う。

（2）モデル校の選定、校長に対する説明会開催、モデル校教員に対する実践指導を行う。

（3）新しい教授法の効果を測るための調査方法を検討する。モデル校の児童・教師に対し、新しい教授法の調査を行う。調査結果を分析し、新しい教授法の効果を実証する。

（4）授業実践の教訓等に基づき、段階的にガイドブックを改訂する。

（5）モデル校のスクールベースド・トレーニングユニットの機能を強化するための助言を行う。

（6）教育関係者に対して公開授業やセミナーを開催する。

第４章　特記事項

４－１　国内の実施体制について（北海道教育大学）

ミニプロジェクトでは北海道教育大学の教官が長期・短期で派遣されたが、組織的に派遣する形ではなかったため、教官の負担が大きかった。しかし、本プロジェクト開始にあたっては、同大学が、学内に「エジプト小学校理数科教育改善プロジェクト会議」を設置し、組織的に協力してもらえることとなった。同会議に付属する形で「エジプト小学校理数科教育改善プロジェクト運営委員会」も設置され、プロジェクト会議の開催・方針決定等を行う。

チーフアドバイザーの派遣（13か月交代、計３名の派遣）、Ｃ／Ｐ研修員の受入れに加え、ガイドブックの改訂については国内で改訂チームをつくり、実施する。

４－２　専門家派遣について

チーフアドバイザーはミニプロジェクトにおいてガイドブック作成に携わった北海道教育大学の教官を派遣するが、大学の都合上13か月交代（引き継ぎ期間を考慮）で計３名派遣する。

長期専門家（理科教育・数学教育）については、北海道教育大学の強い要望により、北海道の現職教員を派遣する方向で北海道教育委員会と調整していたが、道教委の都合により、１年目の派遣は不能となったため、退職した小学校校長を派遣する。２年目以降は北海道教育委員会から現職教員が派遣される予定である。

付　属　資　料

１．事業事前評価表

２．Record of Discussions

３．Minutes of Meeting（Project Document を含む）

４．Project Document 日本語版（要約）

５．PPMU に関する Minutes of Meeting

６．EEP に関する資料

１．事業事前評価表

事業事前評価表（技術協力プロジェクト）

作成日：2002 年 11 月 29 日
担当部・課：社会開発協力部社会開発協力第二課

案 件 名	エジプト小学校理数科教育改善プロジェクト	対　象　国	エジプト・アラブ共和国
実施地域	カイロ県	実施予定期間	2003 年４月１日～ 2006 年３月 31 日（３年間）

１．プロジェクト要請の背景

エジプト・アラブ共和国（以下、「エジプト」と記す）では 1981 年に Mubarak 大統領が政権に就いて以来、教育指標が大幅に改善した。特に1990年代の学校建設によって初等教育の量的側面が改善された。しかし、初等教育の質的側面は十分に対策が講じられてきたとはいい難い。驚くべきことに、2000/2001年に公立小学校の５年生の11.08%が留年している。表－１と表－２は、公立と私立の小学校とも高学年になるほど留年率が高くなる傾向があることを示している。

表－１　公立小学校の就学者数と留年者数（人）2000/2001 年

学　年	就学者数			留年者数			
	男　子	女　子	合　計	男　子	女　子	合　計	%
1	642,917	599,537	1,242,454	0	0	0	0.00
2	672,814	609,083	1,281,897	30,848	17,888	48,736	3.80
3	674,995	604,185	1,279,180	41,219	22,174	63,393	4.96
4	713,675	624,281	1,337,956	65,025	35,276	100,301	7.50
5	777,711	660,090	1,437,801	103,017	56,302	159,319	11.08
合　計	3,482,112	3,097,176	6,579,288	240,109	131,640	371,749	5.65

出所：教育省“ Pre-University Education Statistics 2000/2001 ”

表－２　私立小学校の就学者数と留年者数（人）2000/2001 年

学　年	就学者数			留年者数			
	男　子	女　子	合　計	男　子	女　子	合　計	%
1	64,735	59,181	123,916	0	0	0	0.00
2	60,154	55,868	116,022	209	132	341	0.29
3	56,767	53,254	110,021	107	77	184	0.17
4	55,888	51,764	107,652	245	159	404	0.38
5	54,353	50,875	105,228	310	193	503	0.48
合　計	291,897	270,942	562,839	871	561	1,432	0.25

出所：教育省“ Pre-University Education Statistics 2000/2001 ”

JICA は 1997 年から 2000 年まで小学校の理数科教育改善に係るミニプロジェクトを実施した。その成果品のひとつに教員用ガイドブックがあり、関係者から高い評価を得ているものの、まだ実用に供する段階には至っていない。そのため、エジプトは日本政府に対し、理数科のガイドブックを用いた新しい教授法を定着させ、更なる普及のための基盤が整理されるよう、それに必要な指導・助言を与えることを再び要請してきたものである。

２．相手国実施機関

国立教育研究開発センター（NCERD）

３．プロジェクトの概要及び達成目標

（1）達成目標

1） プロジェクト終了時の達成目標

目標：理数科のガイドブックを用いた新しい教授法が、モデル校において定着し、更なる普及のための基盤が整備される。

指標：次の関係者による新しい教授法の評価：①教育行政官、②教員、③保護者、④児童

2） 協力終了後に達成が期待される目標

目標：理数科のガイドブックを用いた新しい教授法が、カイロ県及び教育省のプログラム計画･モニタリングユニット（PPMU）研修の対象県の小学校で導入される。

指標：① 新しい教授法を導入している学校数

② 新しい教授法を実践している教員数

③ 新しい教授法に基づいた授業を受けている児童数

（2）成 果

1） NCERD スタッフが教員に対して新しい教授法（授業案作成を含む）を的確に指導できる。

2） モデル校の教員が新しい教授法を習得し授業で実践できる。

3） 新しい教授法が効果的であることが検証される。

4） 理数科ガイドブックが改訂される。

5） モデル校のスクールベースド・トレーニングユニットがより機能するようになる。

6） 新しい教授法が教育関係者によって認知される。

(3) 活　動

1－1＆2－2　NCERD スタッフと協力して、モデル校の教師に対して理数科の新しい教授法の実践指導を行う。

2－1　モデル校を選定する。

3－1　新しい教授法の効果を測るための調査方法を検討する。

3－2　モデル校の児童・教師に対し、新しい教授法の調査を行う。

3－3　調査結果を分析し、新しい教授法の効果を実証する。

4－1　授業実践の教訓等に基づき、段階的にガイドブックを改訂する。

5－1　モデル校のスクールベースド･トレーニングユニットの機能を強化するための助言を行う。

6－1　教育関係者に対して公開授業やセミナーを開催する。

(4) 投入（インプット）

（専門家：人数・分野）

・長期専門家：４名（チーフアドバイザー、業務調整員、理科教育、算数教育）

・短期専門家：３名程度／年

（研修員受入れ：人数・分野）

・３名程度／年（理科教育、算数教育）

（機材供与：主要品目、数量、金額等）

小学校巡回指導用車両１台、授業観察用ビデオカメラ４台、ガイドブック改訂作業用コンピューター５台など約 1,000 万円

(5) 総事業費：約４億円

(6) スケジュール：2003 年４月１日～ 2006 年３月 31 日

(7) 実施体制：

1) 先方実施機関：NCERD 及びモデル校（カイロ県内の４校）

2) 国内協力機関：北海道教育大学

４．評価結果（実施決定理由）

以下の観点からプロジェクトを評価した結果、協力を行うことは必要かつ妥当と判断される。

（1）妥当性

エジプトの非識字者は全人口の約40%を占めており、初等教育の量的側面のみならず質的側面への対応が急がれている。Mubarak大統領もこの点を深く認識しており、2000年のダカール国際会議において、大統領自身が教育機会の拡大だけでは不十分であり、全国民に対する教育、特に教育の質的向上が必要である（Education for Excellence, Excellence for All）と力説している。他方、我が国の外務省の対エジプト援助の重点分野のひとつにも「人材育成、教育の充実」が掲げられているほか、1999年に同大統領が来日した際に両国間で合意された、「21世紀の平和と繁栄のための日本－エジプト・パートナーシップ・プログラム」の協力５分野のなかにも「教育」が含まれていることから、本件協力は我が国の外交政策に合致するものである。さらに、実施機関であるJICAは、多数の開発途上国の理数科教育協力で豊富な経験を有しており、当該分野においてJICAが貢献できる余地は極めて大きい。

（2）有効性

欧州連合（EU）と世界銀行は1997年から教育向上プログラム（EEP）を実施している。2002年からはその柱のひとつである現職教員訓練に力を入れており、特にEUはJICAのミニプロジェクトで作成したガイドブックを高く評価し研修で用いることを希望している。EEPはカイロ県を除く15県を対象としているが、多数の参加者に対して行うため、自ずと研修内容は広く浅くならざるを得ない。他方、我が国の協力では、モデル校の教員を対象とした濃密な実践指導が主要な活動となるが、この方法では広範な規模で行うことは不可能であり、限定された範囲を対象とせざるを得ない。このようにEU・世界銀行とJICAはそれぞれのアプローチやプロジェクト目標は異なるものの、互いの弱点を補い合い、その上位目標「理数科のガイドブックを用いた新しい教授法が、カイロ県及びPPMU研修の対象県の小学校で導入される」を共有する。各ドナーが自らの特長を生かすことによって、ガイドブックがエジプト国内で広範に普及する可能性が格段に増すことが期待されることから、本件協力の有効性は極めて高いといえる。

（3）効率性

本件協力は、過去にJICAが実施したミニプロジェクトによって作成された理数科の教員用ガイドブックを基盤としたものである。また、ミニプロジェクト時のC／Pと再び活動を共にし、必要に応じてガイドブックを改訂しつつ、それを用いた新しい教授法をモデル校において定着させ、普及の基盤を整備しようとするものである。その点で、ミニプロジェクトの財産（成果）である人材と教材をそのまま生かすことができるため、非常に効率的である。また、国内協力機関もミニプロジェクト時と同じ北海道教育大学であることから、過去に得た知見とノウハウを本件協力で直ちに生かすことが可能である。

（4）インパクト

1） 開発政策の枠組みへの効果

本プロジェクトの最終受益者はやがて成人する児童である。教育の効果は数世代にわたって継承され、社会全体に絶大なインパクトを与える。本プロジェクトが成功し、その波及効果が確認されれば、同国政府はより教育に関心を払い、現在全国家予算の19.1%を占める教育予算を更に拡充することも考えられる。さらに、第４次５か年計画では教育関連の目標は量的向上にとどまっているが、次期５か年計画では質的向上にまで踏み込んで掲げられる可能性もある。

2） 制度的枠組みへの効果

エジプトの現職教員の訓練は、NGOを含む国際的な機関がスポンサーとなって、そのときどきに実施されているのが現状であるが、それが教育省の予算で定期的に開催されるようになることが強く期待される。本プロジェクトは教育省が各学校に設置を義務づけたスクールベースド・トレーニングユニットの活動を支援し（特に理数科教育についての）、現職教員訓練のレベルを高めていくものと考えられる。訓練が質的に向上すれば、教育省がその効果を認めて独自のイニシアティブで訓練プログラムを開催することにもなろう。

3）社会・経済への効果

a） 受益者の特徴

表－３　プロジェクトの受益者の分類

分　類	受　益　者
第１直接受益者	・NCERD スタッフ ・カイロ県のモデル校の教員
第１間接受益者	上記のモデル校の児童（2002 年度以降の新４年生）
第２直接受益者	・モデル校の公開授業を観察した教員 ・教員研修プログラムかスクールベースド・トレーニングユニットにおいて新しい教授法を学んだ教員
第２間接受益者	上記の教員から教えられる児童
第３受益者	・地区・県レベルの教育事務所 ・教育省
他の受益者	家族、学校、コミュニティー、社会全体

b） 受益者の数

表－４　プロジェクトの受益者の数

分　類	受　益　者	人　数
第１受益者	・NCERD スタッフ ・カイロ県のモデル校の教員	４～19 人 各校２人以上
	上記のモデル校の児童（2002 年度以降の新４年生）	500 人前後
第２受益者	・モデル校の公開授業を観察した教員	1,200 人前後
	・教員研修プログラムかスクールベースド・トレーニングユニットにおいて新しい教授法を学んだ教員	２万 2,000 人から ６万 5,000 人程度
	上記の教員から教えられる児童	100～200 万人

c） 便益の内容

便益の内容は、教える側からすれば、新しい教授法の習得と改訂されたガイドブックである。また学ぶ側からすれば、彼ら自身の学力、スキル、態度、そして関心の向上である。第３及び他の受益者は、各機関の社会的、政治的立場と責任に応じて異なる性質の便益を受けることになる。

4） 技術的観点からの効果

プロジェクトの活動が展開されるにつれ、NCERDは経験を積み、様々な教訓を得て、それらを国中どこでも適用かつ普及可能な組織的共有知にまで高めていくことが期待される。また、広く浅く教育問題に対処する他のドナーとは異なり、JICAは小学校の理数科教育という限定された分野において、濃密な技術移転を受ける対象者を絞り込んでいる。したがって、NCERDスタッフとモデル校の教員たちが、ガイドブックを用いた新しい教授法を習得したあとは、今度は彼らが幹部トレーナーとなって、全国の他の教員に対して知識と技術の普及を継続して行っていくことが期待される。

（5）自立発展性

NCERDは2003年に設立30周年を迎えており、社会的にも必要不可欠な存在として認知されているため、本件終了後も継続的な活動のための予算的基盤は十分に整っている。また、プロジェクトによって作成（改訂）されるガイドブックと育成される人材は、単にプロジェクト内部にとどまらず、エジプトの教育界にとってかけがえのない財産となる。NCERDが、学校、地区・県教育事務所、そして教育省と良好な協力関係を維持する限り、本件協力の自立的発展性は高いと考えられる。

５．外部要因リスク（外部条件）

（1）外部条件

・カイロ県とPPMU研修の対象県の教育事務所が新しい教授法の普及に関して協力的である。
・カイロ県教育事務所が新しい教授法の普及に関して協力的である。
・NCERDスタッフとモデル校のモチベーションが高いレベルで維持される。
・モデル校の本プロジェクトに対する姿勢、方針が変化しない。
・モデル校の教員が頻繁に異動しない。
・NCERDスタッフが頻繁に異動しない。
・調査に必要なデータが提供される。

（2）前提条件

エジプト側関係者から本プロジェクトに関する理解、協力が得られる。

６．今後の評価計画

・中間評価：プロジェクト開始から約１年後

・終了時評価：プロジェクト終了の約６か月前

・事後評価：必要な場合にプロジェクト終了後の約５年後

2. Record of Discussions

RECORD OF DISCUSSIONS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE AUTHORITIES CONCERNED OF
THE GOVERNMENT OF THE ARAB REPUBLIC OF EGYPT
ON
JAPANESE TECHNICAL COOPERATION FOR THE PROJECT ON
IMPROVEMENT OF SCIENCE AND MATHEMATICS EDUCATION
IN PRIMARY SCHOOLS

Resident Representative of the Japan International Cooperation Agency (hereinafter referred to as "JICA") Egypt Office had a series of discussions with the Egyptian authorities on desirable measures to be taken by both Japanese and Egyptian Governments for the successful implementation of the Project on Improvement of Science and Mathematics Education in Primary Schools.

As a result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the Government of Japan and the Government of the Arab Republic of Egypt, signed in Cairo on 15th June, 1983 (hereinafter referred to as "the Agreement"), Resident Representative of JICA Egypt Office and the Egyptian authorities concerned agreed to recommend their respective Governments the matters referred to in the document attached hereto.

Cairo, 19th February, 2003

下村則夫

Mr. Norio SHIMOMURA
Resident Representative
Egypt Office
Japan International Cooperation Agency
Japan

Nadia Gamal El Din

Dr. Nadia Gamal El Din
Director
National Center for
Educational Research and Development
Arab Republic of Egypt

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN BOTH GOVERNMENTS

1. The Government of the Arab Republic of Egypt will implement the Project on Improvement of Science and Mathematics Education in Primary Schools (hereinafter referred to as "the Project") in cooperation with the Government of Japan.

2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

II. MEASURES TO BE TAKEN BY THE GOVERNMENT OF JAPAN

In accordance with the laws and regulations in force in Japan and the provisions of Article Ⅲ of the Agreement, the Government of Japan will take, at its own expense, the following measures through the Japan International Cooperation Agency (hereinafter referred to as "JICA") according to the normal procedures of its technical cooperation scheme.

1. DISPATCH OF JAPANESE EXPERTS
The Government of Japan will provide the services of the Japanese experts as listed in Annex Ⅱ. The provision of Article Ⅷ of the Agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT
The Government of Japan will provide such machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project as listed in Annex III. The provision of Article Ⅶ-1 of the Agreement will be applied to the Equipment.

3. TRAINING OF EGYPTIAN PERSONNEL IN JAPAN
The Government of Japan will receive the Egyptian personnel connected with the Project for technical training in Japan.

III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE ARAB REPUBLIC OF EGYPT

1. The Government of the Arab Republic of Egypt will take necessary measures to ensure self-

reliant and sustainable operation of the Project during and after the period of Japanese technical cooperation, through the full and active involvement of all related authorities, beneficiary groups and institutions in the Project.

2. The Government of the Arab Republic of Egypt will ensure that the technologies and knowledge acquired by the Egyptian nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of the Arab Republic of Egypt.

3. In accordance with the provisions of Article Ⅳand Ⅴof the Agreement, the Government of the Arab Republic of Egypt will grant in the Arab Republic of Egypt privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.

4. In accordance with the provisions of Article Ⅶof the Agreement, the Government of the Arab Republic of Egypt will take the measures necessary to receive and use the Equipment provided through JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.

5. The Government of the Arab Republic of Egypt will take necessary measures to ensure that the knowledge and experience acquired by the Egyptian personnel through technical training in Japan will be utilized effectively in the implementation of the Project.

6. In accordance with the provision of Article Ⅳ-(b) of the Agreement, the Government of the Arab Republic of Egypt will provide the services of the Egyptian counterpart personnel and administrative personnel as listed in Annex IV.

7. In accordance with the provision of Article IV-(a) of the Agreement, the Government of the Arab Republic of Egypt will provide land, buildings and facilities as listed in Annex V.

8. In accordance with the laws and regulations in force in the Arab Republic of Egypt, the Government of the Arab Republic of Egypt will take necessary measures to supply or replace at its own expense machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided through JICA under II-2 above.

9. In accordance with the laws and regulations in force in the Arab Republic of Egypt, the Government of the Arab Republic of Egypt will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. Director of National Center for Educational Research and Development (NCERD), as the Project Director, will bear overall responsibility for the administration and implementation of the Project.

2. The Head of Curriculum Department of NCERD, as the Project Manager, will be responsible for the managerial and technical matters of the Project.

3. The Japanese Chief Advisor in ANNEX II will provide necessary recommendations and advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.

4. The Japanese experts will provide necessary technical guidance and advice to the Egyptian counterpart personnel on technical matters pertaining to the implementation of the Project.

5. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established whose functions and composition are described in Annex VI.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by the two Governments through JICA and the Egyptian authorities concerned, at the middle and during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VI of the Agreement, the Government of the Arab Republic of Egypt shall bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the Arab Republic of Egypt except for those arising from the willful misconduct or gross negligence of the Japanese experts.

Nadia

VII. MUTUAL CONSULTATION

There will be mutual consultation between the two Governments on any major issues arising from, or in connection with this Attached Document.

VIII. MESURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of the Arab Republic of Egypt, the Government of the Arab Republic of Egypt will take appropriate measures to make the Project widely known to the people of the Arab Republic of Egypt.

IX. TERM OF COOPERATION

The duration of the Project under this attached document will be 3 (three) years from 1st April 2003.

X. OTHERS

Details on the Project will be clarified in a Minutes of Meeting to be made.

ANNEX I	MASTER PLAN
ANNEX II	LIST OF JAPANESE EXPERTS
ANNEX III	LIST OF MACHINERY AND EQUIPMENT
ANNEX IV	LIST OF EGYPTIAN COUNTERPART AND ADMINISTRATIVE PERSONNEL
ANNEX V	LIST OF LAND, BUILDINGS AND FACILITIES
ANNEX VI	JOINT COORDINATING COMMITTEE

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ANNEX I MASTER PLAN

1. Overall Goal

The new teaching methods using the guidebooks in science and mathematics education are used at the primary schools in Cairo governorate and PPMU's target governorates

(*NOTE: Overall goal is shared by both JICA and PPMU. It won't be achieved only by one side. Thus both of them cooperate each other. However, one is not accountable for the outputs of the other.)

2. Project Purpose

The new teaching methods that use the guidebooks in science and mathematics education take root at the selected schools and form a solid base for further dissemination

3. Outputs of the Project

(1) NCERD staff can give proper instruction to teachers on the new teaching methods, including lesson planning
(2) The teachers at the selected schools master the new teaching methods and practice them in class
(3) The new teaching methods are proved to be effective
(4) The guidebooks are revised
(5) The internal system of disseminating the new teaching methods is established at the selected schools
(6) The new teaching methods are recognized by the people in the education field

4. Activities of the Project

(1-1) In collaboration with NCERD staff, give hands-on instruction to the teachers at the selected schools on the new teaching methods
(2-1) Select the candidate schools
(2-2) Select the target schools from the candidates
(2-3) Making lesson notes and meeting with teachers of the selected schools
(2-4) Give hands-on instruction to the teachers at the selected schools on the new teaching methods
(3-1) Study the research methods that measure the effectiveness of the new teaching methods
(3-2) Conduct the research towards the teachers and students at the selected schools
(3-3) Analyze the research results and verify the effectiveness of the new teaching methods
(4-1) Revise the guidebooks step by step, based on the lessons learned through the practice in class
(5-1) Help strengthen the function of the school-based training units at the selected schools
(6-1) Hold School-based training session

(6-2) Hold open classes for teachers of Cairo governorate

(6-3) Hold the National Seminar

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ANNEX II LIST OF JAPANESE EXPERTS

1. Long-term Experts
   (1) Chief Advisor (1)
   (2) Coordinator (1)
   (3) Experts in the field of:
      a. Science Education (1)
      b. Mathematics Education (1)

2. Short-term Experts
   Short-term experts will be dispatched when necessity arises.

Note:
1. Each long-term expert could concurrently act as expert in another field, if necessary.

2. Field, number and term of assignment of experts will be decided in consideration of the progress of the Project through mutual consideration in each Japanese fiscal year.

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ANNEX III LIST OF MACHINERY AND EQUIPMENT

1. Equipment for the field of Science
2. Equipment for the field of Mathematics
3. Equipment for common and general use

Note:

1. The above-mentioned equipment is limited to equipment necessary for the transfer of technology by the Japanese experts and for mainly implementing a teacher training at the selected schools.

2. The contents, specifications and quantity of the above-mentioned equipment to be provided each year will be decided through mutual consultations based on the annual plan of the Project, within the allocated budget of the Japanese fiscal year.

ANNEX IV LIST OF THE EGYPTIAN COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Counterpart personnel

(1) NCERD

a) Director of NCERD

b) Head of Curriculum Department, NCERD

c) Counterpart personnel of Science Education

- Chief (1)
- Other researchers

d) Counterpart personnel of Mathematics Education

- Chief (1)
- Other researchers

(2) Ministry of Education

Representatives from Ministry of Education such as Counselor of Science, Counselor of Mathematics

(3) Cairo Governorate

a) Undersecretary of Education of Cairo Governorate

b) Inspectors

2. Administrative personnel

(1) Appropriate support staff at NCERD

(2) Drivers (2)

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ANNEX V LIST OF LAND, BUILDINGS AND FACILITIES

1. Land, buildings and facilities necessary for the Project

2. Room and space necessary for installation and storage of the equipment

3. Office space and necessary facilities for the Japanese experts

4. Other facilities mutually agreed upon as necessary

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ANNEX VI JOINT COORDINATING COMMITTEE

The Joint Coordinating Committee, which will consist of personnel from both the Japanese and the Egyptian sides, will be established for the smooth and effective implementation of the Project.

1. Functions

The Joint Coordinating Committee will meet twice a year or whenever the necessity arises, in order to fulfill the following functions:

(1) To formulate the Annual Plan of Operation of the Project,
(2) To review the overall progress of the Project and achievement of the technical cooperation programme as well as the Annual Plan of Operation,
(3) To review and exchange views on major issues arising from or in connection with the Project.

2. Composition

(1) Chairperson

Director of NCERD

(2) Members

a) Egyptian side

- General Director of Basic Education Department, Ministry of Education
- General Director of Primary Education Department, Ministry of Education
- Counselor of Science
- Counselor of Mathematics
- Other personnel as required

b) Japanese side

- Chief Advisor
- Coordinator
- Experts
- Representatives of the JICA Egypt Office
- Other personnel concerned to be dispatched by JICA, if necessary

Note: Official(s) of the Embassy of Japan may attend the Joint Coordinating Committee as observer(s).

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3．Minutes of Meeting（Project Document を含む）

MINUTES OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE AUTHORITIES CONCERNED OF
THE GOVERNMENT OF THE ARAB REPUBLIC OF EGYPT
ON
JAPANESE TECHNICAL COOPERATION
FOR THE PROJECT ON
IMPROVEMENT OF SCIENCE AND MATHEMATICS EDUCATION
IN PRIMARY SCHOOLS

Resident Representative of Japan International Cooperation Agency (hereinafter referred to as "JICA") Egypt Office had a series of discussions with the Egyptian authorities concerned about the formation of the Project on Improvement of Science and Mathematics Education in Primary Schools in Primary Schools (hereinafter referred to as "the Project").

As a result of the discussions, Resident Representative of JICA Egypt Office and the Egyptian authorities concerned agreed to report to their respective Governments the matters referred to in the document attached hereto.

Cairo, 19th February, 2003

下村則夫

Mr. Norio Shimomura
Resident Representative
Egypt Office
Japan International Cooperation Agency
Japan

Nadia Gamal El Din

Dr. Nadia Gamal El Din
Director
National Center for
Educational Research and Development
Arab Republic of Egypt

ATTACHED DOCUMENT

I. PROJECT DOCUMENT

Detailed information including the background, strategy on the Project is described in the Project Document as shown in ANNEX I.

II. TENTATIVE SCHEDULE OF IMPLEMENTATION

The Tentative Schedule of Implementation has been formulated according to the Record of Discussions, on the condition that the necessary budget will be allocated for the implementation of the Project by both sides. The schedule is subject to change within the scope of the Record of Discussions when necessity arises in the course of the Project implementation.

The Tentative Schedule of Implementation is shown in ANNEX II .

III. STRUCTURE OF PROGRAMME IMPLEMENTATION

1. The Chart of programme implementation in the Project is given in ANNEX III .

2. The role of each stakeholder for programme implementation in the Project is as follows:

(1) Ministry of Education

Ministry of Education will clarify the position of the Project in the educational policy and take the initiative in utilizing achievements obtained from the Project.

(2) NCERD

NCERD is supposed to be in charge of the main part of necessary activities for implementation of this project and bear the primary responsibility for the whole of management of the Project. NCERD will establish project units within its organization and steadily post adequate numbers of counterpart personnel for science and mathematics. Those counterparts will take part in all the activities of the Project. And NCERD is also supposed to provide necessary support for the Project activities, including proper arrangement with other organizations, provision of necessary information such as educational statistics, etc.

(3) Cairo governorate Education Office

What is indispensable is the understanding and positive support by the Cairo governorate education office and inspectors for the activities of Japanese experts and counterparts at the selected schools. Concerning the activities at the selected schools, the Japanese experts and the

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counterparts will be given equal powers equivalent to those of the inspectors, and in principle individual permission will not be requested.

And the Cairo governorate education office will appoint inspectors to participate, as much as possible, in the practicing of lessons at the selected schools.

Also lesson observations or seminars will be held as necessary. On such occasions, officials of the Cairo governorate education office and inspectors will take part in project activities from the planning stage and make arrangements for the recruitment of participants or ensuring the site, etc.

IV. PLAN OF OPERATION

The Plan of Operation has been tentatively formulated according to the Record of Discussions. The Plan of Operation for the whole period is shown in ANNEX III.

The Annual Plan of Operation is to be drafted by the Egyptian counterparts and the Japanese experts and is to be submitted to the Joint Coordinating Committee. The activities are subject to change within the scope of the Record of Discussions, if the necessity arises during the course of the Project implementation.

V. MEASURES TAKEN BY THE JAPANESE SIDE

1. Dispatch of Japanese Experts

Both JICA and the Egyptian side confirmed that the relevant request form, namely the A1 form, to assign Japanese long-term experts for the term of the technical cooperation will be submitted by the Egyptian side within four (4) weeks after the signing of Record of Discussions.

2. Provision of Equipment

Both JICA and the Egyptian side confirmed that the relevant request form, namely the A4 form, for provision of equipment be submitted by the Egyptian side after consultation between the Egyptian authorities concerned and JICA.

The Egyptian side agreed that it will take necessary measures in coordination with the relevant authorities for the passage through customs entry of the equipments provided by the Government of Japan without delay. NCERD will be responsible for the proper documentation and clearance of the delivered equipment at the port of entry, as well as be responsible for the proper administration of the equipment provided for use while ensuring appropriate utilization and maintenance for the Project implementation.

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3. Technical Training of Counterpart Personnel in Japan

Counter personnel will receive training in Japan according to the annual work plan of the Project within the limits of the budget allocated for technical cooperation. The relevant request form, namely the A2A3 form, for training in Japan will be submitted by the Egyptian side after consultation between the Egyptian authorities concerned and JICA.

VI. MEASURES TAKEN BY THE EGYPTIAN SIDE

1. Assignment of Personnel

With reference to Item 6 Article III of the Record of Discussions, the Egyptian side agreed that an appropriate number of counterpart personnel as well as administrative personnel will be assigned.

2. Allocation of Budget

With reference to the Item 9, Article III of the Record of Discussions, the Egyptian side will allocate the budget necessary for the implementation of the Project:

- Salaries and other allowances for the Egyptian staff
- Expenses such as electricity, water, gas, fuel and other contingencies
- Operational expenses for customs clearance, storage, domestic transportation and installation of the equipment provided by the Japanese side
- Expenses for maintenance of facilities and equipment
- Other necessary local expenses

NOTE: While implementing the Project, the Egyptian side and Japanese side will discuss the content of other necessary local expenses.

3. Arrangement of visiting schools

The Egyptian side will make an arrangement so that Japanese experts will be able to observe at their will lessons in other schools besides those in the selected schools. Therefore, the Egyptian side will examine if it is possible to provide discretion to act for the Japanese experts in governorates.

VII. SELECTION CRITERIA OF THE SCHOOLS FOR GUIDANCE

After signing an agreement between the Egyptian side and Japanese side, which is called "Record of Discussion", NCERD will start selection of eight experimental language schools in the Cairo governorate as candidates for the Project under the criteria below. The Project will

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eventually use four schools out of eight.

1. Availability of Laboratory accommodating all pupils of one class at one time
2. Meeting the standard act of construction of school building in terms of the number of class rooms and space
3. Two teachers each at least for mathematics and science to be present at the school
4. A principal and all the science and mathematics teachers can communicate in English
5. Rearrangement of class schedule for the Project so that JICA experts and NCERD staff can usually give two-hour instructions twice a week for maximum.
6. Execution of three kinds of workshops below for dissemination of the project activities
7. One year contract with this project to accept the conditions above

ANNEX I : Project Document
ANNEX II: Tentative Schedule of Implementation
ANNEX III: Organization Chart
ANNEX IV: Plan of Operation (Whole Period)

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PROJECT DOCUMENT

PROJECT

ON

IMPROVEMENT OF SCIENCE AND MATHEMATICS

EDUCATION IN PRIMARY SCHOOLS

February 2003

National Center for Educational Research and Development

(NCERD)

&

Japan International Cooperation Agency

(JICA)

Executive Summary

Egypt has the largest population and the second largest economy after Saudi Arabia in the Arab world. It is crucial that Egypt plays a leading role in maintaining peace and stability in the region. Still, the illiterate accounts for about 40% of the population, and people not going on to attend secondary schools remain with 67% in total. These figures reveal that education has been failing to supply the labor market with people who have fundamental literacy and numeracy skills.

Since President Mubarak assumed the presidency in 1981, Egypt's education indicators have made remarkable progress. Especially, the quantitative aspects of primary education were improved in 1990s, primarily through the construction of school buildings. Even today, the Government of Egypt places high priority on education, and education budget accounts for 15.1% of the total national budget. However, the qualitative aspects of primary education have not been fully addressed. Surprisingly, 11% of 5th graders in public schools repeated in 2000/01. In primary education in Egypt, it can be said that the higher the grade is, the higher the repetition rate is, regardless of the type (public or private) of schools students attend.

JICA implemented the Mini-project on the Development of Creative Science and Mathematics Lessons in Primary Education from 1997 to 2000. The teachers' guidebooks, which were one of the tangible outputs of the Mini-project, were highly evaluated by the Egyptian authorities concerned including the Minister of Education. The original guidebooks are written in English, but NCERD staff translated them into Arabic after the end of the project. Now, the guidebooks in Arabic are used for the training of inspectors and senior teachers. Still, its use is merely on a test basis for the limited number of people. Some parts of the guidebooks may need to be revised after the application into the real settings. In addition, the underlying concept of the guidebooks should be correctly understood by educators such as inspectors, senior teachers, and especially subject teachers, who directly teach students in class.

JICA, in collaboration with NCERD, will implement the Project on the Improvement of Science and Mathematics Education in Primary Schools from 2003 to 2006. Specifically, JICA will dispatch a team of experts, accept Egyptian counterparts for training in Japan, and provide necessary equipment for the smooth implementation of the Project activities.

The Project purpose, which is to be achieved by the end of the Project, is that the new

teaching methods that use the guidebooks in science and mathematics education take root at the selected schools and form a solid base for further dissemination. In order to achieve the Project purpose, Japanese experts give advice and guidance to NCERD staff and carry out the following activities.

(1-1) In collaboration with NCERD staff, give hands-on instruction to the teachers at the selected schools on the new teaching methods
(2-1) Select the candidate schools
(2-2) Select the target schools from the candidates
(2-3) Making lesson notes and meeting with teachers of the selected schools
(2-4) Give hands-on instruction to the teachers at the selected schools on the new teaching methods
(3-1) Study the research methods that measure the effectiveness of the new teaching methods
(3-2) Conduct the research towards the teachers and students at the selected schools
(3-3) Analyze the research results and verify the effectiveness of the new teaching methods
(4-1) Revise the guidebooks step by step, based on the lessons learned through the practice in class
(5-1) Help strengthen the function of the school-based training units at the selected schools
(6-1) Hold School-based training session
(6-2) Hold open classes for teachers of Cairo governorate
(6-3) Hold the National Seminar

Then the overall goal, which will have been achieved in some 5 years after the completion of the Project, is that the new teaching methods that use the guidebooks in science and mathematics education are used at the primary schools in Cairo governorate and PPMU's target governorates. The effects of the Project are expected to be many-sided because the final beneficiaries of the Project, that is, children will grow up to be adults after all. They can be good engineers, teachers, mothers and whatsoever with creative and critical thinking. The effects of education are relayed for generations, and will cause tremendous impacts on society.

The Japanese experts and NCERD counterparts will not only measure the effect of new teaching methods before and after the Project at the selected schools, but also conduct a comparative study between the selected and non-selected schools. They need to visit other schools for lesson observation, interviewing with teachers, data collection, etc.

To do so, they should be allowed to visit other schools as well whenever the appointment is duly made. Without such authorization, it will be difficult or impossible to conduct an in-depth research and verify the effect on children and teachers by practicing new teaching methods. In this sense, NCERD is requested to act as a mediator between the Japanese experts and education departments at the district and governorate level. No or little arrangement may limit the scope of activities and jeopardize the success of the Project.

1. INTRODUCTION

Egypt's education indicators have made remarkable progress since President Mubarak assumed the presidency in 1981. While the access to primary education has been greatly improved, Egypt has been keenly aware that equal opportunities are not enough to achieve "education for excellence and excellence for all."[1] In 1997, upon the request from Egypt, Japan International Cooperation Agency (JICA) started the Mini-project on the development of creative science and mathematics lessons in primary education. With the National Center for Educational Research and Development (NCERD) as a counterpart organization, this project produced plenty of tangible and intangible results among which are the guidebooks in science and mathematics, and successfully ended in 2000.

The original guidebooks are written in English, but NCERD staff, who learned expertise from Japanese experts, translated them into Arabic later on. Now, the guidebooks in Arabic are used for the training of inspectors and senior teachers. Still, the training is intended for the limited number of people, and its use is merely on a test basis. Some parts of the guidebooks may need to be revised after the application into the real settings. In addition, the underlying concept of the guidebooks should be correctly understood by educators such as inspectors, senior teachers, and especially subject teachers, who directly teach students in class.

To tackle such challenging issues, the Egyptian Government requested again the Japanese Government to give necessary advice and guidance in order that the new teaching methods that use the guidebooks take root and form a solid base for further dissemination.

2. BACKGROUND

2.1 Socio-economic Context

Egypt has the largest population and the second largest economy after Saudi Arabia in the Arab world. Its total area is 1,002 thousand square km^2 and its population is 59.3 million (1996).[2] The percentage distribution of the population by educational status is shown in Table 2-1. According to the table, the illiterate accounts for about 40%, and people not going on to attend secondary schools remain with 67% in total. These figures reveal that education has been failing to supply the labor market with people who have fundamental literacy and numeracy skills. In addition, there is a significant

gap between females and males, and the former has lagged far behind. The disparity between urban and rural areas is also obvious. Consequently, women in rural areas tend to be the most marginalized and deprived. For instance, the illiterate population among urban males is 19.81% whereas that among rural females amounts up to 63.23%.

The economy is dominated by the services sector, which, including public administration, accounts for about half of GDP. Within this, tourism and the Suez Canal are important sectors. Agriculture also remains an important activity although its contribution to GDP has gradually declined. Table 2-2 shows GDP by sector in recent years.

2.2 Description of the Sector/Sub-sector

Through the Third Five-Year Plan (1992/97) and Fourth Five-Year Plan (1997/2002), for Social and Economic Development, Egypt has promoted the quantitative expansion of educational opportunities. The Government of Egypt has allocated more than EGP 13 billion to build new schools at different educational stages. As a result of the efforts, full day primary schools increased from 5601 in 1991/92 to 6374 in 2000/01, and two shift primary schools decreased from 1215 in 1991/92 to 592 in 2000/01.[3] The congestion of students in the limited number of classrooms has been alleviated, and the Table 2-3 shows the increase of the number of schools from 1991/92 to 2000/01. The number of primary schools by governorate in 2000/01 is shown in Table 2-4. The percentage of student enrollment in primary schools also increased from 75.12% in 1992/93 to 91.94% in 2000/01. In 2000/01, totally 7,142,127 students are enrolled at the primary stages in public and private education in Egypt,[4] and the breakdown by governorate, gender and type of school is shown in Table 2-5.

Much has been done for the improvement of the access to primary education and its environments. Still, much has to be done for the reduction of repetition rate. Table 2-6 and 2-7 show the number and percentage of repeaters in public and private schools at the primary level in 2000/01. It can be said from the two tables that the public schools, with over 92% of the total primary students in the nation, have greater percentage of repetition, and higher graders are more likely to repeat regardless of the type of schools they attend.

2.3 Host Country Strategy

As Article 18 of the Egyptian Constitution states, "Education is a right guaranteed by

the State," the Government of Egypt considers education a human right for all citizens. In early 1990s President Mohamed Hosni Mubarak declared that last decade of the 20th century was a decade for eradicating illiteracy and providing education for all. He attached great importance to the equality of opportunity in primary education for all citizens.

In the President's speech on Labour Day, May 1994, he stated, *"The road to progress in Egypt won't be covered without releasing the potential of the Egyptian citizen ... . This is the most important task to be performed by us. Our means to achieve this end is to reconsider our concepts and the role of the educational and training institutions which are actually considered social institutions that should be given priority in our investment programmes."* As described in the **2.2**, the Government of Egypt has placed high priority on education, especially the quantitative aspects of education, and allocated the budget for establishing and rehabilitating schools.

In the 3rd millennium, Egypt is working out a strategy of quality education. President Mubarak delivered a speech in Dakar International Conference in Senegal 2000, *"The ninth decade of the last century witnessed determination that education is for all. So the first decade of the 21st century should witness ... the strenuous effort to achieve a new vision, ie. education for excellence and excellence for all. This principle means that the equal opportunities called for are not sufficient. This principle ... means providing opportunities for all to achieve excellence as the outcome of the education they received."*

Achieving the principle of excellence for all supports the national security and ensures the capacity to compete in the international market. In order to cope with an irreversible trend of globalization, MOE has made and will make efforts in different educational fields through five basic strategies.[5]

(1) Constant Professional Development
(2) Educational Scientific Research
(3) Democracy
(4) Nurturing the Gifted
(5) International Cooperation and Partnership

The Government of Egypt has decided to change the length of primary education from current five years to six years. This reform applies to new fourth graders from

September 2002 and they will receive six-year education in primary schools. Consequently, the third and lower graders will follow suit. In fact, the duration of primary education used to be six years, but due to the budgetary constraints, it was reduced to five years in 1989. The reform in 2002 is carried out by purely educational reasons. In other words, the Government is committed to providing children with basic skills in a longer time frame so that rote learning can be replaced by problem solving and critical thinking.

2.4 Prior and Ongoing Assistance

Egypt is fully aware that education is the principal tool of building human capacities, finding remunerative employment, and acquiring the knowledge necessary for developing individuals and societies. Egypt has been trying to take advantage of the lessons learned from other countries and institutions. To benefit from world experiences, Egypt has set up new partnership and implemented following projects and programs through international cooperation.

(1) UNESCO (United Nations Education, Science and Cultural Organization)

UNESCO's activities in Egypt cover a wide range, including girls' education, income generation for women and health programs. UNESCO is also conscious of the importance of the subjects of science and mathematics, and it targets the secondary education level. Since 1998 UNESCO annually holds the National Workshop on Use of Information, Communication Technologies (ICT) in Science and Mathematics Education in Secondary Schools in Egypt. The purpose of workshop is to provide participants with basic ICT skills and methods of utilizing these skills in designing classroom materials for science and mathematics courses.[6] This workshop takes place separately by subject, being collaboratively organized by the UNESCO Cairo Office and Secondary Education Enhancement Project (SEEP) of the World Bank / Programme Planning & Monitoring Unit (PPMU) / Ministry of Education. The duration of each workshop is about five days, and around 30 participants may consist of inspectors, senior teachers, subject teachers and researchers from NCERD.

(2) UNICEF (United Nations Children's Fund)

UNICEF has consistently placed emphasis on girl's education that has tremendous potential to empower families, communities and society as a whole. From 1992 to 2001 UNICEF implemented the following four projects. These projects were successful in that UNICEF collaborated with NGOs, mobilized community participation,

reached the hard to reach, and improved the access to education.

1) Early Childhood Care and Development (ECCD) Project
2) Female Literacy and Life Skills Project
3) Information Advocacy Project
4) Project on Basic Education

UNICEF's new country program by 2006 successively targets ECCD, quality learning with special focus on girls, and adolescents' development and participation. A project will try to provide necessary knowledge and skills on early childhood care and quality learning to children by establishing 100 new community schools in six districts in Assuit, Sohag and Qena. Another project will provide a support to national policies and educational reform by ensuring quality learning and gender parity.

(3) World Bank

Since 1997 the World Bank has implemented the Education Enhancement Program (EEP) by co-financing with the European Union (EU). The objectives of EEP are; 1) to increase the access to basic education, particularly for girls, 2) to improve the quality of education in large part through enhancement of the delivery and substance of pre- and in-service training of teachers, and 3) to increase the efficiency of the education system through improving human, financial and physical resource unitization. The estimated program cost is US$ 835.5 million and the World Bank finances US$ 75.0 million, which accounts for around 9%.[7] Table 2-8 shows the cost and financing by component and organization. EEP had been supposed to be a five-year project, but it was approved to be extended to 2004.[8] The implementing agency of the Egyptian side is PPMU organized under the Ministry of Education.

The World Bank clearly mentions in the Aide Memoire (2002) that improving the quality of student performance and learning is the ultimate goal of EEP. The World Bank focuses on developing the skills, attitudes, and knowledge of the teachers, managers, and district-level staff in order that they are better able to support student learning in the classroom. With the assistance of consultants and NCERD staff, the World Bank developed distance learning packages for primary teachers in the subjects of mathematics, science, social studies, English and Arabic. At the moment, the target governorates are 15,[9] but the extension to all the governorates is under review. Incidentally, the medium of delivery of learning contents is guidebooks, audiotapes and videotapes, not through the Internet or broadcasting.

(4) European Union (EU)

EU committed a grant of US$ 125.0 million (€100 million) to support the five-year Education Enhancement Programme (EEP). In collaboration with the World Bank, EU aims at improving the basic education system in Egypt, selecting educationally less privileged 15 governorates. EEP targets at; 1) increasing the enrollment and reduction of dropouts, especially among girls and children of disadvantaged communities, 2) improving the quality of teaching and 3) strengthening the capacity of planning and management.[10] Quality issues have been addressed primarily through school construction leading to the reduction of classroom density and elimination of multiple shifts.

EU decided to extend EEP to the year 2006 and is planning to initiate the full-scale training for science and mathematics teachers in 15 governorates. The total cost of EGP 1.5 million has been already approved within EU.[11] Since the target group is the enormous number of subject teachers at the school level, EU will conduct training for core members, mainly inspectors, in the first place, who then will train senior teachers and other teachers. This system is called a cascade way and is expected to be the most efficient way to disseminate the relevant knowledge and skills with less time and cost. In order to make the training effective, EU wishes to fully utilize the teacher's guidebooks in science and mathematics, which were developed by JICA's Mini-project. EU used the guidebooks for the pilot projects for teacher training in Ismailia (2001) and Qena (2002), and the majority of participants rated them as quite useful and applicable to their daily teaching. Annex 8-2 is the action plan of training submitted by the director of PPMU on May 21, 2002. According to the plan, EU needs the assistance of Japanese experts to train core members so that they can understand the underlying concept and proper use of the guidebooks.

(5) United States Agency for International Development (USAID)

USAID has implemented a wide variety of education projects that amount up to US$338 million in total.[12] Examples of the projects are girl's education, school construction, teacher training, and master teacher exchange program. The Education Reform Pilot is a four-year project that started in 2001. It targets 30 government schools (12 primary schools, 4 preparatory schools, and 14 secondary schools) in the poorest districts in Alexandria. USAID focuses on 1) intensive training of teachers, 2) community involvement, and 3) decentralization. As for teacher training, USAID

holds a series of short-term workshops for many different teachers in which they learn and discuss effective teaching methods such as critical thinking, student-centered learning, and creating a positive classroom environment. Their ultimate goal by the end of this project is the improvement of student performance, not the improvement of teaching methods or skills because the latter is a process and means to reach the goal.

(6) Japan International Cooperation Agency (JICA)

JICA implemented the Mini-project Type Technical Cooperation for the Development of Creative Lessons for Primary Education from 1997 to 2000. Unlike other donors, the Mini-project did not cover a wide range of teaching methods, but specialized in science and mathematics education for primary schools. JICA dispatched 13 Japanese experts (at 17 times), accepted 14 Egyptian counterpart personnel from NCERD as trainees in Japan, and donated equipment equivalent to 22 million yen.[13] Through various inputs and activities, the teachers' guidebooks in science and mathematics were finally developed as one of the outputs. These guidebooks are rich in both contents and volume. Moreover, the counterparts translated the guidebooks written in English into Arabic after the Mini-project, and their capabilities are highly evaluated by international organizations that need support from them (ex-JICA counterparts) to develop teaching materials.

3. PROBLEM TO BE ADDRESSED, THE CURRENT SITUATION

3.1 Institutional Framework for the Sub-sector

Due to the educational reform that took effect from September 2002, compulsory education has extended from eight years (five-year primary and three-year preparatory education) to nine years (six-year primary and three-year preparatory education). Consequently, new fourth graders will go on to become sixth graders while new fifth graders continue to stay in the previous system. The new structure of formal education system is shown in Figure 3-1. Prior to primary education, there are some kindergartens and nurseries, but these are few in number and mostly located in the cities. After completing preparatory education, students enter a general secondary school, vocational school, or leave school.

According to the "Technical Directives and Syllabi for the Primary Cycle of Basic Education, Primary Stage, 2001/2002," the class period is not less than 34 weeks per annum. The weekly number of lessons by subject in public and experimental language

schools is shown in Table 3-1 and 3-2. The syllabi of distribution of mathematics and science are attached as Annex 8.3 and 8.4.

3.2 Problem to be Addressed, the Current Situation

As stated in **2.2**, the quantitative aspects of primary education were significantly improved in 1990s. The intensive school construction contributed to expanding the education opportunities and enhancing the access and learning environment. Still, the qualitative aspects of primary education have not been fully addressed. It is probably because concerning education, it would be difficult to measure the qualitative achievement and see the tangible results for a short length of time.

Table 2-6 and 2-7 indicate that the higher the grade is, the higher the repetition rate is. In primary education in Egypt, if a student fails in even one subject, he or she has to repeat the same grade and learn all the subjects again from the beginning. Surprisingly, 11% of 5th graders in public schools repeated in 2000/01. This is nothing but the wastage of education. Such inefficiency negatively affects their families, schools, communities and the nation after all. Yet, the failed students themselves are the most tragic victims of all because they may lose the academic interest for ever and ever.

The Japanese Preparatory Study Team dispatched in April 2002 made a tour of several governmental and experimental language schools. Wherever the Team interviewed, the school teachers uniformly answered that mathematics was the weakest subject of students. In addition, they pointed out that there was too much information included in the science textbooks for students to absorb. Annex 8.5 is the outputs of the Project Cycle Management (PCM) workshop held at Elmostakbal Integrated Experimental Language School in Cairo in April 2002. The participants were around 20, being composed of a principal, subject teachers, senior teachers, inspectors, parents, and NCERD staff. They split into two groups, discussed and formulated the so-called problems trees attached as Annex 8.5. In both trees, the core problems relate to a conventional or old-fashioned way of teaching that would not to lead to students' joy of learning, understanding, creativity or critical thinking.

In fact, mathematics and science are the two major subjects that help establish the foundation for the development of basic thoughts and ideas from which students are able to move on to advanced mental activities. Also, science provides students with an opportunity to develop the idea of causal relationships, which is the key to forming a

scientific way of thinking, while mathematics helps students to develop an idea for numbers, which eventually becomes the basis for developing a logical way of thinking (Maurice Debesse. 1980).

3.3 Relations with Japan's Aid Policy

Egypt is one of largest countries in the Middle East. It is crucial that Egypt plays a leading role in maintaining peace and stability in the region. Japan has given priority to assistance in the following areas.[14]

(1) Expanding agricultural production
(2) Human resources development and education
(3) Economic infrastructure and promotion of industry
(4) Health and medical services
(5) Improvement of the living environment, environment conservation and public hygiene

As for (2), Japan considers that the enhancement of basic education is of vital importance and places the human resources development, beginning with primary education as a task to be addressed. Furthermore, the Japan-Egypt Partnership Program for Peace and Prosperity in the 21st Century, which was agreed upon between the two countries when President Mubarak visited Japan in April 1999, aims at increasing and diversifying the mutual consultations and cooperation in the field of; 1) peace, 2) economy, 3) environment, 4) cultural exchange, and 5) education. Thus, the Project on the Improvement of Science and Mathematics Education in Primary Schools in Egypt (hereinafter referred to as "the Project") is perfectly in line with Japan's aid policy towards Egypt.

4. PROJECT STRATEGY

4.1 Project Strategy

Annex 8.6 is also the outputs of the PCM workshop held at Elmostakbal Integrated Experimental Language School in April 2002. Two groups of the participants formulated the so-called objectives trees attached as Annex 8.6. In both trees, the core objectives relate to a new or student-centered method of teaching that makes possible to link subjects to the real life and to help children to understand the concepts step by step.

NCERD and JICA developed the teachers' guidebooks in science and mathematics as

one of the tangible outcomes of the previous Mini-project (1997-2000). Due to the continuous efforts made by NCERD staff, the guidebooks were translated from English to Arabic several months ago and are ready to be utilized, tested, revised if need be, and disseminated widely around the nation. The new Project (2003-2006), based on the previous one, will be implemented according to the following strategy.

(1) Giving Guidance on Practice at the Selected Schools

a. Necessity for two kinds of activities

The new teaching methods must be almost unfamiliar for ordinary teachers in Egypt. Besides, in order to give those lessons properly, it is indispensable that teachers themselves should have a high level of understanding and be enthusiastic about exercising their ingenuity. On top of that, it will be essential to conduct plentiful practice and accumulate expertise and know-how in real settings.

Therefore, in order to have the new teaching methods firmly take root in Egypt, the most effective means is to have keenly enthusiastic and excellent teachers pile up their experience in the new teaching methods through practice in actual lessons. Since the only limited number of Japanese experts can provide such guidance for the large audience, the target people of expertise transfer shall be selected and narrowed down. Yet even if it is implemented on a limited scale, when the practice of exemplary lessons is really established and ensured by Egyptian teachers themselves, they will become indispensable resource people to promote the improvement of science and mathematics education, serving as a nucleus of self-supporting development in the future. The basic philosophy of the new teaching methods in mathematics and science are attached as Annex 8.7 and 8.8.

The new teaching methods ought to be promptly introduced across the country, and in this sense, the implementation of training programs on a broad scale for teachers all over the country is also indispensable. Both the attentive guidance on a limited scale and the training programs on a broad scale are necessary activities for the consolidation and dissemination of the new teaching methods and will complement each other. The general view of the activities is shown in Annex 8.9.

b. Language

Suppose two kinds of activities, the training program on a broad scale and the attentive guidance on a limited scale, are requested, it is necessary to examine which one should

be implemented with priority under the Project. Considering that the Arabic language is an unavoidable barrier for Japanese experts to communicate with and convey proper guidance to Egyptian counterparts, it will be difficult to preside over a wide range of training programs on project's own initiative. (Undoubtedly, conducting extensive training programs is important. So, if other training programs are implemented, it is considered important to provide as much cooperation as possible in close collaboration with other implementing agencies or donors.)

Since there are some public primary schools where the language of instruction is English, that is, experimental language schools, it is desirable to select several schools (about 4) among them in the Cairo Governorate, which are accessible enough to go and come back in a day from and to NCERD. It is possible under such conditions to give intensive guidance on practice of the new lessons for the teachers, with Japanese experts serving as a core. Such person-to-person guidance is considered to be the main activities of the Project. The list of experimental language schools in the Cairo Governorate is attached as Annex.8.10.

c. Practice of New Teaching Methods at the Selected Schools

Suppose several selected schools are considered to be the targets for the activities, first of all, the selection of appropriate schools is extremely important. Diverse schools should be selected in terms of geographical location, competitiveness to enter, and other characteristics of their own. It is essential that both the competent principal and the teachers of science and mathematics of a selected school should have much understanding of the objective of introducing new teaching methods and provide positively their cooperation. In selecting the schools for experimental work, these points should be sufficiently taken into account and due regard should be paid to the opinion of Japanese experts who will undertake the guidance. Also indispensable are counterparts of the Egyptian side who will extend guidance, together with Japanese experts. It is appropriate that main counterparts should be designated researchers of NCERD, similarly with the Mini-project. (Researchers who had undertaken preparation of the guidebooks are desired).

During a period from the commencement of the project until inception of the practice of lessons at the selected schools, Japanese experts and the counterparts may hold various types of seminars when occasion demands. These seminars will be intended for the staff of governorate educational departments, inspectors and principals or teachers in

science and mathematics of the selected schools.

After the schools for experimental work have been selected, each school will accumulate expertise and know-how through the practice of new teaching methods by using the guidebooks, thereby building the capacity of implementation. This practice on a daily basis is the main activities of the Project. Japanese experts and Egyptian counterparts, organizing a team, often make the round of the selected schools, giving minute guidance and advice to the teachers of each school. By doing so, it is expected that the counterparts will enhance their capacity of giving proper instruction and the teachers of the selected schools will acquire the ability to put the new teaching methods accurately into practice. The image of practical activities at the schools for experimental work is shown in Annex 8.11.

It is strongly expected that the activities at the selected schools should take root to a certain extent in two years after the commencement of the Project and those schools should reach the level at which they can invite inspectors and teachers of other schools so that a wide range of educators can observe the exemplary lessons in the latter half of the period of the Project.

(2) Revision of the Guidebooks through Practice

The contents in the current guidebooks are extremely multiple. Even if lesson hours for science and mathematics are considerably increased, it will be difficult to implement all of the contents. In addition, it should be verified through actual lessons whether or not each content is highly effective for deepening children's understanding by extracting their positive responses. Based on this recognition, the contents of the guidebooks should be closely examined through the activities and then revised accordingly. Revision is thought to be conducted gradually whenever it is needed.

(3) Verification of Effect caused on Children and Teachers by New Teaching Method

This project itself has an experimental nature and thus it is very important to verify what kind of effect the new teaching methods will produce on the understanding, skills and attitudes of children. If it is possible to show objectively the effect that can be brought about by new teaching methods, such evidence will presumably facilitate the understanding and consent of teachers and inspectors.

Therefore, various types of studies should be implemented, with children at the selected schools as main targets. As study methods, basic study methods for science education had been already developed such as misconception test, study of scientific attitudes, and lesson observation with evaluation cards. On the basis of these methods, also for mathematics education, the study should be conducted and its methods should be developed further. Study is supposed to be done at all selected schools, or by comparing between the selected schools and ordinary schools. Besides, the observation of the effect caused on children and teachers through the classroom visit is also very important. It can provide many useful remarks for the activities of the Project including revision of the guidebooks.

(4) Implementation of Dissemination Activities such as Lesson Observation

In the latter half of the Project, dissemination activities should be positively promoted. These will include providing opportunities broadly for people in educational administration and teachers to observe lessons at the selected schools or holding seminars on new teaching methods, etc. In addition, when conducting other training programs concerning the guidebooks are expected, appropriate relations for cooperation with them should be established, provided that there should be no overlaps in contents. Positive cooperation with other programs within an extent of not disturbing the proper implementation of the project is important.

4.2 Implementation Arrangement

(1) Capacity of Counterpart Organization

NCERD was established as a public agency in 1972 by the Labor Law No.881. NCERD aims at supporting the responsible people working in the field of education. NCERD conducts researches and necessary feasibility studies and make the results open to the public. NCERD also works on developing and improving textbooks, prepares new teaching methods, and makes new training plans for teachers. Through these activities, NCERD aspires to participate in developing the scientific role in society.

Thus, NCERD is a public, traditional and solid establishment and is appropriate as a counterpart organization of the Project. Its organization chart is shown as Figure 4-1. NCERD is in charge of the main part of necessary activities for the implementation of the Project and bears the primary responsibility for the whole of management of the Project. In addition, NCERD is supposed to provide necessary support for the Project activities, including proper arrangement with other organizations, provision of

necessary information such as educational statistics, etc.

(2) Budget Allocation

NCERD's budget in 2002/03, including salary of the staff, is EGP 5,342,000 as attached in Annex 8-12. As a distinguished research and development entity, NCERD has the history of 30 years, and its budgetary situation is stable and firmly secured.

(3) Counterpart Allocation

It is desired that NCERD will establish a unit for the Project within its organization and steadily post one responsible counterpart in each subject of science and mathematics. In fact, NCERD is ready to set up a special unit for the Project, and the list of counterparts is shown as Table 4-1. Those counterparts will take part in the whole activity of the Project. They used to be the counterparts of the Mini-project so that they have a solid basis to start the Project smoothly.

4.3 Coordination Arrangement

What is indispensable for the Project is the understanding and positive support by governorate educational departments and inspectors for the activities of Japanese experts and counterparts in the selected schools. Concerning the activities in the selected schools, it is strongly desired that the experts and the counterparts will be given as equal powers as those of inspectors, and in principle, individual permission will not be requested.

It is requested that the governorate educational department will kindly appoint personnel responsible for the Project, and enable inspectors to participate as much as possible in the practice of lessons at the selected schools. Also lesson observations or seminars will be held at need. On such occasions, officials of the governorate educational department who are in charge of the Project and inspectors will be kindly requested to take part in project activities from the planning stage and make arrangements for the recruitment of participants or ensuring the site, etc.

As well as NCERD and the selected schools, the Ministry of Education is one of the stakeholders in the Egyptian side. It is desirable that the Ministry of Education will clarify the position of the Project in its educational policy and take the initiative in utilizing achievements obtained from the Project.

4.4 Sustainability

The contents of the guidebooks have had earned a good reputation of being practical and useful. Still, it has been only used on a pilot basis. In the new Project, they will be utilized and tested in the real settings. Furthermore, after being revised if need be, they will be disseminated widely around the nation. The guidebooks are expected to be used for the improvement of pedagogy of teachers and learning of students in a sustainable manner towards the future.

Such sustainability, however, totally depends on the performance of counterparts of NCERD and teachers of the selected schools. On one hand, NCERD counterparts visit the selected schools with the Japanese experts and observe how the textbooks are utilized in class, which part should be revised and why. On the other hand, the teachers of the selected schools are to be observed by the Japanese experts and NCERD counterparts with a video camera in hand, receive remarks from them after class, and learn which part of their teaching methods should be redressed and why. Such repeated practice is of the first importance to both NCERD counterparts and school teachers. By doing so, they will understand the core concept of guidebooks, acquire new effective teaching methods, and work as trainers or instructors that can demonstrate a model lesson to the large audience.

Thus, the guidebooks and human resources to be developed by the Project will be the invaluable assets of not only the Project but also the educational world of Egypt. As long as such cooperative relationships between NCERD and the schools are maintained and expanded, the assets can continue to gain headway for the betterment.

4.5 Special Consideration

As the greatest importance is attached to "Practice" of new class-lessons in the Project, the Japanese experts who have experience of teaching at school will chiefly take charge of activities at the selected schools. In order that they will be able to perform smoothly their functions, cooperation of counterparts and inspectors are absolutely indispensable.

In addition, the Japanese experts should have a better understanding of the current situation of Egypt for the effective implementation of the Project. The Egyptian side, particularly NCERD is supportive and is kindly requested to make arrangements of school visits so that the Japanese experts will be able to observe the lessons in other schools at their own will, besides those in the selected schools. Therefore, it is

requested that the Egyptian side provide the discretion to act freely for the Japanese experts, who make frequent visits on primary schools. No or little arrangement may limit the scope of activities and jeopardize the success of the Project.

5. PROJECT DESIGN

The whole picture of project design, in relation to PPMU, is summarized into the Project Design Matrix (PDM) as attached in Annex. 8.13.

5.1 Overall Goal

The overall goal, which will have been achieved in some 5 years after the completion of the Project, is that the new teaching methods that use the guidebooks in science and mathematics education are used at the primary schools in Cairo governorate and PPMU's target governorates.

(*NOTE: Overall goal is shared by both JICA and PPMU. It won't be achieved only by one side. Thus both of them cooperate each other. However, one is not accountable for the outputs of the other.)

5.2 Project Purpose, Outputs and Activities

(1) Project Purpose

The Project purpose, which is to be achieved by the end of the Project, is that the new teaching methods that use the guidebooks in science and mathematics education take root at the selected schools and form a solid base for further dissemination.

(2) Outputs

Outputs are products to be yielded by the Project in order to achieve the Project purpose. Following are the major outputs of this Project.

1) NCERD staff can give proper instruction to teachers on the new teaching methods, including lesson planning
2) The teachers at the selected schools master the new teaching methods and practice them in class
3) The new teaching methods are proved to be effective
4) The guidebooks are revised
5) The internal system of disseminating the new teaching methods is established at the selected schools.

6) The new teaching methods are recognized by the people in the educational field.

Each output above is an integral part of the whole Project. Even a lack of one component may undermine the base of the Project. The Project purpose can be achieved only when the outputs are realized and synthesized.

(3) Activities

Activities are specific actions intended to produce the outputs of the Project by effective utilization of inputs by both Japanese and Egyptian sides.

Japanese experts give advice and guidance to NCERD staff and carry out the following activities.

(1-1) In collaboration with NCERD staff, give hands-on instruction to the teachers at the selected schools on the new teaching methods
(2-1) Select the candidate schools
(2-2) Select the target schools from the candidates
(2-3) Making lesson notes and meeting with teachers of the selected schools
(2-4) Give hands-on instruction to the teachers at the selected schools on the new teaching methods
(3-1) Study the research methods that measure the effectiveness of the new teaching methods
(3-2) Conduct the research towards the teachers and students at the selected schools
(3-3) Analyze the research results and verify the effectiveness of the new teaching methods
(4-1) Revise the guidebooks step by step, based on the lessons learned through the practice in class
(5-1) Help strengthen the function of the school-based training units at the selected schools
(6-1) Hold School-based training session
(6-2) Hold open classes for teachers of Cairo governorate
(6-3) Hold the National Seminar

5.3 Inputs

(1) Inputs from the Japanese Side

1) Dispatch of Experts

a. Long-term Expert

Four long-term experts are to be dispatched during the period of the Project. Their fields of specialization are as follows. These experts will be officially sent to the most important and responsible organization, NCERD, where the experts can work together with Egyptian counterparts of a special internal unit for the Project.

- Chief advisor (1):
  Researcher on education in science and mathematics (professor or associate professor or equivalent)
- Specialist in mathematics education (1):
  Specialist with experience of practical research in primary mathematics education
- Specialist in science education (1):
  Specialist with experience of practical research in primary science education
- Coordinator (1)

b. Short-term Expert

Annually about 3 experts, who are mainly university researchers, may be dispatched in a timely manner to provide guidance or lectures on specific themes.

2) Provision of Equipment

The Japanese side will provide the equipment that facilitates the transfer of expertise and smooth implementation of the Project. It is rigidly examined in terms of necessity, urgency, rationality and durability.

3) Training in Japan

Annually about 3 persons, such as counterparts of NCERD and teachers at the selected schools, will be invited to join a short-term training course at universities in Japan. This hands-on training is quite useful in that trainees can directly see how teaching is conducted behind what sort of concept in real situations. After training in Japan, participants are strongly expected to practice and disseminate the knowledge, skills, and expertise acquired to their colleagues in Egypt.

(2) Inputs from the Egyptian Side

1) Staff Allocation

The Egyptian staff allocated to the Project is shown in Table 4-1. In addition to NCERD counterparts listed there, the teachers in science and mathematics in the selected schools will have an even more important role to play because they are not observers, but practitioners of teaching, using the guidebooks for students in real lessons.

2) Buildings, Facilities and Equipment

NCERD will prepare enough space, facilities, and equipment necessary for the Project activities. These are preconditions to start the cooperation between the two countries. Such physical inputs, in synergy with the equipment provided by the Japanese side, will contribute to bearing fruits of the Project.

5.4 Important Assumption and Risk Analysis

As stated in **4.5**, the practice of new teaching methods with the guidebooks occupies the main part of the Project. The Japanese experts and NCERD counterparts visit the selected schools on a regular basis and give guidance to the teachers in and after class. It is expected to be difficult to bring immediate results on teaching and student performance. In this sense, the Japanese experts and NCERD counterparts need to establish a relationship of mutual trust with the teachers of the selected schools, particularly the principals. If principals correctly recognize the nature of the Project as time-consuming but meaningful, they will be more supportive to the Project activities. To the contrary, if the principals are not committed to the Project, their attitudes may discourage the subject teachers from keeping engaged and motivated.

The Japanese experts and NCERD counterparts will not only measure the effect of new teaching methods before and after the Project at the selected schools, but also conduct a comparative study between the selected and other schools. They need to visit other schools for lesson observation, interviewing with teachers, data collection, etc. To do so, they should be allowed to visit other schools as well whenever the appointment is duly made. Without such authorization, it will be difficult or impossible to conduct an in-depth research and verify the effect on children and teachers by practicing new teaching methods. In this sense, NCERD is requested to act as a mediator between the Japanese experts and education departments at the district and governorate level.

5.5 Prior Obligations and Prerequisites

Securing the inputs from the Egyptian side is minimum prerequisites to start the Project. In addition, it is strongly recommended that the stakeholders such as MOE, NCERD and education departments at the district and governorate level have joint meetings to discuss how the Project can be efficient and effective in the true sense of meaning.

6. Project Justification

6.1 Reasons for Assistance from JICA

JICA implemented the Mini-project on the development of creative science and mathematics lessons in primary education from 1997 to 2000. The teachers' guidebooks, which were the outputs of the Mini-project, were presented in the final seminar in November 2000 and highly evaluated by the Egyptian authorities concerned including the Minister of Education. Since the Japanese experts, who authored them in collaboration with NCERD counterparts, precisely know the underlying concept, they should be dispatched again through JICA's scheme to give guidance on the proper use of the guidebooks. In fact, JICA has rich experience in implementing the projects in science and mathematics education in many developing countries. Its specific and original way of the cooperation in this field has gained an established reputation in the world. Thus, there is plenty of room for assistance from Japan to Egypt.

6.2 Expected Effects of the Project

(1) Effects for the Development Policy Framework

In the Fourth Five-Year Plan for Social and Economic Development (1997/98 - 2001/2002), following goals are enumerated.[15]

- Putting all children eligible for receiving compulsory education in school
- Improving the rate of women's participation in the economy and in society
- Lowering the mortality rates of infants, pregnant women and nursing mothers
- Decreasing the population growth rate within 5 years, from 1.94% to 1.66%
- Linking economic development to the international environment
- Expanding employment opportunities and workers' incomes
- Keeping the annual growth rate or private consumer spending more than twice the population growth
- Increasing private investment 65-75% of Egypt's total investment target
- Achieving a 6.8% annual rate of growth

The effects of the Project are expected to be many-sided because the final beneficiaries of the Project, that is, children will grow up to be adults after all. They can be good engineers, teachers, mothers and whatsoever with creative and critical thinking. The effects of education are relayed for generations, and will cause tremendous impacts on society.

Table 6-1 is the state budget in 2002/2003. As the project goes successful, the Government of Egypt may become keener on education and may increase the education budget, which accounts for 15.1% of all at present.

(2) Effects for the Institutional Framework

The in-service teacher training currently implemented on an ad-hoc basis and sponsored by international organizations including NGO are expected to be institutionalized on a regular basis and funded by the Ministry of Education. The project will surely support the activities of school-based units and could help enhance the level of in-service teacher training, particularly for science and mathematics education. As the training improves in quality, the Ministry of Education recognizes its effectiveness and may hold the training programs with its own initiative.

(3) Effects for the Socio-economy

1) Description of Beneficiaries

As stated in **6.2 (1)**, the effects of the Project in the field of education are expected to be multi-layered. Still, the beneficiaries can be categorized into some groups as shown in Table 6-2.

2) Number of Beneficiaries

The number of primary and secondary beneficiaries is shown in Table 6-3. The number of tertiary and other beneficiaries is more difficult and less important to estimate so it is deleted in this table.

3) Contents of the Benefits

The contents of the benefits vary according to the category of beneficiaries and they are shown in Table 6-4. From the teaching side, the contents of the benefits are the mastery of new teaching method and revised guidebooks. From the learning side, they are the improvement of academic performance, skills, attitudes and interest. The tertiary and other beneficiaries will have different nature of benefits commensurate with

their social and political status and responsibilities.

(4) Effects from the Technical Standpoint

While other donors cover a wide range of educational issues by holding frequent short courses for myriads of teachers each time, JICA focuses on the target area, that is science and mathematics education in primary schools, towards the target people who receive the transfer of expertise in the said area.

1) Number of Counterparts

As an implementing and responsible agency, NCERD will allocate at least 19 counterparts with one head in each subject. The list of NCERD counterparts is listed in Table 4-1. On top of that, the subject teachers at the selected schools will also receive the guidance and advice on their teaching methods by the Japanese experts. At least two teachers (one in science and one in mathematics) will be appointed at each selected school in the Cairo Governorate. After acquiring new teaching methods using the guidebooks, they are expected to work as a cadre of trainers to disseminate their knowledge and techniques to other teachers across the country.

2) Contents of the Capacity Building

NCERD counterparts and teachers at the selected schools work together with the Japanese experts. Needless to say, each member ought to acquire the expertise and skills, but this is not enough. As described in **5.3 (3)**, they have to implement and organize a range of activities, so it is indispensable to strengthen the capacity of the institution, that is, NCERD. As the activities go on, NCERD is expected to gain experience, accumulate the lessons learned, and develop them into institutionally common knowledge that is applicable and diffusible to anywhere in the country.

(5) General Analysis of the Benefits

The general direction and benefits of the Project are completely in line with Egypt's Fourth Five-Year Plan and Japan's aid policy described in **3.2.** Given the various effects and benefits, this Project is worth implementing in that it can provide educators with effective teaching methods, and then they can provide children, that is, invaluable treasures of the nation, with both a solid basis for and joy of learning at the early stage of life.

7. MONITORING AND EVALUATION

Monitoring and evaluation are two of the most important management and control tools. Proper and routine monitoring makes it possible to keep track of the progress of a project and identify problems that hinder its progress, thus allowing corrective actions to be taken swiftly, when necessary. Evaluation, on the other hand, is done twice during the Project in a more in-depth way and provides the bulk of information that forms the basis for judgment such as a change, completion or extension of the Project.

7.1 Monitoring

Monitoring is an ongoing process designed to check if a project is being duly implemented according to a plan with expected results, and to modify the plan if necessary. Without regular monitoring, it is impossible to evaluate the Project at the intermediate and final stages. The monitoring should be conducted by both the Japanese and Egyptian sides, and its method shall be transferred from the Japanese experts to NCERD counterparts.

7.2 Evaluation

In evaluation both the Japanese and Egyptian sides compare a plan with its outcomes using specific criteria and draw conclusions. The midterm evaluation is literally conducted in the middle of the Project period. Usually a JICA mission composed of specialists is dispatched from Japan. PDM may be modified as a result of the evaluation. The final evaluation is normally conducted half a year prior to the end of the Project. An evaluation mission is recommended to include as many outside specialists as possible in order to make the process and results of evaluation fair, objective and transparent. The evaluation criteria consist of the following five perspectives.

(1) Effectiveness

Effectiveness is assessed by analyzing the extent to which the outputs and purpose of the Project have been achieved and/or can be expected to be achieved at the time of evaluation. The verifiable indicator of the Project objective is described in PDM. One of the most important indicators is the academic performance, skills, attitudes and interests of students, who are taught by new teaching methods. The Project can be perceived as successful if there is some evidence to suggest that new teaching methods are more effective than the conventional ones.

(2) Efficiency

Efficiency is measured by analyzing productivity of the implementation process. More practically, it is assessed by evaluating the relationship between outputs and inputs in terms of timing, quality, and quantity, and to reconsider availability of alternatives strategy to produce the outputs more efficiently.

(3) Impact

Impact is measured by focusing mainly of positive and negative repercussions of the Project. It is assessed from social, economic, institutional and environmental aspects. The verifiable indicators of the super goal and overall goal of the Project should be continuously examined.

(4) Relevance

Relevance is clarified by examining whether the outputs, project purpose and overall goal are in line with the priority needs and concerns of the Egyptian Government. At the same time, the rationale of the Project, especially the relationship between each item in the narrative summary, is also reviewed on PDM.

(5) Sustainability

Sustainability is clarified by examining whether the Project activities and benefits are likely to continue after the Japanese cooperation is completed. It can be forecasted by examining the institutional and management capacity, financial condition, technical ability, etc.

8. ANNEX

8.1 Reference Tables and Figures
8.2 Action Plan of Training of Trainers by PPMU
8.3 Distribution of Mathematics Syllabus of Primary for 2001/2002
8.4 Distribution of Science Syllabus of Primary for 2001/2002
8.5 Results of Problems Analysis
8.6 Results of Objectives Analysis
8.7 The New Teaching Method for Improving Mathematics Lessons
8.8 The New Teaching Method for Improving Science Lessons
8.9 Overview of Project Activities
8.10 Experimental Language Schools in the Cairo Governorate

8.11 Image of Practical Activities at the Schools for Experimental Work

8.12 Budget of NCERD

8.13 Project Design Matrix (PDM)

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[2] Central Agency for Public Mobilisation and Statistics. 2001. The Statistical Year Book 1993-2000
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Annex 8.1

Reference Tables and Figures

Table 2-1. Percentage Distribution of Population (10 years and over) by Educational Status

Educational Status	Female	Male	Total
Illiterate	11,005,746 (50.18%)	6,640,279 (29.00%)	17,646,025 (39.36%)
Read and write	3,209,817 (14.64%)	5,189,436 (22.66%)	8,399,253 (18.74%)
Primary	1,829,547 (8.34%)	2,325,677 (10.16%)	4,155,224 (9.27%)
Less than university certificates	5,026,752 (22.92%)	7,042,349 (30.75%)	12,069,101 (26.92%)
University	852,998 (3.89%)	1,694,997 (7.40%)	2,547,995 (5.68%)
N.S	6,067 (0.03%)	7,755 (0.03%)	13,822 (0.03%)
Total	21,930,927 (100.00%)	22,900,493 (100.00%)	44,831,420 (100.00%)

Source: Central Agency for Public Mobilisation and Statistics. 2001. The Statistical Year Book 1993-2000

Table 2-2. Gross Domestic Product by Sector (EGP million)

	1997/98	1998/99	1999/2000	2000/01
Agriculture	45,878	49,360	52,520	55,935
Industry & mining	48,798	55,225	61,212	67,795
Petroleum & products	16,803	12,775	23,300	26,584
Electricity	4,470	4,569	4,853	5,178
Construction	14,560	16,660	18,203	19,932
Transportation	24,507	26,300	27,949	29,666
Trade, finance & insurance	56,665	63,077	67,856	73,205
Hotels & restraints	3,164	3,682	4,925	5,614
Housing & real estate	4,860	5,412	6,003	6,638
Utilities	1,038	1,179	1,305	1,444
Social insurance	185	214	236	259
Government services	20,662	22,352	23,876	25,466
Social & personal services	20,630	22,340	23,960	25,582
Total GDP	2,62,220	283,001	316,198	343,278

Source: Economic Intelligence Unit. Country Profile 2001, Egypt

Table 2-3. Number of Primary Schools according to School Shifts

Year	Full Day School	Morning School	Total of Full Day & Morning School	Evening 2nd Shift	Evening 3rd Shift	Two Shift School	Three Shift School	Total
1991/92	5,601	5,310	10,911	3,172	60	1,215	3	15,361
2000/01	6,374	6,846	13,220	1,731	3	592	0	15,546

Source: MOE. 2001. Mubarak and Education: 20 Years of Giving by an Enlightened President, 10 Years of Education Development

Table 2-4. Number of Primary Schools by Governorate - 2000/01

	Governorate	Public	Private	Total	%
1	Cairo	713	464	1177	7.57
2	Alexandria	476	167	643	4.14
3	Behira	1,084	30	1,114	7.17
4	Gharbia	774	33	807	5.19
5	Kafr El-Shikh	769	6	775	4.98
6	Menoufia	740	18	758	4.88
7	Qaliobia	542	44	586	3.77
8	Dakahlia	1,180	30	1,210	7.78
9	Damietta	288	11	299	1.92
10	Sharkia	1,321	22	1,343	8.64
11	Port-Said	102	17	119	0.77
12	Ismailia	298	17	315	2.03
13	Suez	87	8	95	0.61
14	Giza	642	241	883	5.68
15	Fayoum	453	13	466	3.00
16	Beni-Suef	485	19	504	3.24
17	Menya	897	52	949	6.10
18	Asyuit	682	28	710	4.57
19	Souhag	860	16	876	5.63
20	Qena	712	12	724	4.66
21	Luxor	123	6	129	0.83
22	Aswan	408	1	409	2.63
23	Matrouh	188	3	191	1.23
24	New Valley	129	0	129	0.83
25	Red-Sea	65	5	70	0.45
26	North Sinai	185	3	188	1.21
27	South Sinai	75	2	77	0.49
Total		14,278	1,268	15,546	100.00

Source: MOE. 2001. Pre-University Education Statistics 2000/2001

Table 2-5. Total Number of Students by Governorate and Gender, Primary Stage - 2000/01

	Governorate	Public		Private		Total		%
		Boys	Girls	Boys	Girls	Boys	Girls	
1	Cairo	263,437	248,402	102,682	98,561	366,119	346,963	9.98
2	Alexandria	175,999	158,682	38,523	36,287	214,522	194,969	5.73
3	Behira	256,583	232,064	5,492	5,160	262,075	237,224	6.99
4	Gharbia	182,743	177,383	8,838	8,271	191,581	185,654	5.28
5	Kafr El-Shikh	127,057	124,836	679	581	127,736	125,417	3.54
6	Menoufia	159,079	145,313	4,637	4,285	163,716	149,598	4.39
7	Qaliobia	195,445	181,201	11,326	9,935	206,771	191,136	5.57
8	Dakahlia	232,467	220,696	8,455	8,352	240,922	229,048	6.58
9	Damietta	54,236	48,534	2,836	2,598	57,072	51,132	1.52
10	Sharkia	260,062	249,243	4,911	4,489	264,973	253,732	7.26
11	Port-Said	23,294	21,133	2,416	2,538	25,710	23,671	0.69
12	Ismailia	45,499	41,098	2,827	2,780	48,326	43,878	1.29
13	Suez	22,880	21,139	3,043	2,859	25,923	23,998	0.70
14	Giza	269,574	241,108	57,018	51,163	326,592	292,271	8.67
15	Fayoum	139,236	107,883	4,150	3,820	143,386	111,703	3.57
16	Beni-Suef	135,159	101,880	4,546	3,925	139,705	105,805	3.44
17	Menya	239,610	178,641	12,337	10,761	251,947	189,402	6.18
18	Asyuit	190,675	148,529	6,725	6,040	197,400	154,569	4.93
19	Souhag	199,990	170,371	5,566	4,180	205,556	174,551	5.32
20	Qena	163,674	147,416	1,954	1,648	165,628	149,064	4.41
21	Luxor	22,749	22,048	1,207	1,192	23,956	23,240	0.66
22	Aswan	64,321	60,795	335	322	64,656	61,117	1.76
23	Matrouh	17,974	12,980	549	455	18,523	13,435	0.45
24	New Valley	9,445	8,680	0	0	9,445	8,680	0.25
25	Red-Sea	9,339	8,567	380	340	9,719	8,907	0.26
26	North Sinai	18,220	15,744	434	375	18,654	16,119	0.49
27	South Sinai	3,365	2,810	31	25	3,396	2,835	0.09
Total		3,482,112	3,097,176	291,897	270,942	3,774,009	3,368,118	100.0
Grand Total		6,579,288		562,839		7,142,127		

Source: MOE. 2001. Pre-University Education Statistics 2000/2001

Table 2-6. Number of Enrollment and Repeaters – Public Education, Primary Stage - 2000/01

Grade	Enrollment			Repeaters			
	Boys	Girls	Total	Boys	Girls	Total	%
1	642,917	599,537	1,242,454	0	0	0	0.00
2	672,814	609,083	1,281,897	30,848	17,888	48,736	3.80
3	674,995	604,185	1,279,180	41,219	22,174	63,393	4.96
4	713,675	624,281	1,337,956	65,025	35,276	100,301	7.50
5	777,711	660,090	1,437,801	103,017	56,302	159,319	11.08
Total	3,482,112	3,097,176	6,579,288	240,109	131,640	371,749	5.65

Source: MOE. 2001. Pre-University Education Statistics 2000/2001

Table 2-7. Number of Enrollment and Repeaters – Private Education, Primary Stage - 2000/01

Grade	Enrollment			Repeaters			
	Boys	Girls	Total	Boys	Girls	Total	%
1	64,735	59,181	123,916	0	0	0	0.00
2	60,154	55,868	116,022	209	132	341	0.29
3	56,767	53,254	110,021	107	77	184	0.17
4	55,888	51,764	107,652	245	159	404	0.38
5	54,353	50,875	105,228	310	193	503	0.48
Total	291,897	270,942	562,839	871	561	1,432	0.25

Source: MOE. 2001. Pre-University Education Statistics 2000/2001

Table 2-8. Estimated Program Cost and Financing by Component and Organization (US$ million)

	Component	World Bank	EU	Govt. of Egypt	Total
1	Improving Access and Equity	17.5	24.6	406.4	448.5
2	Quality of Student Performance	51.6	78.3	229.1	359.0
3	System Efficiency	5.9	22.1	—	28.0
Total Program Cost		75.0	125.0	635.5	835.5

Source: World Bank. 1996. Staff Appraisal Repot: Education Enhancement Program

Table 3-1. Weekly Number of Lessons by Subject in Public Schools

Subject	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Religion	3	3	3	3	3
Arabic	12	12	12	11	11
Handwriting	2	2	2	1	1
Mathematics	6	6	6	6	6
English				2	3
Library	1	1	1	1	1
Computer	1	1	1	1	
Social Studies				2	2
Science				3	3
Art	2	2	2	1	1
Physical education	2	2	2	3	3
Music	2	2	2	3	3
Scientific activities	2	2	2		
Practical activities	2	2	2		
Mechanics & repair				1	1
Practical skills				1	1
Total	35	35	35	39	39

Source: Technical Directives and Syllabi for the Primary Cycle of Basic Education, Primary Stage, 2001/2002

Table 3-2. Weekly Number of Lessons by Subject in Experimental Language Schools

Subject	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Religion	3	3	3	3	3
Arabic	12	12	12	11	11
Handwriting	2	2	2	1	1
Mathematics	6	6	6	6	6
English	6	6	6	7	7
Library	1	1	1	1	1
Computer	1	1	1	1	
Social Studies				2	2
Science				3	3
Art	2	2	2	2	2
Physical education	2	2	2	3	3
Music	2	2	2	2	2
Scientific activities	2	2	2		
Practical activities	2	2	2		
Mechanics & repair				1	1
Practical skills				1	1
Total	41	41	41	44	43

Source: Technical Directives and Syllabi for the Primary Cycle of Basic Education, Primary Stage, 2001/2002

Table 4-1. List of NCERD Counterparts (Unit for JICA Project)

	Name	Subject	Section in the Curriculum Dept.	Head
1	Eid Abou-El-Maaty El Desoki	Science	Curriculum Design	
2	Shaban Hamed Ali	Science	Preparation of Teaching Materials	○
3	Mandour Abdelsalam Fathalla	Science	Preparation of Teaching Materials	
4	Shaimaa Hamoda Darwish	Science	Experimentation and Field Studies	
5	Yousri Taha Deniwar	Science	Evaluation and Follow-up	
6	Eman El-Shehray	Science	Preparation of Teaching Materials	
7	Amany Abd El-Aziz	Science	Experimentation and Field Studies	
8	Tamer Ali Abd El-latif	Science	Preparation of Teaching Materials	
9	Maha Abd El-Salam	Science	Experimentation and Field Studies	
10	Raoof Azmy Tawfik	Science	Education Technology	
11	Mohamed Amin Hassan	Science	Curriculum Design	
12	Hala Mohamed Tawfic	Science	Curriculum Design	
13	Mohamed Kiary M.	Science	Curriculum Design	
14	Mohamed Abdel Ghaffar	Science	Education Technology	
15	Hassan Mohamed El Aref Riad	Science	Curiculum Design	
16	Amal El-Shahat Hafez	Mathematics	Education Technology	○
17	Nasser El Sayed Ebeid	Mathematics	Curriculum Design	
18	Khaled Gamal El-Den	Mathematics	Experimentation and Field Studies	
19	Mohamed Ashraf El-Mekawy	Mathematics	Experimentation and Field Studies	

Table 6-1. State Budget 2002/03

Item	Amount (EGP bn)
Current spending	107.7
Wages	34.8
Other current spending	72.9
Education	21.4
Health care	7.7
Subsidies	6.7
Basic food items	3.0
Public transportation	0.31
Soft loans for public housing	1.5
Agricultural products	0.61
Medicine & Milk	0.35
Export subsidies	0.4
Interest on domestic debt	26.0
Interest on foreign debt	2.4
Capital spending	34.1
Total	141.6

Source: Economic Intelligence Unit. Country Report, May 2002, Egypt

Table 6-2. Category of Beneficiaries of the Project

Category	Beneficiaries
Primary direct beneficiaries	- NCERD staff - Teachers at the Selected Schools in the Cairo Governorate
Primary indirect beneficiaries	- Students (4th, 5th and 6th graders) at the Selected Schools above
Secondary direct beneficiaries	- Teachers who observe the open lessons at the selected schools - Teachers who learn new teaching methods either in training programs or school-based units
Secondary indirect beneficiaries	Students taught by those teachers above
Tertiary beneficiaries	- Education departments at the district and governorate level - Ministry of Education
Other beneficiaries	Families, schools, communities and society as a whole

Table 6-3. Number of Beneficiaries

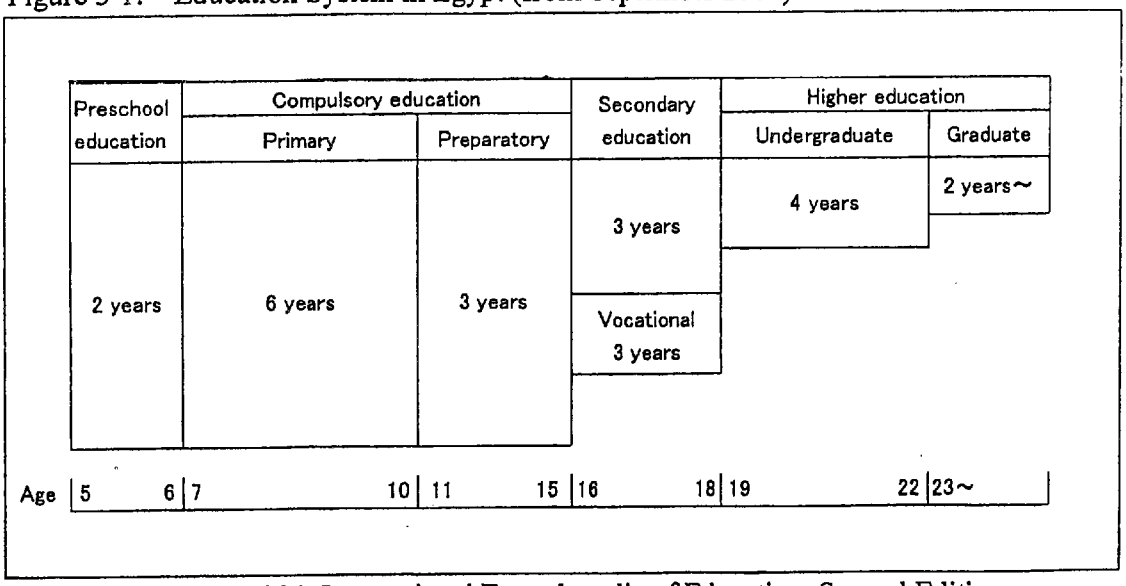
Category	Beneficiaries	Estimated Number
Primary beneficiaries	- NCERD staff - Teachers at the Selected Schools in the Cairo Governorate	4-19 At least 2 per school
	- Students (4th, 5th and 6th graders) at the Selected Schools above	500 or so
Secondary beneficiaries	- Teachers who observe the open lessons at the selected schools	1,200 or so
	- Teachers who attend training programs in which they learn new teaching methods	22,000-65,000
	- Students by those teachers above	1,000,000-2,000,000

Note: Part of the projected numbers is placed based on Table 2-8 prepared by an EU consultant working at PPMU

Table 6-4. Contents of the Benefits

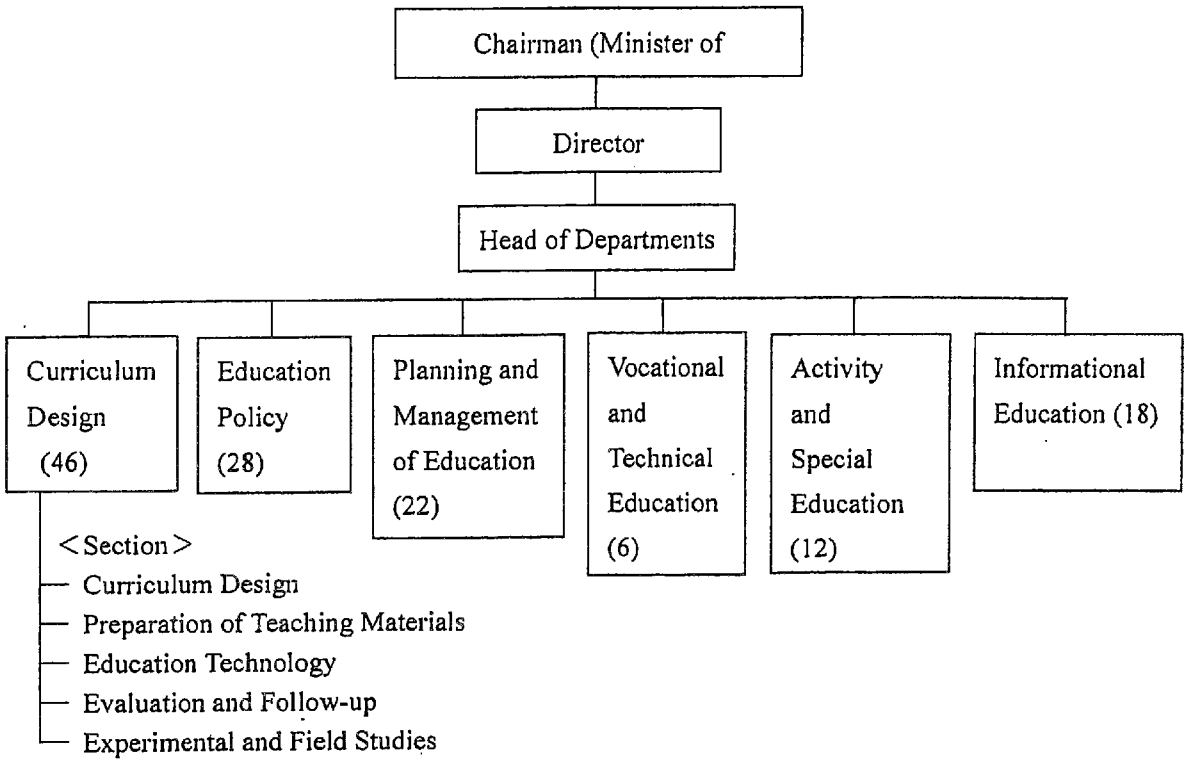
Category	Beneficiaries	Contents of Benefits
Primary beneficiaries	- NCERD staff - Teachers at the Selected Schools in the Cairo Governorate	- Revised guidebooks - New teaching methods using the guidebooks
	- Students (4th, 5th and 6th graders) at the Selected Schools above	Improved academic performance, skills, attitudes and interests
Secondary beneficiaries	- Teachers who observe the open lessons at the selected schools - Teachers who attend training programs in which they learn new teaching methods	New teaching methods using the guidebooks
	Students by those teachers above	Improved academic performance, skills, attitudes and interests
Tertiary beneficiaries	- Education departments at the district and governorate level - Ministry of Education	- Proper recognition of the effectiveness of new teaching methods - Improved educational indicator - Possible solution to educational problems and policy-making
Other beneficiaries	Families, schools, communities and society as a whole	Enrichment and development of the environments surrounding children

Figure 3-1. Education System in Egypt (from September 2002)



Source: Pergamon. 1994. International Encyclopedia of Education, Second Edition

Figure 4-1. Organization Chart of NCERD



Planning and Management of Education
Economics and Education
Education Planning
System Analysis
Education and School Management

Ed Policy
Analysis and Evaluation
Measurement of Public Opinion
Evaluation and Follow-up
Special Education
Adult Education and Literacy

Informational Education
Comparison Studies
Renovation of Education
Future Studies
Advertisement in Education

Activity and Special Education
Needs and Training Programs
Social and Cultural Activities
Technical and Sports Activities

Vocational and Technical Education
Industry and Technology Education
Agriculture Education
Commerce Education
Industrial Practice and Activities

ACTION PLAN

TRAINING OF TRAINERS

SCIENCE AND MATH ACTIVITIES FOR GRADE 4 AND 5

Phase One

Date	Trainer	Technical supports and monitoring	Trainees	Total no of Trainees	Training Location
Aug. 17 – 29, 2002	JICA experts		15 NCERD staff 12 inspectors/Qena 08 inspectors/Ismailia	35	Cairo Governorate
Sept. – Dec., 2002	20 inspectors/ Quena and Ismailia	NCERD staff	Senior teachers		Qena Ismailia
Sept. 2002 – April, 2003	Senior teachers	12 inspectors/Qena 08 inspectors/Ismailia NCERD staff	Teachers		Schools in Qena and Ismailia

- JICA will sponsor external consultants' expenditure
- PPMU will sponsor all logistics of training workshops

ACTION PLAN

TRAINING OF TRAINERS

SCIENCE AND MATH ACTIVITIES FOR GRADE 4 AND 5

Phase Two

Date	Trainer	Technical supports and monitoring	Trainees	Total no of Trainees	Training Location
July - Aug., 2003	JICA experts NCERD staff Workshop (1)		06 inspectors/Qena 10 inspectors/Ismailia 04 inspectors/Luxor 10 inspectors/Aswan	30	Cairo Governorate
	JICA experts NCERD staff Workshop (2)		10 inspectors/Fayoum 14 inspectors/BeniSuef 08 inspectors/Minya	32	Cairo Governorate
	JICA experts NCERD staff Workshop (3)		22 inspectors/Sohag 10 inspectors/Minya	32	Cairo Governorate
	JICA experts NCERD staff Workshop (4)		20 inspectors/Gharbia 16 inspectors/Damietta	36	Cairo Governorate
Sept 2003 – April 2004	130 inspectors/ Qena, Ismailia, Luxor, Aswan, Fayoum, BeniSuef, Minya, Gharbia, Damietta	NCERD staff	Senior teachers		Qena, Ismailia, Luxor, Aswan, Fayoum, BeniSuef, Minya, Gharbia, Damietta
Sept 2003 – April 2004	Senior teachers	Inspectors NCERD staff	Teachers		Schools in Qena, Ismailia, Luxor, Aswan, Fayoum, BeniSuef, Minya, Gharbia, Damietta

- JICA will sponsor external consultants' expenditure
- PPMU will sponsor all logistics of training workshops

ACTION PLAN

TRAINING OF TRAINERS

SCIENCE AND MATH ACTIVITIES FOR GRADE 4 AND 5

Phase Three

Date	Trainer	Technical supports and monitoring	Trainees	Total no of Trainees	Training Location
July - Aug., 2004	JICA experts NCERD staff Workshop (1)		20 inspectors/K.ElSheikh 18 inspectors/Kalubia	38	Cairo Governorate
	JICA experts NCERD staff Workshop (2)		34 inspectors/ Sharkiya	34	Cairo Governorate
	JICA experts NCERD staff Workshop (3)		34 inspectors/ Dakahliya	34	Cairo Governorate
	JICA experts NCERD staff Workshop (4)		32 inspectors/Behera	32	Cairo Governorate
Sep. 2004 – April, 2005	138 inspectors/ K.ElSheikh, Kalubia, Sharkiya, Dakahliya, Behera	NCERD staff	Senior teachers		K.ElSheikh, Kalubia, Sharkiya, Dakahliya, Behera
	Senior teachers	Inspectors NCERD staff	Teachers		K.ElSheikh, Kalubia, Sharkiya, Dakahliya, Behera

- JICA will sponsor external consultants' expenditure
- PPMU will sponsor all logistics of training workshops

Annex 8.3

DISTRIBUTION OF MATHEMATICS SYLLABUS OF FIRST YEAR PRIMARY FOR ACADEMIC YEAR 2001/2002

STUDY PLAN: 6 CLASSES A WEEK

Month	Subject matter	Term
September and October 2001	Unit one: Groups Unit two: Numbers from 1-10 arranging numbers from 1-9 Zero number, number 10, relationship ,>/=/<	The first term Revision done in parallel to the teaching of the syllabus
November 2001	Unit three: (addition up to 10) Using (+), addition up to 10 Components of numbers up to 10	
December 2001	Unit four: (Subtraction up to 10) Using (-), subtraction up to 10	
January 2002	Unit four to be continued: The relationship between subtraction and addition	
February 2002	Unit one: Units and tens-perfect tens-arranging numbers Components of numbers in the form of units and tens	The second term Revision done in parallel to the teaching of the syllabus
March 2002	Unit two: Adding and subtracting numbers up to 99	
April 2002	Unit three: (geometry and fractions) Geometry and fractions (solids-geometric shapes)	
May 2002	Unit three to be continued: Fractions (half and quarter) answering tests	

DISTRIBUTION OF MATHEMATICS SYLLABUS OF SECOND YEAR PRIMARY FOR ACADEMIC YEAR 2001/2002

STUDY PLAN: 6 CLASSES A WEEK

Month	Subject matters	Term
September and October 2001	Unit one: (adding and subtracting two-digit numbers with renaming) Revising, reading, and writing numbers up to 99-renaming-adding and subtracting two numbers with renaming	The first term Revision done in parallel to the teaching of the syllabus
November 2001	Unit two: (the three-digit numbers) The hundred and its multiples-reading and writing three-digit numbers-arranging three-digit numbers-adding two three-digit numbers with renaming	
December 2001	Unit two to be continued: Subtracting two three-digit numbers Unit three: Fractions and geometry Fractions	
January 2002	Unit three to be continued: Types of lines answering tests	
February 2002	Unit one: Multiplication table up to table (5) Multiplication-Multiplication table (2)-Multiplication table (3)	The second term Revision done in parallel the teaching of the syllabus
March 2002	Unit one to be continued: Multiplication table (4)-Multiplication table (5)-Multiplication by (1) and (0)-Even and odd numbers	
April 2002	Unit two: (measuring) Measuring of length-meter and centimeter-weight-measuring of time-money	
May 2002	Unit three: (presentation and organisation of data) Reading and collecting data - answering tests	

DISTRIBUTION OF MATHEMATICS SYLLABUS OF THIRD YEAR PRIMARY FOR ACADEMIC YEAR 2001/2002

STUDY PLAN: 6 CLASSES A WEEK

Month	Subject matters	Term
September and October 2001	Unit one: (five-digit numbers) The thousand-place value-ten thousand-addition and subtraction	The first term Revision done in parallel to the teaching of the syllabus
November 2001	Unit two: (multiplication): Multiplication by 6,7,8, 9 Multiplication of tens-Multiplying a number consisting of more than one digit by another one-digit number	
December 2001	Unit three: (geometry) Straight line-ray-line segment-measuring the length of line segment-angles)	
January 2002	Unit three to be continued: Types of angles-answering tests	
February 2002	Unit one: (geometry and measuring) Rectangle-square-perimeter-area	The second term Revision done in parallel to the teaching of the syllabus
March 2002	Unit two: (division) The meaning of division-the relationship between division and multiplication-dividing a number by another number consisting of more than one digit without remaining	
April 2002	Unit three: (fractions) Fractions-equal fractions Unit four: Presentation and organisation of data-reading graphs	
May 2002	Unit four to be continued: Representation of data +answering tests	

DISTRIBUTION OF MATHEMATICS SYLLABUS OF FOURTH YEAR PRIMARY FOR ACADEMIC YEAR 2001/2002

1)STUDY PLAN: 6 CLASSES A WEEK

Month	Subject matters	Term
September and October 2001	Unit one: Large numbers relevant operations: Multiplication by 10, 100, 1000, and their multiples – hundred – thousand - million - adding and subtracting large numbers - multiplying two numbers - division Unit two: Divisibility Divisibility by 2 - divisibility by 5 - divisibility by 3	The first term Revision done in parallel to the teaching of the syllabus
November 2001	Unit two to be continued: Factors and prime numbers and factorization of numbers-common factors-the highest common factor - common multiples - the lowest common multiple Unit three: Geometry: The measuring of an angle - drawing an angle whose measure is known	
December 2001	Unit three to be continued: Sum of the measures of the interior angles of a triangle-types of triangles-drawing a triangle-perimeter of some geometric shapes	
January 2002	Unit three to be continued: The area of some geometric shapes answering tests	
February 2002	Unit one: Fractions: Equal fractions and simplification of fractions - making fractions have the same denominator - the fractional form of an integer - mixed numbers-comparing fractions-adding and subtracting fractions	The second term Revision done in parallel to the teaching of the syllabus
March 2002	Unit one to be continued: Multiplying and dividing fractions Unit two: decimal fractions: Reading and writing fractions and decimal numbers-comparing between two decimal fractions-arranging fractions-adding and subtracting fractions and decimal numbers	

April 2002	The remaining part of unit two: Multiplication by 10 and its multiples-division by 10 and its multiples	
May 2002	Unit three: Methods of collecting data-answering tests	

DISTRIBUTION OF MATHEMATICS SYLLABUS OF FIFTH YEAR PRIMARY FOR ACADEMIC YEAR 2001/2002

2)STUDY PLAN: 6 CLASSES A WEEK

Month	Subject matters	Term
September and October 2001	Unit one: Approximation Unit two: Product of multiplying a number by a decimal number or a decimal fraction, the product of multiplying a decimal number by a decimal fraction or another decimal number Concepts of dividend, devisor, and quotient - finite and infinite division - long division by a two-digit number	The first term Revision done in parallel to the teaching of the syllabus
November 2001	Unit two to be continued: Division by a three-digit number - division by a decimal fraction and a decimal number Unit three: (volumes) Objects - cubic centimeter - volume of cuboid-volume of cube - capacity - the surface area of the - faces of cube and cuboid	
December 2001	Unit three to be continued: related numbers Unit four: (Geometry and measuring) The two intersecting, perpendicular and parallel straight lines - drawing a perpendicular on a straight line from a point - drawing a straight line parallel to another straight line from an exterior point outside it - applications	
January 2002	Unit four to be continued: The heights of a triangle – the area of surface triangle - answering tests	
February 2002	Unit one: meaning of ratio - applications on ratio - ratio between three numbers Unit two: meaning of proportion-properties of proportion-applications on proportion	The second term Revision done in parallel to the teaching of the syllabus

March 2002	Unit two to be continued: Proportional division – percentage - applications on percentage Unit three: (Geometry and measuring) Circle	
April 2002	Unit three to be continued: Drawing a triangle whose three sides are known-circumference of a circle	
May 2002	Unit four: Representation of data using double-bars answering tests	

Source: MOE. Technical Directives and Syllabi for the Primary Cycle of Basic Education, Primary Stage, 2001/2002

DISTRIBUTION OF SCIENCE SYLLABUS OF FOURTH YEAR PRIMARY FOR ACADEMIC YEAR 2001/2002

PLAN: THREE CLASSES A WEEK (FIRST TERM: 16 WEEKS)

Month	subject matter	Number of classes
15/9/2001 to 30/9/2001	Unit one: (animals and plants in our environment) Lesson one: characteristics of living organisms	6
1/10/2001 to 31/10/2001	Lesson two: classification of animals into vertebrates and invertebrates and comparing between them Lesson three: vertebrates (the general characteristics of vertebrates) Lesson four: invertebrates Lesson five: parts of plant - the function of each (pages 24-25 cancelled) activity no. (9)	11
1/11/2001 to 30/11/2001	Lesson six: classification of seeds - structure of beans seed - steps of a beans seed germination - germination conditions Lesson seven: the economic importance of some animals and exercises on unit one Unit two: (the matter around us) Lesson one: the matter	11
2/12/2001 to 25/12/2001 including the holiday of the *Eid Al-Fitr* 16/12/2001 to 18/12/2001	Lesson two: states of matter - comparison between the states of matter Lesson three: three states of water Lesson four: changes of matter (physical and chemical) Lesson five: the cause of sound - transfer of sound through gases- pages 53-58 cancelled	9
1/1/2002 to 16/1/2002 17/1-23/1 25/1-7/2	Lesson five to be continued: travel of sound through liquids-solids - noise pollution - exercises on unit two - exercises on the first term - practical exams (some questions on pages 59- 61 cancelled) The first term exams Midyear holiday	3

DISTRIBUTION OF SCIENCE SYLLABUS OF FOURTH YEAR PRIMARY FOR ACADEMIC YEAR 2001/2002

PLAN: THREE CLASSES A WEEK (SECOND TERM: 15 WEEKS)

Month	Subject matter	Number of classes
7/2/2002 to 28/2/2002	Unit one: man and the universe Lesson one: stars and planets Lesson two: the solar system Lesson three: the moon, is it a star or a planet (pages 5-7 cancelled) Lesson four: the sun is the main source of light and heat Lesson five: light - sources of light	9
1/3/2002 to 31/3/2002 including the holiday of *Eid Al-Adha*	Lesson six: properties of light Lesson seven: feeling of heat-sources of heat Lesson eight: travel of heat through different media	9
1/4/2002 to 30/4/2002	Lesson nine: heat conductors and insulators Lesson ten: the effect of the sun on solids – liquids – gases - exercises Unit two: (Life on the Earth) Lesson one : comparing between the earth and the moon in terms of the suitable conditions for living organisms Lesson two: air is necessary for life on the Earth	11
2/5/2002 to 30/5/2002 1/6-9/6/2002	Lesson three: the importance of water in the life of plants and animals, and exercises General revision - practical exams The second term exam (final exam)	9

DISTRIBUTION OF SCIENCE SYLLABUS OF FIFTH YEAR PRIMARY FOR ACADEMIC YEAR 20001/2002

(FIRST TERM: 16 WEEKS)

Month	Subject matter	Number of classes
15/9/2001 to	Unit one:	
20/10/2001	The importance of food in the life of plants and animals	2
	Plant manufactures its food (questions 4 and 5 cancelled)	5
	Food groups necessary for human body	5
	Cleanness of food and general exercises on unit one	3
21/10/2001 to	Unit two: the building of living organisms	
30/11/2001	Cell (pages 21-23 cancelled)	2
	Digestive system	5
	Respiratory system	3
	Circulatory system	3
	Excretory system	5
2/12/2001 to	Unit three: matter	
12/1/2002	Matter	
including the	Element and compound	3
holiday of *Eid Al-Fitr*	Metals and non-metals	3
16/12/2001	Mixture, compound, and solution	3
18/12/2001	Alkalis, acids, and salts	3

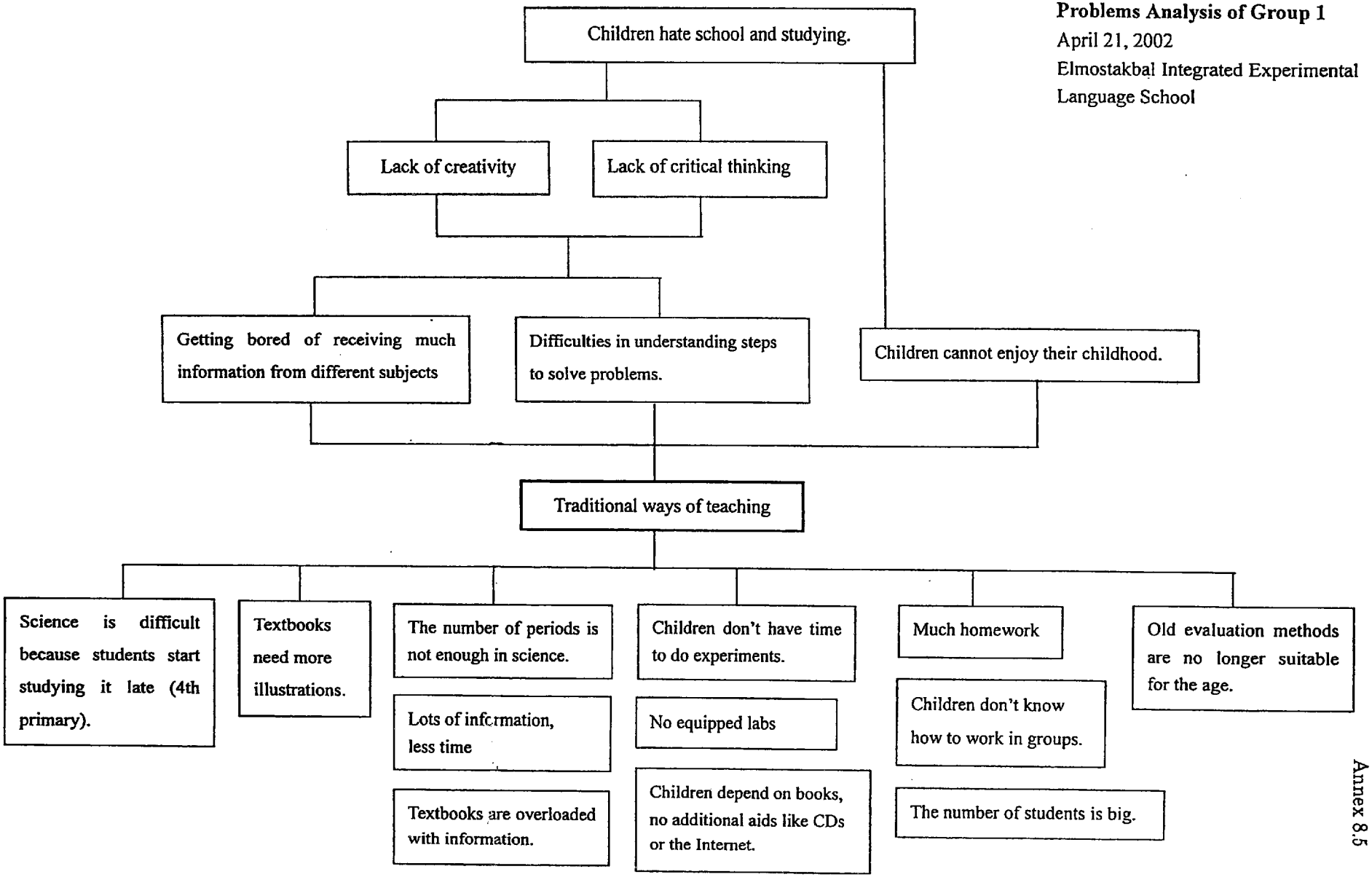
DISTRIBUTION OF SCIENCE SYLLABUS OF FIFTH YEAR PRIMARY FOR ACADEMIC YEAR 20001/2002

(SECOND TERM: 15 WEEKS)

Month	Subject matter	Number of classes
7/2/2002 to 22/3/2002 including the holiday of *Eid Al-Adha*	Unit one: energy Energy and its forms-energy changes Natural and man-made sources of energy The uses of energy and general exercises on unit one	18
24/3/2002 to 23/5/2002	Unit two: magnetism and electricity Natural and man-made magnets and some properties of magnet Substances and magnetism Some uses of the magnet The electric current and its sources Some uses of electrical power in houses (the heater and electric water heater in pages 46-47 cancelled along with the relevant questions) The fuse and general exercises - general revision	 9 3 6 6 3
23/5/2002 to 30/5/2002	Final exams	

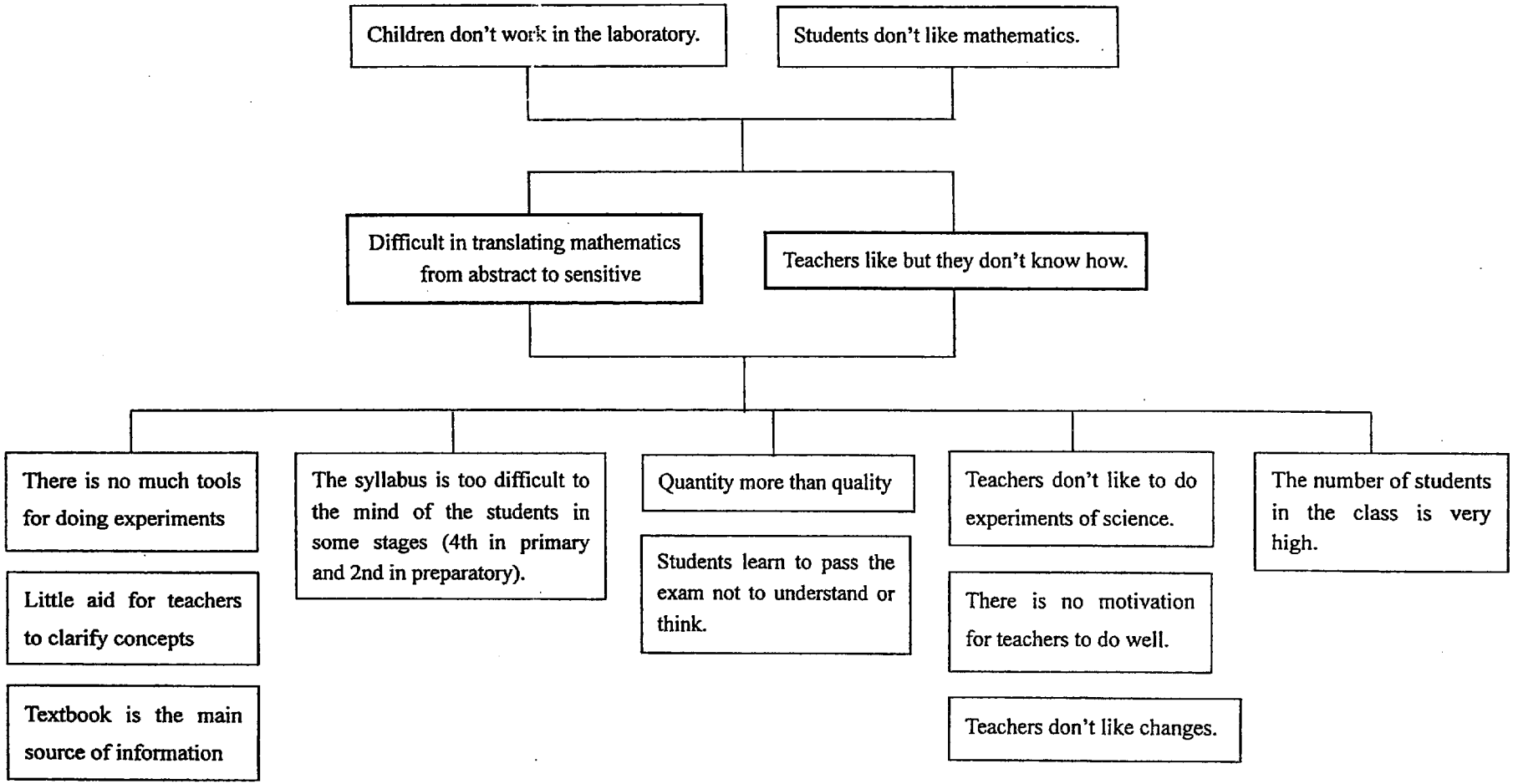
Source: MOE. Technical Directives and Syllabi for the Primary Cycle of Basic Education, Primary Stage, 2001/2002

Problems Analysis of Group 1
April 21, 2002
Elmostakbal Integrated Experimental Language School

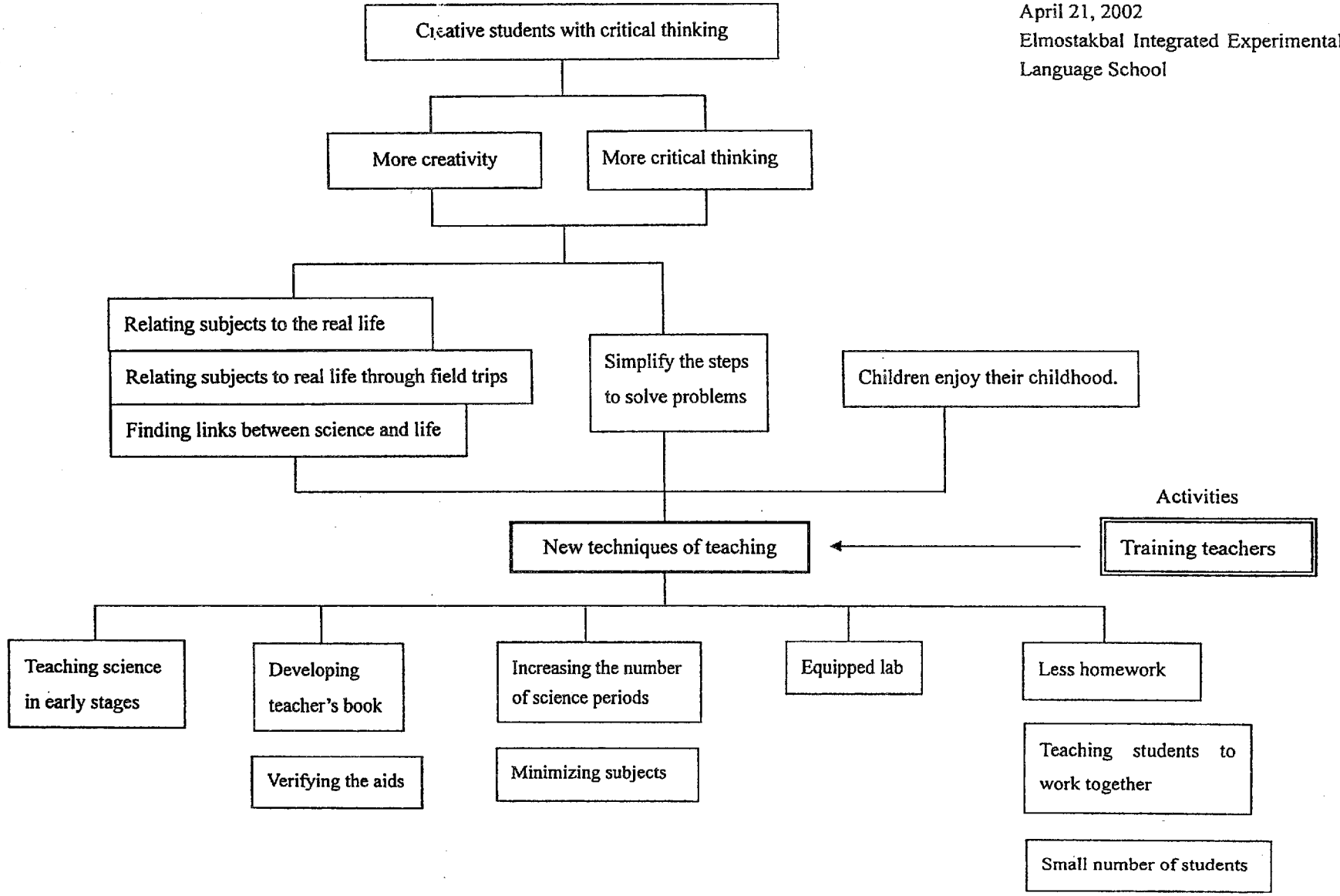


Annex 8.5

Problems Analysis of Group 2
April 21, 2002
Elmostakbal Integrated Experimental Language School

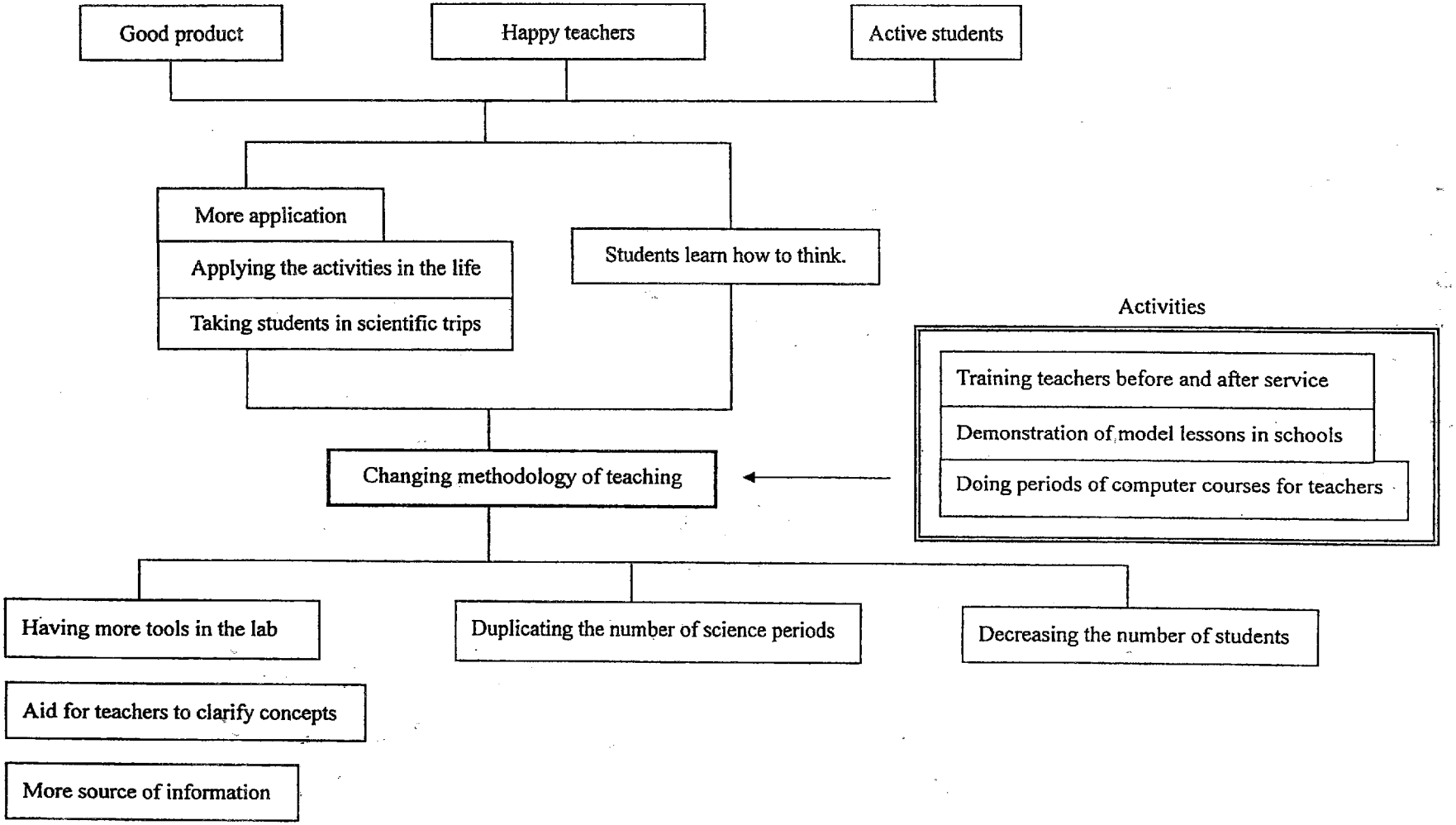


Objectives Analysis of Group 1
April 21, 2002
Elmostakbal Integrated Experimental Language School



Annex 8.6

Objectives Analysis of Group 2
April 21, 2002
Elmostakbal Integrated Experimental Language School



Annex 8.7

The New Teaching Method for Improving Mathematics Lessons

There are two aspects to school education. The first is "education as preparation for the future of each child." The second is "education that enhances the joy of living." These two constitute school education as two inseparable pillars.

The same thing can be said about mathematics education. That is, one aspect is related to "the existing knowledge system" in which "a child gets knowledge so as to be ready for his/her future," whereas another is related to "creating the system" in which " a child discovers the happiness and joy of living."

Taking a general view of the teaching method of an elementary school in Egypt, the main stress is laid upon the transmission of knowledge. That is, classes are primarily "conducted under the leadership of a teacher" who mostly gives explanations to children. This teaching method is suited for the effective transmission of mathematical knowledge and skills. Recently, however, it is widely believed throughout the world that the class of a "problem solving type" is more effective than merely teaching children how to calculate or making them to memorize the features of geometric figures. In this teaching method, the thinking process to reach a conclusion is emphasized, thereby raising the interest and curiosity of children in mathematics. We recommend, therefore, the introduction of the following teaching methods in the mathematics class.

1. Class associated with daily life

The essential meaning of learning mathematics lies in the fact that each child can use mathematics in his/her everyday life. Accordingly, we need to place importance on an attitude in which he/she tries to apply mathematics to an actual situation in his/her daily life. It is critically important that we make children understood that our daily lives contain mathematical aspects in many ways and let them utilize mathematics in various situations through incorporating real situations of daily life into class lessons. Thus, children will be able to associate mathematics lessons with their daily lives.

2. Class in which children can learn with a sense of excitement

Children need to learn mathematics while they find a sense of joy and satisfaction in the process of learning and thinking. The principle underlying the joy of mathematics is "understanding mathematics." This means that children should find the "joy of thinking." As a result, a mathematics teacher is required to create and organize a class in which he/she is able to convey the joy, excitement, and wonder of learning to children. For instance, there is the only one correct answer in calculation. However, each child may have a different process of reaching the correct answer. We will be able to arouse a sense of enchantment and fulfillment in the process of thinking through exchanging such variable ways of thinking, thereby promoting independent activities among children. In so doing, children will deepen their understanding. Similarly, they will deepen their understanding on rules and concepts through such activities as actually making figures and solids instead of learning just by using a notebook and a pencil.

3. Class in which the process of thinking is emphasized

Respect to thinking process will eventually result in training the capability of every child to solve a new problem through making best use of knowledge and concepts that he/she has learned, thereby greatly contributing to preparing the ground for his/her creativity.

The New Teaching Method for Improving Science Lessons

It has been pointed out that rote learning and dropping out of class are current problems in primary science education in Egypt. A recent study of science education provides new methods for conceptual and enjoyable study emphasizing the process of scientific thinking as follows. These methods will enhance the motivation of Egyptian children to study science and deepen their understanding of the subject.

1. Introduction of experiments and observations

Simple, low-cost and educationally effective experiments and observations are needed. For these experiments and observations, the following two types are prepared:

(1) Verification experiments coupled with essential questions and discussions to reveal child's misconceptions

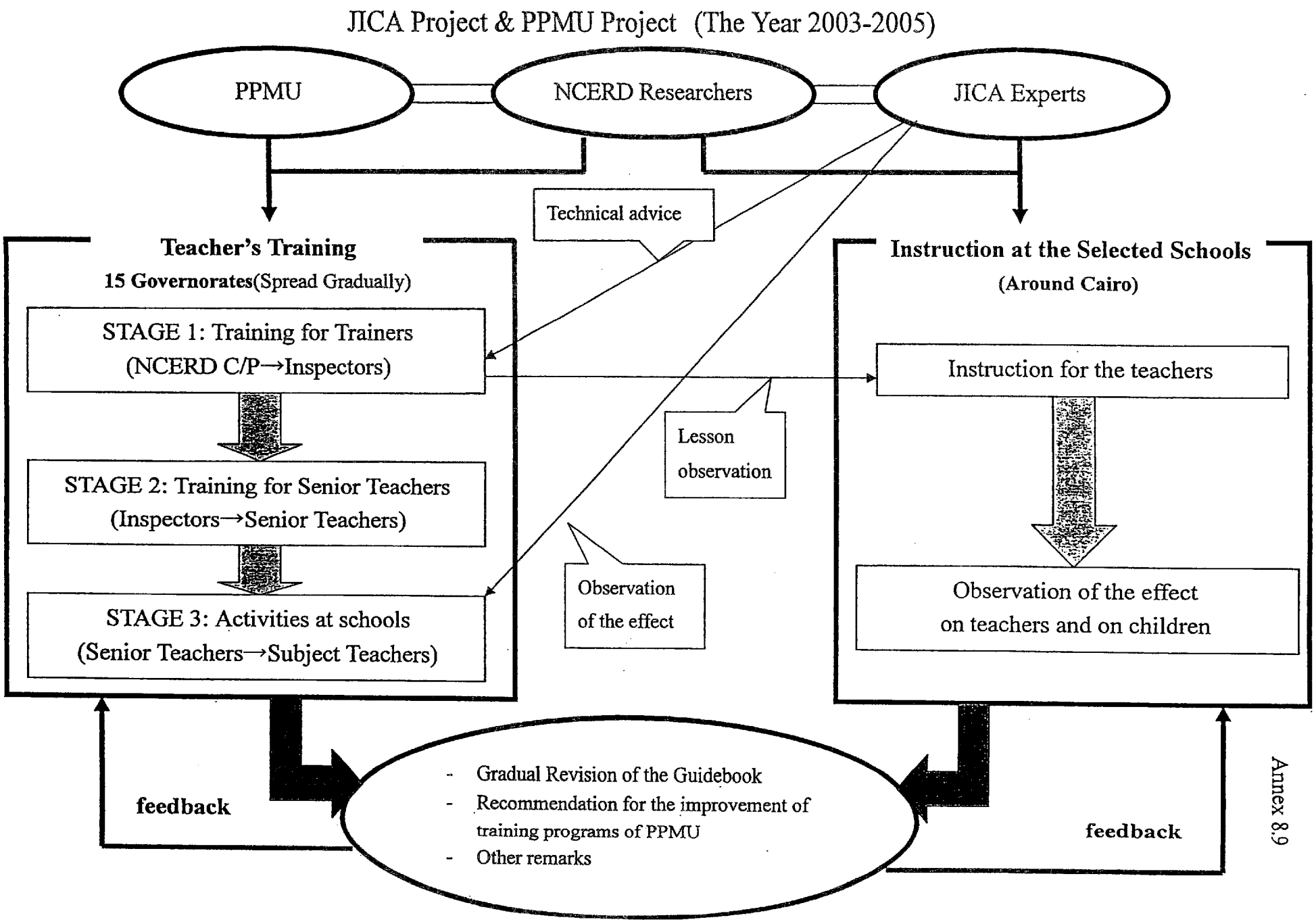
Questions that have confusing branched answers revealing the misconceptions of children can prompt children to hold discussions in their classroom. These questions and discussions with verification experiments allow children to acquire scientific concepts in the course of verifying their hypotheses.

(2) Exciting, attractive and interesting experiments

Making good use of the experiment and observation stimulates children's intellectual curiosity appealing to their sensitive perception of surprise, emotion and beauty. Such fascinating experiments attract the interest of the children, thus increasing their interest in science study and deepening their understanding.

2. Introduction of essential questions and discussions

In order to develop children's creative thinking faculties, it is necessary to urge children to conduct active thinking during the lesson. Accordingly, the "Definition First Style Lesson," in which scientific understanding is given clearly by the teacher in the first stage of the lesson, must be changed to the "Hypotheses Verification Style Lesson," in which children test their ideas by each experiment and discover scientific understanding by themselves in the final stages of the lesson. For this purpose, children should be given the opportunity to ask essential questions and to hold discussions, in addition to adequate time for activities.


JICA Project & PPMU Project (The Year 2003-2005)
PPMU
NCERD Researchers
JICA Experts
Technical advice
Teacher's Training
15 Governorates(Spread Gradually)
STAGE 1: Training for Trainers
(NCERD C/P→Inspectors)
STAGE 2: Training for Senior Teachers
(Inspectors→Senior Teachers)
STAGE 3: Activities at schools
(Senior Teachers→Subject Teachers)
Lesson observation
Observation of the effect
Instruction at the Selected Schools
(Around Cairo)
Instruction for the teachers
Observation of the effect
on teachers and on children
feedback
- Gradual Revision of the Guidebook
- Recommendation for the improvement of training programs of PPMU
- Other remarks
feedback

Annex 8.9

Annex 8.10

Experimental Language Schools in the Cairo Governorate in 2000/2001

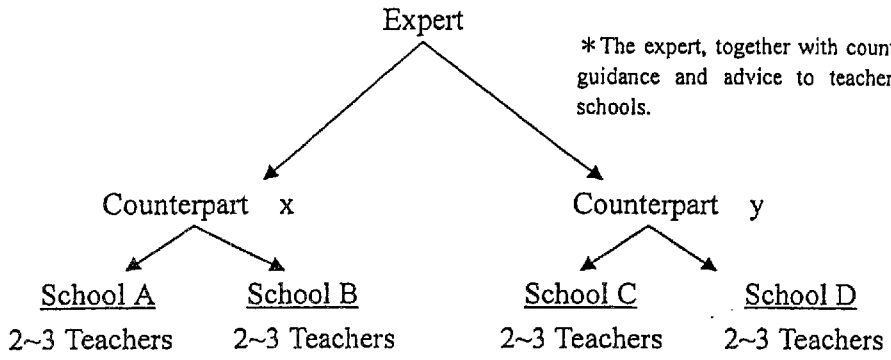
Moderiya	School Name	KG	Prim.	Prep.	Sec.	Classes	Students	Teachers
Cairo								
Rod El-Farag	Fatma El-Zahraa Exp.	X	X			16	538	30
	El-Sayida Eisha Exp.	X	X	X		19	752	36
	Mousa Ibn Nosier	X	X			4	84	7
El-Sahel	Hafez Ibrahim Exp.	X	X	X	X	15	648	20
	Tarek Ibn Zyad Exp.	X	X	X	X	15	924	28
	Gawad Hosny Exp.	X	X			4	122	5
Shubra	Ali Ibn Abi-Taleb	X	X	X		10	457	13
	Galal Exp.	X	X			3	101	7
	Arab Unity Exp.	X	X			9	248	17
Sharabiya	Belal Exp. Lang.	X	X	X		5	212	9
Matariya	Taha Hussien Exp. Lang.	X	X			18	618	39
El-Salam City	Salman El-Farsy Lang.	X	X	X	X	30	910	39
El-Waeli	Sakr Koresh	X	X	X	X	10	461	13
	Sarah Taki-allah	X	X	X	X	10	482	15
	El-Galaa Exp.	X	X	X	X	10	445	15
	Talaat Harb	X	X			4	120	7
El-Zatoun	El-Salam College	X	X	X	X	40	1499	92
	Dar El-Saada	X	X	X	X	14	482	18
	El-Galil	X	X	X		12	454	24
	New Generation	X	X	X		17	560	32
Heliopolis	El-Zahrat	X	X	X	X	11	423	17
	Manshiet El-Bakry	X	X	X		10	294	15
	Omar Ibn El-Khattab	X	X	X	X	15	707	22
	El-Mokrizy	X	X	X	X	10	491	13
	El-Kawakeb	X	X			7	214	15
Nasr City	Abbas El-Akad	X	X	X	X	21	820	25
	El-Sedeek	X	X	X	X	15	609	21
	Gamal Abdel Naser	X	X	X		10	443	34
	Aziz Abbaza	X	X	X	X	10	379	10
	Khaled Ibn El-Waleed	X	X	X		12	474	14
	Fatma Bent Mubarak	X	X	X		10	367	13
	Zaraa Naser City	X	X	X	X	13	487	16
	Ibn El-Nafees	X	X	X	X	20	752	23
	Mubarak	X	X	X	X	18	627	22
	Hassan Ibn Thabet	X	X			6	141	13
	Cairo	X	X	X	X	8	259	8
	Future	X	X	X	X	15	304	15
	Metwali El-Sharawi	X	X	X		5	62	5
Middle Cairo	El-Mohamadiya	X	X	X	X	10	493	29
	Omar Ibn El-Khattab	X	X	X		10	336	26
	Ramsis	X	X			4	135	6
Abdeen	Mohamed Fared	X	X	X		10	325	11
	El-Horriya	X	X			4	87	8
West Cairo	El-Gezira	X	X	X	X	10	476	18
	Kast El-Doubara	X	X	X		10	419	33
	El-Nile	X	X			4	106	8
Saida Zenab	Garden City	X	X	X	X	7	273	6
	El-Shams	X	X	X		10	336	18

Moderiya	School Name	KG	Prim.	Prep.	Sec.	Classes	Students	Teachers
	Egyptian Association	X	X	X		10	244	11
	El-Monira	X	X	X		8	260	21
	Suzan Mubarak	X	X			3	59	6
Old Cairo	El-Manial	X	X			20	834	42
Maadi	Offical Language Ep.	X	X	X	X	12	591	20
	Hadaek El-Maadi	X	X	X	X	12	632	18
Helwan	Hafez Ibrahim	X	X	X	X	14	562	19
	Hoda Sharawi	X	X	X	X	17	651	24
	El-Nahda	X	X	X	X	12	386	15
	El-Sherouk	X	X	X		7	257	13
Ain Shams	Ahmed Esmat	X	X	X	X	10	514	16
	Omar Ibn Abdel Aziz	X	X	X	X	10	443	18
	Om Kalthoum	X	X	X	X	13	528	18
El-Tebeen	15th May	X	X	X	X	15	447	30
	Ahmed Shawky	X	X	X	X	13	424	21
Monshaet Naser	Amin El-Nasharty	X	X			3	59	5
El-Marg	American Chamber	X	X			9	329	15
Hadaed El Koba	El-Nokrashy	X	X	X	X	13	590	20
	El-Salam	X	X	X	X	10	413	19
	Omar Ibn Abdel Aziz	X	X	X	X	5	65	3
El-Khalifa	El-Helmiya	X	X	X		9	344	10
	El-Basateen (French)	X	X			7	101	14
	El-Shaheed Said Imam	X	X			3	49	2
	El-Mokattam	X	X			4	132	7
El-Nozha	Yehia El-Rafie	X	X	X	X	16	616	23
	Abdel Aziz Al-Soud	X	X	X	X	15	627	26
	Yousef El-Sebaie	X	X	X	X	19	834	28
	El-Abtaal	X	X	X		6	185	16
Bab El-Sharia	El Nasr	X	X			4	108	4

Annex 8.11

Image of Practical Activities at Schools for Experimental Work

System of Activities



* The expert, together with counterparts, also gives guidance and advice to teachers at the selected schools.

Image of the Flow of Activities and Round Guidance

The following flow of activities is considered. The expert and the counterparts will make the round of each school, that is, A school → B school → C school → D school, giving minute, on-site guidance and advice. Suppose an expert makes a round of one school in a week, the expert will finish making a tour of 4 schools in a month. On the other hand, since the counterparts will take charge of two schools each, further attentive guidance will be possible.

In the beginning, it will be necessary for the expert and the counterparts to take the initiative of working out school lessons, however, gradually to enable the teachers of the schools for experimental work to draw up a plan for school lessons chiefly by themselves.

From around the latter half of the second year, it is thinkable that in the activities of the expert and the counterparts, emphasis will be shifting from guidance on practice of school lessons to working out plans for lesson observations and holding seminars, etc.

Budget of National Center for Educational Research and Development

Income LE

Estimation in 2002/2003 5,342,000
Allocation for 2001/2002 4,901,000
441,000

Description	Estimation 2002/2003	Allocation 2001/2002	Surplus	Deficit
Current Income				
Current income &trasnfers	4,807,000	4,516,000	291,000	
Capital income				
Financing capital expenditure				
Loans and facilities	535,000	385,000	150,000	
Total capital expenditure	535,000	385,000	150,000	
Total Income	5,342,000	4,901,000	441,000	

Expenditure LE

Estimation in 2002/2003 5,342,000
Allocation for 2001/2002 4,901,000
441,000

Description	Estimation 2002/2003	Allocation 2001/2002	Surplus	Deficit
Current expense				
Salaries	4,487,000	4,196,000	291,000	
Current expenses &trasnfers	320,000	320,000	-	
Total current expense	4,807,000	4,516,000	291,000	
Capital expense	535,000	385,000	150,000	
Total capital expenditure	535,000	385,000	150,000	
Total expense	5,342,000	4,901,000	441,000	

National Center for Educational Research and Development

Salaries LE

Estimation in 2002/2003	4,487,000
Allocation for 2001/2002	4,196,000
	291,000

Description	Estimation 2002/2003	Allocation 2001/2002	Surplus	Deficit
Salaries and Allowances(1)				
Item (1) Permenant Staff	811,092	841,109		(30,017)
Item(2) Part timers	23,000	23,000		
Item (5) Bonus	2,600,732	2,342,732	258,000	
Item (5) Salaries & allowance	42,808	42,730	78	
Item (7) financial privelage	289,260	273,375	15,885	
Total Group (1)	3,766,892	3,522,946	273,963	(30,017)
Inkind Privelage(2)				
item (2) staff uniform	3,150	3,150		
item (3) staff medical care	50,100	50,100		
Item (4) social care	600	600		
Total Group (2)	53,850	53,850		
Insurance (3)				
Item (1) Social insurance	580,742	540,061	40,681	
Item (2) Sickness insurance	47,640	43,816	3,824	
Item(3) Work injury insurance	37,876	35,327	2,549	
Total Group (3)	666,258	619,204	47,054	
Total Salaries	4,487,000	4,196,000	321,017	(30,017)

Current Expenditure and transfers

Estimation in 2002/2003	320,000
Allocation for 2001/2002	320,000

Description	Estimation 2002/2003	Allocation 2001/2002	Surplus	Deficit
Material Purchase	19,000	19,000		
Materials	11,000	11,000		
Oil and fuel for cars	4,800	4,800		
spareparts and requirements	200	200		
stationery	57,300	57,300		
water and electricity	35,500	35,500		
miscellaneous	9,200	9,200		
Total	137,000	137,000		
Services				
Maintenance	100,000	100,000		
Research and experiments	3,000	3,000		
Advertisment	15,000	15,000		
Printing	30,000	30,000		
transportation	11,500	11,500		
renting equipment	1,500	1,500		
taxes	500	500		
foreign relations	500	500		
service for non-staff	3,000	3,000		
training expenses	3,000	3,000		
miscellaneous	15,000	15,000		
Total	183,000	183,000		
Grand Total	320,000	320,000		

Title of the Project: Project on Improvement of Science and Mathematics Education in Primary Schools
Project Period: 1 April 2003 – 31 March 2006
Project Site: NCERD and the selected governmental language schools in the Cairo Governorate
Target Group: NCERD counterparts and teachers in science and mathematics at the selected schools

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Important Assumptions
Overall Goal: The new teaching methods that use the guidebooks in science and mathematics education are used at the primary schools in Cairo governorate and PPMU's target governorates. (*NOTE: Overall goal is shared by both JICA and PPMU. It won't be achieved only by one side. Thus both of them cooperate each other. However, one is not accountable for the outputs of the other.)	- Number of schools that use the new teaching methods to some extent. (The ratio of those schools among the total) - Number of lesson hours when they use the new teaching methods in the schools above (The ratio of the hours among the total) - Appropriateness of the teachers' ways when they use the new teaching methods - Existence of cases in which there are teachers who create new lesson examples based on the new teaching methods with their own understanding	- Results of questionnaires and interviews - Lesson observation by experts - Regular reports from schools to governorate education offices	- The education offices in Cairo Governorate and PPMU's target governorates are supportive of dissemination of the new teaching methods - PPMU's teachers training are appropriately implemented and their target governorates are supportive to the dissemination of the new teaching methods
Project Purpose: The new teaching methods that use the guidebooks in science and mathematics education take root at the selected schools and form a solid base for further dissemination.	- Evaluation on the new teaching methods by the stakeholders below; (Education officers, Teachers, Parents, Students) - Evaluation on the capacity of the teachers of the selected schools by those concerned - Evaluation on the capacity of NCERD staffs by those concerned	- Evaluation sheets - Any data and documents concerned	

Outputs: 1. NCERD staff can give proper instruction to teachers on the new teaching methods, including lesson planning	1-1. Number of NCERD staff who can give proper instruction on the new teaching methods, including lesson planning 1-2 Qualitative evaluation by the Japanese experts	1-1 Daily and weekly records of the Project's activities, regular reports 1-2 Evaluation sheets by Japanese experts	
2. The teachers at the selected schools master the new teaching methods and practice them in class	2-1 Number of teachers at the selected schools who can properly practice the new teaching methods 2-2 Qualitative evaluation by Japanese experts	2-1 Daily and weekly records of the Project's activities, regular reports 2-2 Evaluation sheets by Japanese experts	
3. The new teaching methods are proved to be effective	3-1 Degree of improvement in students' academic performance; effects on their understanding, attitudes and interests; comparative study between the selected and non-selected schools	3-1 Research results	
4. The guidebooks are revised	4-1 Revised parts and contents of the guidebooks	4-1 Revised guidebooks	
5. The internal system of disseminating the new teaching methods is established at the selected schools	5-1 Contents and frequency of activities of the school-based training units	5-1 Records of activities of the school-based training units	
6. The new teaching methods are recognized by the people in the education field	6-1 Number of open lessons and seminars 6-2 Number and profile of the participants in open lessons and seminars 6-3 Evaluation of open lessons and seminars by the participants	6-1&6-2 Records of open lessons and seminars 6-3 Evaluation sheets answered by the participants	Organizations concerned are favorable to mobilize the people for the open lessons and for the seminars held by the Project

Activities:	**Inputs:**	
1-1&2-2 In collaboration with NCERD staff, give hands-on instruction to the teachers at the selected schools on the new teaching methods	<Japanese side> - Dispatch of experts (Long-term) 1) Chief Advisor (36M/M) 2) Science Education (36M/M) 3) Mathematics Education (36M/M) 4) Coordinator (36M/M) (Short-term) 1) Science 2) Mathematics - Training in Japan (approximately 3 persons per annum) - Provision of equipment	<Egyptian side> - Staff allocation - Budget allocation - Provision of facilities Project office within NCERD Project room within the selected schools - Arrangements necessary for the activities
2-1 Select the candidate schools 2-2 Select the target schools from the candidates 2-3 Make lesson notes and meet with teachers of the selected schools 2-4 Give hands-on instruction to the teachers at the selected schools on the new teaching methods		
3-1 Study the research methods that measure the effectiveness of the new teaching methods 3-2 Conduct the research towards the teachers and students at the selected schools 3-3 Analyze the research results and verify the effectiveness of the new teaching methods		
4-1 Revise the guidebooks step by step, based on the lessons learned through practice in class		
5-1 Help strengthen the function of the school-based units at the selected schools		
6-1 Hold School-based training session 6-2 Hold open classes for teachers of Cairo governorate 6-3 Hold the national seminar		

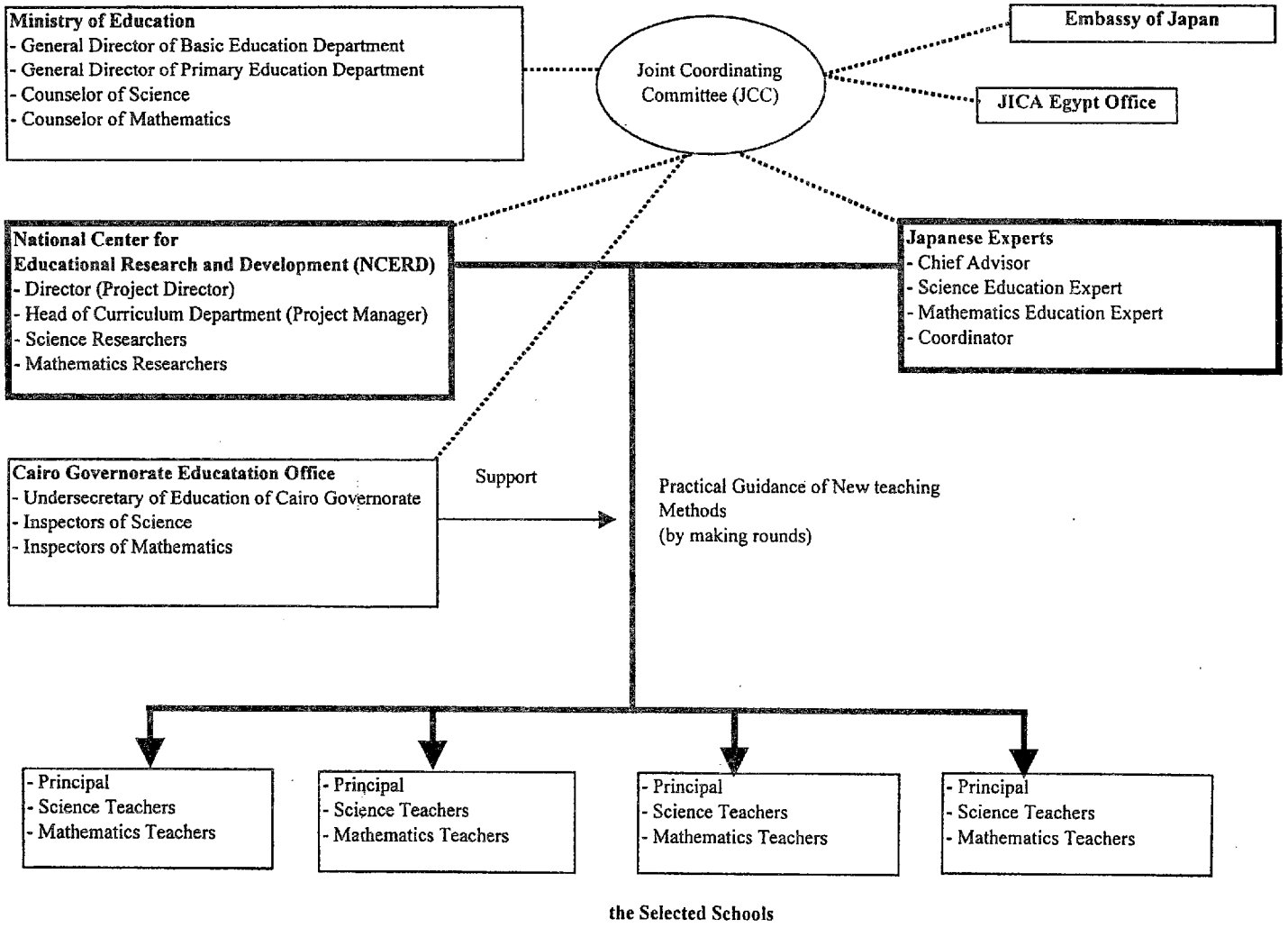
- Teachers at the selected schools do not frequently move in and out.
- Information and data are duly offered.

Pre-conditions:
The people concerned in Egypt are cooperative with the Project.

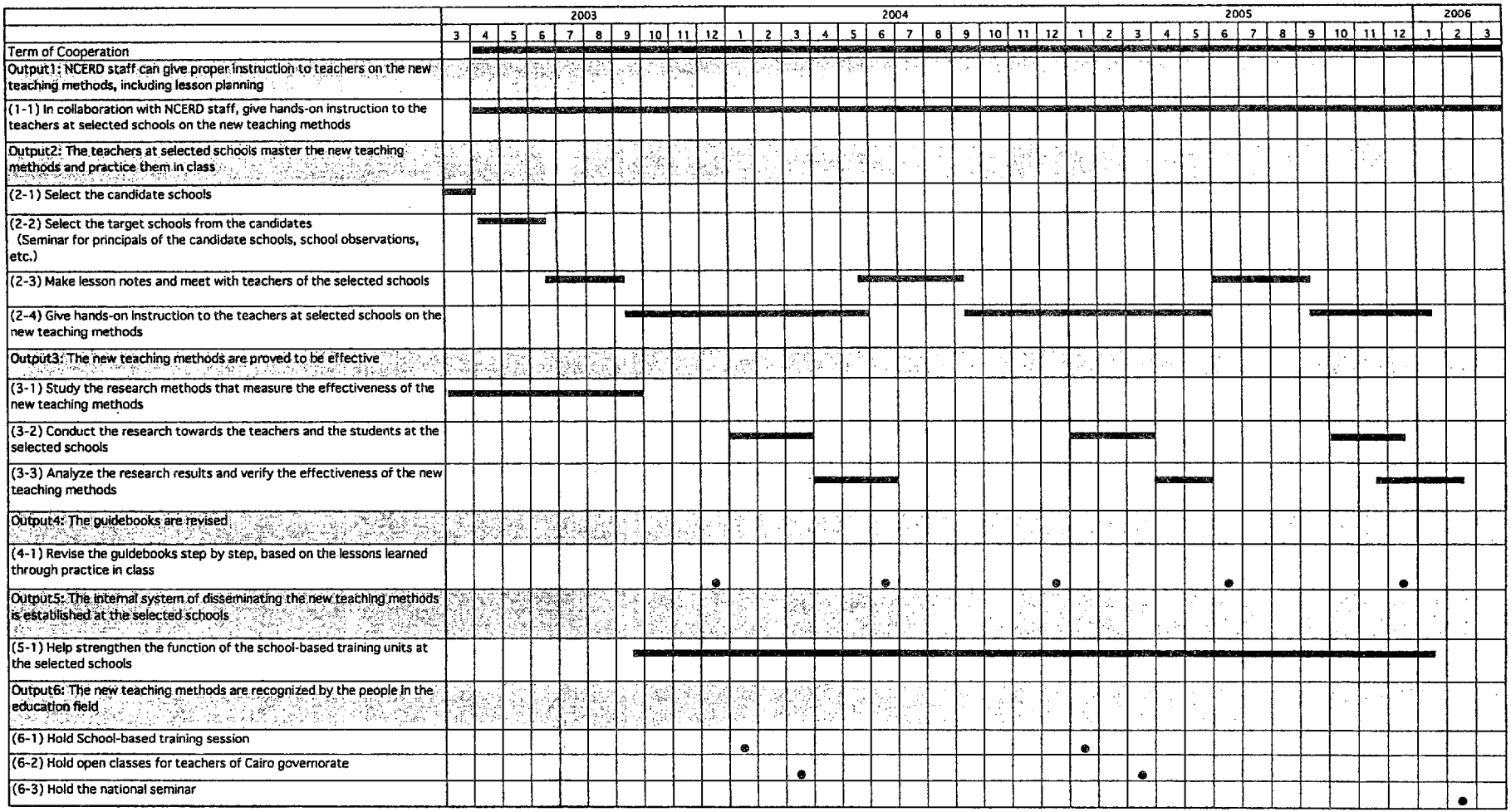
TENTATIVE SCHEDULE OF IMPLEMENTATION

PHASE	IMPLEMENTATION											
YEAR	2003			2004			2005			2006		
	1	6	12	1	6	12	1	6	12	1	6	12
I. PROJECT DURATION												
II. INPUTS BY THE EGYPTIAN SIDE												
1. Assignment of Counterpart Personnel												
2. Assignment of Administrative Personnel												
3. Building and Facilities												
4. Allocation of Budget												
III. INPUTS BY THE JAPANESE SIDE												
1. Dispatch of Long-term Experts												
Chief Advisor												
Mathematics Education												
Science Education												
Cooridinator												
2. Dispatch of Short-term Experts												
3. Provision of Equipment												
4. Training of Counterpart personnel in Japan												
5. Dispatch of Consulation / Evaluation Team												
IV. JOINT COORDINATING COMMITTEE												
V. PROJECT ACTIVITIES												
1. Preparation (Selection of Schools for Experimental Work, etc.)												
2. Practical Activities at the Selected Schools												
3. Verification of Effects on Children												
4. Revision of the Guidebook												
5. Dissemination Activities												

Organization Chart



Plan of Operation (Whole Period)



1. 序論

1981 年にムバラク大統領が政権に就いて以来、エジプトの教育指標は大幅に改善した。初等教育へのアクセスは大きく進展したが、機会均等だけでは「卓越のための教育、万人のための卓越」を達成することは不十分であると同国は痛感していた。[1] 同国からの要請を受け、1997 年に JICA は初等教育における理数科教育改善に係るミニプロジェクトを開始した。NCERD をカウンターパート機関として、同プロジェクトは多くの有形、無形の成果（その中には理科と算数のガイドブックが含まれる）を生み、2000 年に成功裏に終了した。

ガイドブックの原本は英語で書かれているが、日本人専門家から技術移転を受けた NCERD スタッフがその後アラビア語に翻訳した。現在、アラビア語のガイドブックはインスペクターやシニア教員の研修で使われている。しかし、研修は限られた人数を対象としており、その使用も単なる試験的なものである。また、また、ガイドブックは実際に使用した結果、改訂すべき箇所がいくつか出てくるものと考えられる。さらに、ガイドブックの中心概念は、インスペクター、シニア教員、特に教室で直接児童を指導する理数科教員など、教育者に正しく理解される必要がある。

このような課題に取り組むために、エジプトは日本国政府に対し、理数科のガイドブックを用いた新しい教授法が定着し、さらなる普及のための基盤が整理されるよう、それに必要な指導・助言を与えることを再び要請してきたものである。

2. 背景

2.1 社会・経済状況

エジプトはアラブ世界において最大の人口を有し、サウディアラビアに次いで 2 番目に大きな経済規模を誇っている。国土の総面積は 1,002,000 平方 km^2 で、総人口は 5930 万人である (1996)。[2] 教育ステータスによる人口の分布率は表 2-1 に示されている。同表によれば、非識字者は全人口の約 40%を占め、中学校へ進学しない人口は約 67%に留まっている。これらの数値は、同国の教育が基本的な読み書きや計算ができる人材を労働市場に供給し損なってきたことを示している。加えて、女性と男性との間には著しい差があり、前者が大きく遅れをとっている。都市と地方の不均衡も歴然としている。したがって、地方に住む女性が最も疎外され、恵まれない人々である傾向が強い。例えば、都市の男性非識字者が 19.81%であるのに対して、地方の女性非識字者は 63.23%にも達する。

同国の経済は公共部門を含めたサービス部門が大きな比重を占めており、GDP の約半分を占めている。この中では観光とスエズ運河が特に重要な役割を果たしている。農業部門もやや漸減傾向にあるものの、依然として GDP に大きく貢献している。表 2-2 は近年の GDP をセクター別にみたものである。

2.2 セクター／サブセクターの状況

社会・経済開発ための第 3 次 5 カ年計画（1992/97）と第 4 次 5 カ年計画（1997/2002）を通じて、エジプトは教育機会の量的拡大を推進した。同国政府は小・中学校などの新しい学校建設のために 13 億エジプトポンド以上を割り当てた。その努力の結果、全日制の小学校は 1991/92 年の 5601 校から 2000/01 年には 6374 校に増加した。また、二部制の小学校は 1991/92 年の 1215 校から 2000/01 年には 592 校に減少した。[3] これによって、教室内の生徒の密集度は緩和された。表 2-3 は 1991/92 年から 2000/01 年までの学校数の増加を示している。2000/01 年における各県別の小学校数は表 2-4 に示してある。初等教育の就学率も 1992/93 年の 75.12%から 2000/01 年の 91.94%へと上昇した。2000/01 年、エジプト全土で 7,142,127 人の小学生が公立と私立の小学校に就学している。その県別、性別、学校のタイプ別の内訳は表 2-4 のとおりである。

初等教育のアクセスと環境の改善については多くのことがなされてきた。しかし、留年率を減少させるためにはまだ多くの課題が残されている。表 2-6 と 2-7 は 2000/01 年に初等教育（公立及び私立小学校）における留年者の人数と割合を示したものである。この二つの表から、全国の小学生の 92%以上を占める公立小学校のほうが私立小学校よりも留年率が高いこと、さらに公立か私立かに関わらず、高学年になるほど留年率が高くなる傾向にあるということができる。

2.3 非援助国の戦略

エジプトの憲法第 18 条で「教育は国家から保証された権利である」と述べられているとおり、同国政府は教育を全国民に対する人権とみなしている。1990 年代初期、ムバラク大統領は、20 世紀最後の 10 年は非識字を撲滅し万人に教育を提供するための 10 年であると宣言した。同大統領はすべての国民に対して初等教育の機会均等をもたらすことに重点を置いた。

1994 年の労働デーにおける大統領演説で、同大統領は「エジプトの進歩は国民の潜在的可能性を解き放つことなしには成し得ない。（中略）これは我々がしなければならない最も重要な仕事である。この目的を達成する手段は、我々の投資計画において

優先度の高い社会的な機関と認められている教育・研修機関の概念と役割を再考することである」と述べている。**2.2** に書かれているとおり、エジプト政府は教育、特に教育の量的側面に高い優先度を置き、校舎の建設、改修に予算を割り当ててきた。

第三の千年、エジプトは良質の教育に係る戦略を練っている。ムバラク大統領はセネガルで 2000 年に開催されたダカール国際会議において次のように演説した。「20 世紀最後の 10 年は万人のための教育という強い決意を確認した。よって、21 世紀最初の 10 年は（中略）新しい展望、すなわち卓越のための教育、万人のための卓越、を実現するために努力すべきである。この原理は、平等な機会を与えるだけでは不十分であることを意味する。この原理は（中略）、人々が享受すべき成果である卓越を達成するために万人に機会を提供することを意味する。」

万人のための卓越の達成は、国家の安全保障を支援し、国際市場で競争できる能力を保証する。不可逆的なグローバリゼーションの流れに対応するために、教育省は次の 5 つの基本戦略を通じて教育の異なる分野において努力を払っている。[4]

(1) 継続的な職業（専門）能力開発
(2) 科学研究
(3) 民主主義
(4) 英才児教育
(5) 国際協力とパートナーシップ

エジプト政府は初等教育の期間を 5 年から 6 年に変更する決定を下した。この改革は 2002 年 9 月の新 4 年生から適用され、彼らは 6 年間の初等教育を受けることになる。したがって、新 3 年生以下の児童もこれにならう。実は、初等教育の期間はかつて 6 年であったが、国家予算が逼迫し、1989 年に 5 年間に短縮された。2002 年の改革はそれとは異なり、真に教育的理由によるものである。言い換えれば、政府はより長い期間をかけて基本的なスキルを子供に身に付けてほしいと切に願っており、そうすればこれまでの暗記型学習法から問題解決型で批判的思考を用いた学習法に取って代わることが可能であるとしている。

2.4 過去及び実施中の援助

エジプトでは、教育は人間の能力を開発し、報酬に見合う仕事に就き、個人と社会の発展に必要な知識を得る主要なツールであると認識されている。同国はこれまで他の国や機関から得た教訓を生かそうと努めてきた。世界の経験から便益を受けるために、同国は新しいパートナーシップを築き、国際協力を通じて以下のプロジェクトや

プログラムを実施してきた。

(1) ユネスコ

エジプトにおけるユネスコの活動は、女子教育、女性のための所得創出、保健プログラムなど多岐にわたっている。ユネスコも理数科の重要性を認識し、特に高校レベルに焦点を当てている。ユネスコは 1998 年から高校理数科における ICT（情報コミュニケーション技術)利用に関するワークショップを毎年開催している。本ワークショップの目的は、基本的な ICT スキルと授業用理数科教材の作成方法を参加者に習得させることにある。[5] このワークショップは、ユネスコ・カイロ事務所と世界銀行／PPMU／教育省の中等教育向上プロジェクト（SEEP）によって共同で組織され、科目別に開催される。各ワークショップの期間は約 5 日間で、インスペクター、シニア教員、理数科教員、NCERD スタッフなど 30 名程度が参加する。

(2) ユニセフ

ユニセフは、家族、コミュニティ、社会全体に活力を与える大きな可能性をもつ女子教育に一貫して取り組んできた。1992 年から 2001 年まで、ユニセフは次の 4 つのプロジェクトを実施してきた。これらのプロジェクトは、ユニセフが NGO と協力し、コミュニティ参加を促し、手を差し伸べがたい人々に手を伸ばし、教育へのアクセスを改善したという点で成功した。

1) 幼児ケア・開発 (ECCD)プロジェクト
2) 女性の識字及びライフスキル・プロジェクト
3) 情報アドボカシー・プロジェクト
4) 基礎教育プロジェクト

ユニセフの 2006 年までの新カントリー・プログラムは、引き続き幼児ケア・開発(ECCD)プロジェクト、女子に配慮した良質な学習、そして青年の開発と参加に重点を置いている。あるプロジェクトは、Assuit、Sohag 及び Qena 県内 6 地区の 100 校のコミュニティスクールの新設によって、幼児ケアと良質な学習に必要な知識とスキルを提供しようとしている。また別のプロジェクトは、良質な学習とジェンダーの均衡を確保することによって、国家政策と教育改革を支援することにしている。

(3) 世界銀行

1997 年から世界銀行は EU と協調して、教育向上プログラム（Education Enhancement Program: EEP）を実施している。EEP の目的は、1)基礎教育への特に女子のアクセスの向上、2)就労前及び現職教員訓練の内容と提供の充実による教育の質の向上、そして 3)人的、財務、物的資源の有効活用による教育システムの効率化で

ある。概算費用は 835.5 百万米ドルで、世界銀行が全体の約 9%にあたる 75.0 百万米ドルをファイナンスする。表 2-8 は、構成部門別、組織別の費用とファイナンスを示している。EEP は当初 5 年間のプロジェクトであったが、2004 年まで延長されることが承認された。エジプト側の実施機関は教育省傘下に組織された PPMU である。

世界銀行はエイドメモワール(2002 年)の中で、EEP の究極の目標は生徒の学力向上であると明言している。世界銀行は、児童の学習をより良く支援できるよう、教員、行政官らのスキル、態度、知識を向上させることに焦点を当てている。コンサルタントと NCERD スタッフの支援によって、世界銀行は算数、理科、社会、英語、アラビア語の科目の初等教員用の遠隔学習用パッケージを作成した。目下、対象としている県は 15 県であるが、[6] 全県に拡大することも検討されている。ついでながら、学習教材を提供する媒体は、教本、音声テープ、そしてビデオテープであり、放送やインターネットを通じて行われているのではない。

(4) ヨーロッパ連合 (EU)

EU は 5 年間の EEP 支援を行うために 125 百万米ドル（100 万ユーロ）の贈与を確約した。EU は世界銀行と協調して、エジプトの基礎教育システムの改善をめざして 15 の教育後進県を選定した。EEP では、1) 特に貧しいコミュニティの女子において就学者を増やして退学者を減らすこと、2)教授法を改善すること、3)教育の計画立案と運営管理能力を増強させること目標にしている。[7] 教育の質の問題に関しては、教室内の児童の密集度の減少と（二部制、三部制などの）複数シフトの削減につながる学校建設によって主に対応してきた。

EU は EEP を 2006 年まで延長することを決定し、15 県において理数科教員に対する本格的な研修を開始することを計画している。すでに総費用 1.5 百万エジプトポンドは EU 内部で承認されている。[8] ターゲットグループは莫大な数の理数科教員であるため、EU はまず中心となるメンバー（主にインスペクター）に対し研修を行い、さらに彼らがシニア教員や他の教員を指導することを想定している。この方式はカスケード方式と呼ばれ、少ない時間と費用で適切な知識とスキルを普及する最も効率的な方法と期待されている。EU は、研修を効果的なものにするため、JICA のミニプロで作成された理数科の教員用ガイドブックを最大限に利用したいとしている。EU は 2001 年に Ismailia 県で、2002 年に Qena 県で教員研修のパイロットプロジェクトにおいてガイドブックを使ってみたが、大半の参加者からガイドブックは非常に有用で日々の授業で活用できるとの評価を得た。Annex 8-2 は、2002 年 5 月 21 日付けで PPMU のディレクターから提出された研修の実施計画である。同計画によれば、EU は、中心メンバーにガイドブックの中心概念と適切な使用法を理解させるための研修に日本人専

門家の支援が必要であるとしている。

(5) 米国援助庁 (USAID)

USAID は、総額で 338 百万米ドルにのぼるさまざまな教育プロジェクトを実施している。[9] 実例としては、女子教育、学校建設、教員研修、主任教員交換などである。「パイロット教育改革」は 2001 年に開始された 4 年間のプロジェクトである。それはアレキサンドリア県の最貧困区にある 30 の公立校（小学校 12、中学校 4、高校 14）を対象としたものである。USAID は 1)集中的な教員研修、2)コミュニティ参加、3)分権化に焦点を当てている。教員研修に関しては、USAID は多数の異なる教員に対して短期のワークショップを何度も開催し、そこで教員は批判的思考、児童中心の学習、積極的な授業環境の創造など、効果的な教授法について学んだり議論したりする。本プロジェクトの究極の目標は児童の学力向上であり、教授法やスキルの向上ではない。というのも後者は目標に至る過程や手段だからである。

(6) 国際協力事業団 (JICA)

JICA は 1997 年から 2000 年まで小学校の理数科教育改善に係るミニプロジェクトを実施した。他のドナーと異なり、同ミニプロは多岐にわたる教授法を網羅するのではなく、小学校の理数科教育に特化した。JICA は 13 名（延べ 17 名）の日本人専門家を派遣し、14 名のエジプト人に本邦研修を受けさせ、総額で 2200 万円の機材供与を行った。[10] さまざまな投入と活動を通じて、理数科教員用のガイドブックが成果品のひとつとして最終的に出来上がった。このガイドブックは量的にも質的も充実したものである。ミニプロ終了後、NCERD のカウンターパートが英語で書かれたガイドブックをアラビア語に翻訳したが、彼らの能力は、今後教材を作成するために彼ら（元 JICA カウンターパート）の支援を必要とする国際機関においても高く評価されている。

3. 対処すべき問題、現状

3.1 サブセクターの制度的枠組み

2002 年に発効した教育改革によって義務教育は 8 年間（初等教育 5 年間、中等教育 3 年間）から 9 年間（初等教育 6 年間、中等教育 3 年間）に延長された。したがって、今年度の新 4 年生は 6 年生まで進級するが、新 5 年生は旧システムの中に留まることになる。公教育システムの新しい枠組みは図 3-1 に示されている。就学前教育では、幼稚園や保育園がいくつかあるものの、その数は極めて少なく、また都市に集中している。中等教育修了後、生徒は普通高校、職業訓練校に進学するか、進学しないという選択をする。

「基礎教育の初等サイクルのための技術指導要領及びシラバス，初等段階，2001/2002 年」によれば、授業実施期間は年間 34 週間以上となっている。公立及び実験校の科目別の週間授業時間数は表 3-1 と 3-2 に示されている。算数と理科の配分表は Annex 8.3 と 8.4 として添付されている。

3.2 対処すべき問題、現状

2.2 で述べられているように、初等教育の量的側面は 1990 年代に大幅に改善した。集中的な学校建設は教育機会を拡大し、アクセスと学習環境を高めることに寄与した。しかし、初等教育の質的側面については十分に対処されてきたとは言いがたい。その理由はおそらく、教育に関しては質的な業績を測定し、短期間で目に見える成果を上げることがむずかしいからであろう。

表 2-6 と 2-7 は、高学年になればなるほど留年率が高くなることを示している。エジプトの初等教育においては、たとえ一科目でも落第すると、生徒は翌年度に再度最初からすべての科目を学び直さなければならない。驚くべきことに、2000/01 年に公立小学校の 5 年生の 11%が留年している。これは教育の浪費にほかならない。このような非効率は児童の家族、学校、コミュニティ、さらには国全体にマイナスの影響を及ぼす。しかし、落第（留年）した児童自身こそがその最大の被害者である。なぜなら彼らは学問的な関心を半永久的に失ってしまう可能性があるからである。

2002 年 4 月に派遣された JICA の事前調査団は、いくつかの公立校や実験校を巡回視察した。調査団がどこでインタビューをしても、教員たちは一様に、児童の最大の苦手科目は算数と答えていた。さらに教員たちは、理科の教科書には多くの情報が掲載され過ぎており、生徒が理解・咀嚼することができないと指摘していた。Annex 8.5 は 2002 年４月にカイロのエルモスタカバル総合実験校において開催された PCM ワークショップの結果である。参加者はインスペクター、校長、シニア教員、理数科教員、保護者、NCERD スタッフから成る約 20 名であった。彼らは 2 つのグループに分かれて議論し、問題系図（Annex 8.5）を作成した。両グループの問題系図において、中心問題は旧態依然とした教授法に関連したものであり、それが児童の学ぶ慶び、理解、想像力や批判的思考の醸成を妨げているとしている。

実際のところ、算数と理科は、児童がさらに進んだ精神活動を行うのに必要な基本的な思考を発達させる基礎を作る手助けをする二大科目である。理科は科学的思考の形成のための鍵となる因果関係の考え方を発達させる機会を生徒に与え、算数は論理的思考の発達のための基礎となる数の概念を生徒に身に付ける手助けとなる(Maurice

Debesse. 1980 年)。

3.3 わが国の援助政策との関係

エジプトは中東において最も大きな国のひとつである。この地域の平和と安定を維持するに際して、同国は極めて重要な役割を担っている。わが国は援助の優先度を以下の分野に置いている。[11]

(1) 農業生産の拡大
(2) 人材育成、教育の充実
(3) 経済・社会基盤の整備、産業の振興
(4) 保健・医療の充実、社会福祉の向上
(5) 環境の保全、生活環境の向上

(2)に関しては、わが国は基礎教育の充実を最重要課題と考え、人的資源の開発に際して初等教育を第一の課題と捉えている。さらに、1999 年 4 月にムバラク大統領が来日した際に両国間で合意された 21 世紀の平和と繁栄のための日本ーエジプト・パートナーシップ・プログラムは、1)平和、2)経済、3)環境、4)文化交流、5)教育の分野において相互の協力関係を強化し、多様化することをめざしている。このように、エジプト小学校理数科教育改善プロジェクト（以下「プロジェクト」）は、わが国の同国に対する援助政策と完全に合致している。

4. プロジェクト戦略

4.1 プロジェクト戦略

Annex 8.6 も 2002 年4月にエルモスタカバル総合実験校で行われた PCM ワークショップの結果である。二つのグループは Annex 8.6 にある目的系図を作成した。両方とも、中心目的は、教科の内容を現実の生活に結びつけて生徒が段階的に内容を理解できるような児童中心の教授法と関連している。

NCERD と JICA は、ミニプロジェクト(1997-2000 年)の成果品として理数科の教員用ガイドブックを開発した。NCERD スタッフの継続的な努力によって、ガイドブックは数ヶ月前に英語からアラビア語に翻訳されたが、今後は利用され、試され、必要に応じて改訂され、広く全国に普及されようとしている。ミニプロジェクトを踏まえて、新しいプロジェクト（2003-2006 年）は次の戦略に基づいて実施されることになる。

(1) モデル校における実践指導

a.. 2 種類の活動の必要性

新しい教授法は、従来、エジプトの一般の教員にはほとんど馴染みのなかったものである。その上、そのような授業を適切に行えるためには、教員自身の教育内容に対する高度な理解と、進んで創意工夫を凝らす情熱が不可欠であり、その上で豊富な実践を積み重ねることが必要である。

このため、新しい教授法を真にエジプトに根付かせるためには、意欲ある優秀な教員に対して、実際の授業での実践を通して新しい授業方法の経験を積み重なることが最も効果的である。このような指導は、広範な規模で行うことは不可能であり、限定された範囲を対象とせざるを得ないが、たとえ狭い範囲であっても、真にエジプト人教員の手による授業実践が確立すれば、今後の自立的発展の核として、エジプト自らの手で理数科教育の改善を進めていくために不可欠な存在になると考えられる。理数科の新しい教授法の根本的な考え方については、Annex 8.7 と 8.8.を参照されたい。

また、新しい教授法は、速やかに全国に導入されるべきものであり、その意味で全国の教員を対象とした広範な研修事業も当然必要である。広範な研修事業と実践の積み重ねを中心とした狭い範囲での濃密な指導とは、新しい教授法の普及を図る上で何れも必要な活動であり、相互に補完しあうものである。活動の全体像は Annex 8.9 に示されている。

b.. アラビア語の問題

広範な研修事業と、狭い範囲での濃密な指導と、2 種類の活動が必要であるとして、このプロジェクトでは、どちらを実施するのか検討しなければならない。日本人専門家が実際に指導を行う上で、アラビア語の問題が大きな壁となることを考慮すれば、プロジェクトが自ら広範な研修事業を主催することは困難である（もとより広範な研修事業の開催も重要である。他に研修事業が実施されるのであれば、適切な協力関係を構築し、できるだけ協力することが重要と考えられる)。

一方、カイロ県には英語で授業を実施している公立の小学校が設けられており、これらの学校の中から数校（4 校程度）の少数の学校をモデル校として選定し、日本人専門家が中心となり、新しい授業の実践指導を集中的に行うことは十分可能であると思われる。モデル校の教員を対象とした集中的な実践指導を、このプロジェクトの主要な活動とするのが適切と考えられる。カイロ県の実験校のリストは Annex.8.10 として添付されている。

c. モデル校での新しい授業方法の実践

少数のモデル校を対象とした活動を行うとして、先ず、適切なモデル校の選定自体が極めて重要である。地理的条件、入学難易度、その他学校独自の特徴を考慮して、多様な学校が選定されるようにすべきである。有能な校長と理数科教員とが、ともに新しい教授法を導入する趣旨をよく理解し、進んで協力してくれることが必要である。モデル校の選定には、こうした点が十分に考慮されることが必要であり、また、指導にあたる日本人専門家の意見も十分に尊重されるべきである。日本人専門家とともにモデル校の理数科教員の指導にあたるエジプト側のカウンターパートが必要である。カウンターパートには、ミニプロ時と同様、NCERD の研究者を以って充てるのが適当と考えられる（できれば、ガイドブックの作成に携わった研究者であることが望ましい)。

プロジェクトの開始から、モデル校での授業実践が本格的に着手されるまでの間に、日本人専門家とカウンターパートにより、県教育事務所職員、インスペクター、モデル校の校長や理数科教員に対する様々な講習会が必要に応じて開催されることになろう。

モデル校が選定された後は、各学校において、ガイドブックを活用した新しい教授法の実践を積み重ね、実施能力の確立を図ることとなる。この実践が、このプロジェクトの最も主要な活動となるものである。日本人専門家とカウンターパートの両者でチームを組んで頻繁にモデル校を巡回し、各校の理数科教員に対して綿密な指導助言を行う。これにより、カウンターパートの指導力が大きく向上するとともに、モデル校の理数科教員も、新しい教授法を適切に実践できる力を習得すると考えられる（具体的な活動イメージについては Annex 8.11 に示すとおり)。

モデル校における実践活動は、開始後 2 年の間に一応の定着を図り、最後の 3 年目には、インスペクターや他校の教員等様々な教育者を対象として、授業見学会等を開催できるようになることを目指す。

(2) 実践を通じたガイドブックの改訂

現在の指導書の収録内容は、極めて多岐にわたるものであり、たとえ理数科の授業時間が相当に増大したとしても、すべてを実施するのは困難であると考えられる。また、それぞれの内容については、児童の積極的な反応を引き出し、理解を深める効果が高いかどうか、実際の授業で検証してみなければならない。このような認識に基づき、このプロジェクトの中で、実践を通じて現在のガイドブックの内容を吟味し、必要な改訂を加えることとする。

(3) 新しい教授法が児童に与える影響の検証

このプロジェクトは、それ自体が実験的な正確を有しており、新しい教授法が実際に児童の理解や態度にどのような効果を発現したかを検証することが極めて重要である。新しい教授法がもたらし得る効果を客観的に示すことができれば、教員やインスペクター等の理解も得やすくなると考えられる。

このため、モデル校の児童を中心的な対象として、各種の調査を実施するものとする。具体的な調査方法としては、理科教育については、前回の協力プロジェクト期間中に、誤概念テスト、科学的態度調査、科学的操作に関するテスト、授業観察カードによる授業評価など、基礎的な手法は確立されている。これらを基盤として、数学教育も含めて、更に調査方法の開発を進めつつ、調査を実施することとしたい。調査は、実験校の中で、あるいは実験校とそれ以外の学校との間での比較調査を通じて行われることになると考えている。加えて、教室訪問を通じて児童や教員に対する影響を観察することも極めて重要である。それはガイドブックの改訂を含めたプロジェクトの活動に対して多くの有益な助言を与えるであろう。

(4) 授業見学等の普及活動の実施

プロジェクトの中盤以降においては、広く教育行政関係者や理数科教員等を対象として、モデル校での授業を見学する機会を設けたり、新しい教授法に関する各種の講習会等を開催したりするなど、普及活動を積極的に展開する。普及活動については、他に類似の研修事業などが開催されるのであれば、それらと適切な協力関係を構築すべきである。内容上重複がないようにするとともに、プロジェクトの運営に支障がない範囲で、他の事業にも積極的に協力することが重要である。

4.2 プロジェクトの運営・実施体制

(1) カウンターパート機関の能力

NCERD は労働法 88 坊条によって 1972 年に設立された公的機関である。NCERD は教育分野に従事する責任ある人々を支援することを目的としている。NCERD は調査研究を行い、その結果を公表している。また、NCERD は教科書の作成、新しい教授法の開発、教員のための教案作りなども行っている。こうした活動を通じて、NCERD は社会における科学的な役割の開発に参加することを志向している。

このように、NCERD は公的で伝統があり、確たる基盤を持つ組織であり、本プロジェクトのカウンターパート機関として適切である。図 4-1 はその組織図である。NCERD はプロジェクトの実施に必要な活動の主要部分を担い、プロジェクト全体の

運営管理に関して第一に責任を負う。さらに、NCERDは、他の機関との適切な調整、教育統計などの必要な情報の提供を含むプロジェクト活動に対して必要な支援を行うことが期待される。

(2) 予算手当て

人件費を含む2002/03年のNCERDの予算は、5,342,000エジプトポンドである(Annex 8-12 参照)。優れた研究開発機関として、NCERD は 30 年の歴史を有し、予算状況も安定し堅調である。

(3) カウンターパートの配置

NCERD は組織内に本プロジェクト向けのユニットを設置し、理科と算数の各科目に一人ずつ責任者を配置することが望まれる。実際、NCERD は特別ユニットを準備する用意があり、カウンターパートのリストは表 4-1 のとおりである。これらのカウンターパートはプロジェクトの全体活動に参加する。彼らはミニプロジェクトかつてのカウンターパートであり、その点でプロジェクトを円滑に開始するための基本的能力を有している。

4.3 必要な調整措置

モデル校における日本人専門家とカウンターパートの活動については、県教育事務所やインスペクターの理解と積極的な支援が与えられることが必要である。モデル校における活動に関しては、専門家とカウンターパートは、インスペクターと同等程度の権限を認められ、原則として個別の許可は求められないことが強く要望される。

県教育事務所は、本プロジェクトの担当者を任命し、インスペクターが可能な限りモデル校での授業実践に参加し協力することが求められる。また、県教育事務所の担当者やインスペクターは、授業見学やセミナーの開催に当たり、企画段階からプロジェクトの活動に参画するとともに、参加者の募集や会場の手配等において、便宜を図るようにすることが求められる。

NCERD とモデル校と同様に、教育省もエジプト側関係者のひとつである。同省は教育政策の中での本プロジェクトの位置づけを明確にし、プロジェクトの成果を積極的に活用するためのイニシアチブが取られることが望まれる。

4.4 自立発展性

ガイドブックの内容は実用的で有用と好評を博してきたが、まだ試験的に使われたにすぎない。新プロジェクトにおいては、実際の授業で使用され、真価が問われるこ

とになる。さらに、必要に応じて改訂された後は、全国に普及されることになろう。ガイドブックは教員の教授法と生徒の学習を将来に向けて持続的に向上させていくために利用されることが期待される。

しかし、そうした自立発展性は、NCERD のカウンターパートのモデル校の教員の活躍ぶりにすべてかかっている。一方で NCERD のカウンターパートは日本人専門家と共にモデル校を訪問し、授業でどのようにガイドブックが使われているか、どの箇所をなぜ改訂すべきかを観察する。他方、モデル校の教員はビデオカメラを持った日本人専門家と NCERD のカウンターパートに観察され、彼らからコメントを受け、教授法のどの部分をなぜ直すのかについて学ぶ。こうした実践の繰り返しが NCERD のカウンターパートのモデル校の教員にとって血肉となるのである。そうすることによって、彼らはガイドブックの中心概念を理解し、効果的な新しい教授法を修得し、多くの人々にモデル授業を示すことのできるトレーナーやインストラクターとして活躍することができるであろう。

このように、プロジェクトによって作成（改訂）されるガイドブックと育成される人材は、単にプロジェクト内部にと留まらず、エジプトの教育界にとってかけがえのない「財産」となる。そうした NCERD と学校との間の協力関係が維持、拡大される限り、「財産」はより良き方向に向かって前進し続けるであろう。

4.5 特に配慮すべき事項

本プロジェクトでは、新しい授業の「実践」を最も重視しているため、モデル校での活動を主として担当するのは教員経験を有する日本人専門家である。専門家が円滑に業務を遂行するためには、カウンターパートやインスペクターとの協力が必要不可欠である。

また、プロジェクトの効果的な実施のためには、専門家が、エジプトの教育の現状について良く理解することが必要である。エジプト側、特にNCERDは協力的であり、モデル校以外の学校についても専門家が独自に授業観察を行えるよう、学校訪問のアレンジメントをすることが求められる。それゆえ、エジプト側には、小学校を頻繁に訪問する日本人専門家に対して行動の自由を与えることが要求される。アレンジメントが殆どあるいは全くなされない場合、活動の範囲が狭められ、プロジェクトの成功を妨げることになりかねないであろう。

5. プロジェクトの基本計画

PPMU との関係も含めたプロジェクトの全体図は、Annex. 8.13 のプロジェクト・デザイン・マトリクス（PDM）に集約されている。

5.1 上位目標

プロジェクト終了後 5 年程度を経て達成が見込まれる上位目標は、理数科のガイドブックを用いた新しい教授法が、カイロ県および PPMU 研修の対象県の小学校で導入されるということである。

5.2 プロジェクト目標、成果及び活動

(1) プロジェクト目標

プロジェクト終了までに達成されるべきプロジェクト目標は、理数科のガイドブックを用いた新しい教授法が、モデル校において定着し、さらなる普及のための基盤が整備されることである。

(2) 成果

成果とは、プロジェクト目標を達成するために実現すべき複数の事項で、活動によってもたらされる。このプロジェクトの主な成果は以下のとおりである。

1. NCERD スタッフが教員に対して新しい教授法（授業案作成を含む）を的確に指導できる。
2. モデル校の教員が新しい教授法を修得し授業で実践できる。
3. 新しい教授法が効果的であることが検証される。
4. 理数科ガイドブックが改訂される。
5. モデル校のスクールベーストトレーニングユニットがより機能するようになる。
6. 新しい教授法が教育関係者によって認知される。

各成果はプロジェクト全体の不可欠な要素である。成果がひとつでも達成されないとプロジェクトの成否に影響を与える。本プロジェクト目標はすべての成果が生み出され、統合されて初めて達成される。

(3) 活動

活動とは成果を生むために行われる具体的行動であり、日本とエジプト側双方の投入を活用することによって可能となる。

日本人専門家は NCERD のスタッフに対して指導・助言を行い、以下の活動を推進する。

1-1&2-2　NCERD スタッフと協力して、モデル校の教師に対して理数科の新しい教授法の実践指導を行う。
2-1 モデル校を選定する。
3-1 新しい教授法の効果を測るための調査方法を検討する。
3-2 モデル校の児童・教師に対し、新しい教授法の調査を行う。
3-3 調査結果を分析し、新しい教授法の効果を実証する。
4-1 授業実践の教訓等に基づき、段階的にガイドブックを改訂する。
5-1 モデル校のスクールベーストトレーニングユニットの機能を強化するための助言を行う。
6-1 教育関係者に対して公開授業やセミナーを開催する。

5.3 投入

(1) 日本側からの投入

1) 専門家の派遣

a. 長期専門家

4 名の長期専門家がプロジェクト期間中に派遣される予定である。各専門分野は以下のとおりである。専門家は最も重要な責任機関である NCERD に公式に派遣され、その内部ユニットにいるエジプト人カウンターパートと一緒に活動する。

- チーフアドバイザー (1 名):
  理数科教育の研究者 (大学の教授もしくは助教授相当)
- 算数教育スペシャリスト (1 名):
  小学校算数教育において実際の経験を持つスペシャリスト
- 理科教育スペシャリスト (1 名) :
  小学校算数教育において実際の経験を持つスペシャリスト
- 業務調整員 (1 名)

b. 短期専門家

年間 3 名程度、個別テーマについての指導や講演を行うため、主に大学の研究者を適時派遣する。

2) 機材の供与

技術移転を促進し、プロジェクトを円滑に実施するために日本側は必要な機材供与を行う。機材供与は必要性、緊急性、合理性、耐久性（持続性）の観点から検討される。

3) 本邦研修

年間約3名の研修員をNCERDのカウンターパートやモデル校の教員の中から選び、日本の大学で短期間の研修を受ける。この実地訓練は、実際にどのような教育がどのようなコンセプトに基づいて行われているかを、彼らが直接見ることができるという点で極めて有用である。日本での研修終了後、研修参加者は、修得した知識、スキル、専門性を実践し、エジプトの同僚に普及していくことが期待される。

(2) エジプト側からの投入

1) スタッフの配置

本プロジェクトに配置される NCERD スタッフは表 4-1 のとおりであるが、それに加えて、モデル校の理数科教員は、同スタッフと勝るとも劣らない重要な任務を帯びることになる。彼らはオブサーバーであるどころか、実際の授業で生徒に対してガイドブックを使い教育を行う実践者なのである。

2) 建物、施設及び機材

NCERD がプロジェクト活動に必要な十分なスペース、施設、そして機材を用意する。これらは二国間の協力を開始するうえでの前提条件である。そうした物理的な投入が日本側から供与される機材と相乗効果を発揮してこそ、プロジェクトは実を結ぶのである。

5.4 外部条件とリスク分析

4.5 で述べられているとおり、ガイドブックを用いた新しい教授法の実践が本プロジェクトの主要な部分を占める。日本人専門家と NCERD のカウンターパートは定期的にモデル校を訪問し、授業中や放課後に教員を指導する。教授法と生徒の学力に対して直ちに成果が出るのはむずかしいと考えられる。その意味で、専門家と NCERD のカウンターパートはモデル校の教員、特に校長と相互の信頼関係を築く必要がある。もし校長が本プロジェクトの性格を、時間はかかるが意義深いと正しく認識すれば、彼らはプロジェクトの活動に対してより協力的になるであろう。反対に、校長のプロジェクトに対する姿勢が煮え切らないものであれば、そうした態度が理数科教員の意欲をくじき、やる気を奪ってしまいかねない。

日本人専門家と NCERD のカウンターパートは、モデル校においてプロジェクト実施以前と以後の新しい教授法の効果を測るだけでなく、モデル校と他校との間の比較調査も行う。彼らは授業観察、教員へのインタビュー、データ収集などのために他校を訪問する必要がある。それには、アポイントが然るべく取り付けられればいつでも他校を訪問できるようになっていなければならない。そうした権限なしには、詳細な調査を行い児童と教員に対する新しい教授法の効果を検証することは困難もしくは不

可能であろう。その意味において、NCERD は日本人専門家と県・地区レベルの教育事務所との間の仲介役としての役割を果たすことが求められるのである。

5.5 事前の義務と前提条件

エジプト側からの投入の確保はプロジェクト開始に際して最低限の前提条件である。これに加えて、教育省、NCERD、地区・県レベルの教育事務所などの関係者が合同会議を開催し、プロジェクトをいかに効率的・効果的にすべきかについて真に議論することが強く望まれる。

6. プロジェクトの実施妥当性

6.1 JICA による協力の正当性

JICA は 1997 年から 2000 年まで小学校の理数科教育改善に係るミニプロジェクトを実施した。そのミニプロの成果品にひとつである教員用ガイドブックは、2000 年 11 月の最終セミナーで紹介され、同国の教育大臣をはじめ多くの関係者から高い評価を受けた。NCERD のカウンターパートと共にガイドブックを著した日本人専門家はその中心概念を正確に知っているので、彼らは JICA のスキームを通じて再びエジプトに派遣され、ガイドブックの適切な使い方について指導するべきである。実のところ、JICA は多数の開発途上国の理数科教育プロジェトの実施において豊富な経験を有している。この分野における具体的で独特な方法は、世界中で確固たる評価を得ている。このように当該分野において JICA がエジプトに貢献できる余地は大きい。

6.2 想定されるプロジェクトの効果

(1) 開発政策の枠組みへの効果

社会・経済開発のための第 4 次 5 ヵ年計画 (1997/98 -2001/2002)においては、以下の目標が掲げられている。[12]

- すべての子供に学校で義務教育を受けられるようにする
- 経済、社会において女性の参加率を向上させる
- 幼児、妊婦、授乳期間中の母親の死亡率を低下させる
- 人口増加率を 5 年以内に 1.94% t から 1.66%に減らす
- 経済開発を国際的な環境問題と結びつける
- 雇用機会と労働者の所得を拡大する
- 年間成長率または個人消費を人口増加率の 2 倍以上で維持する
- 民間投資をエジプトの全投資目標の 65-75%に増やす
- 年間成長率 6.8%を達成する

プロジェクトの効果は多面的と思われる。といのも本プロジェクトの最終受益者である児童はやがて成人するからである。彼らは創造力と批判的思考に長けた優秀なエンジニア、教員、母親などになる可能性を持っている。教育の効果は数世代にわたって継承され、社会全体に絶大なインパクトを与える。

表 6-1 は 2002/2003 年の国家予算である。プロジェクトがうまく行けば、エジプト政府はより教育に関心を払い、現在全国家予算の 15.1%を占める教育予算を拡充することも考えられる。

(2) 制度的枠組みへの効果

エジプトの現職教員の訓練は NGO を含む国際的な機関がスポンサーとなってその時々に実施されているのが現状であるが、それが教育省の予算で定期的に開催されるようになることが強く期待される。本プロジェクトは教育省が各学校に設置を義務付けたスクールベースト・ユニットの活動を支援し、（特に理数科教育についての）現職教員訓練のレベルを高めていくものと考えられる。訓練が質的に向上すれば、教育省がその効果を認めて独自のイニシアチブで訓練プログラムを開催することにもなろう。

(3) 社会・経済への効果

1) 受益者の特徴

6.2 (1)に述べられているとおり、教育分野の本プロジェクトの効果は多層的であると考えられる。また受益者は表 6-2 に示したとおりいくつかのグループに分類される。

2) 受益者の数

第一及び第二受益者の数は表 6-3 に示されている。第三及び他の受益者の数は算定するのが困難であり、またそれほど重要ではないので本表には掲載していない。

3) 便益の内容

便益の内容は受益者の区分によって異なる（表 6-4 参照）。教える側からすれば、便益の内容は、新しい教授法の修得と改訂されたガイドブックである。また学ぶ側からすれば、便益の内容は、彼ら自身の学力、スキル、態度、そして関心の向上である。第三及び他の受益者は、各機関の社会的、政治的立場と責任に応じて異なる性質の便益を受けることになる。

(4) 技術的観点からの効果

他のドナーが膨大な数の教員に対して短期間のコースを頻繁に開催することによって多様な教育課題を広く浅くカバーしようとするのに対し、JICA は小学校の理数科教

育という限定された分野において濃密な技術移転を受ける対象者を絞り込んでいる。

1) カウンターパートの数

実施・責任機関として NCERD は少なくとも 19 名、各科目について 1 名の責任者を配置する。NCERD のカウンターパートのリストは表 4-1 のとおりである。これに加えて、モデル校の教員が日本人専門家から新しい教授法について指導・助言を受ける。カイロ県の各モデル校において少なくとも 2 名（理科 1 名、算数 1 名）の教員がその対象として任命される。ガイドブックを用いた新しい教授法を修得した後は、今度はその教員たちが幹部トレーナーとなって、全国の他の教員に対して知識と技術の普及に努めることが期待される。

2) キャパシティビルディングの内容

NCERD のカウンターパートとモデル校の教員は日本人専門家と協力して活動する。言うまでもなく、各人が専門技術とスキルを修得しなければならないが、それだけでは十分ではない。**5.2 (3)**に書かれているとおり、彼らは幅広い活動を組織し実施しなければならない。その意味では NCERD の組織としての能力強化がやはり不可欠である。活動が展開されるにつれ、NCERD は経験を積み、さまざまな教訓を得て、それらを国中どこでも適用かつ普及可能な組織的な共有知にまで高めていくことが期待される。

(5) 便益の総合的分析

プロジェクトの方向性と便益は、エジプトの第 4 次 5 カ年計画と **3.3** にある我が国の援助政策と完全に合致している。さまざまな便益と効果を考え合わせると、このプロジェクトは、効果的な教授法を教育者たちに修得させ、さらに彼らが国の貴重な宝であり、人生の初期段階にある子供たちに対して、学びの基礎と喜びを教え与えるという点において、実施に値すると考えられる。

7. モニタリングと評価

モニタリングと評価は、プロジェクトの運営・管理において最も重要な二つのツールである。適切かつ日常的に行われるモニタリングは、プロジェクトの進捗を監視し、プロジェクトの阻害要因を見つけ、必要に応じて速やかに軌道修正することを可能にする。他方、評価は、より詳細な方法でプロジェクト期間中に二回行われ、プロジェクトの変更、終了、延長に関する意思決定の論拠となるための情報を提供する。

7.1 モニタリング

モニタリングは常に継続実施されるプロセスであり、プロジェクトが予定どおりに結果を出しているか、必要に応じて計画を修正する必要がないかをチェックする。日常的なモニタリングなしには、プロジェクトの中間・最終評価は不可能である。モニタリングは、日本側とエジプト側の双方で行われるが、モニタリングの手法は日本人専門家からNCERDのカウンターパートに技術移転される。

7.2 評価

評価に際しては、日本とエジプト側双方が具体的な基準に照らして計画と実施の乖離をチェックし、結論を導き出す。中間評価は文字どおりプロジェクト期間の半ばに実施され、通常、専門家から成るJICA調査団が日本から派遣される。その結果によってはPDMが変更されることもありうる。最終評価はプロジェクト期間終了の半年前に実施される。評価調査団は、評価のプロセスと結果を公正、客観的、透明にするためにできるだけ多くの外部専門家を団内に入れることが推奨される。評価の視点は以下の5つである。

(1) 効果（目標達成度）

効果（目標達成度）は、プロジェクト目標と成果の達成の度合いを分析することによって評価される。プロジェクト目標の指標はPDMに記載されている。最も重要な指標のひとつは、新しい教授法によって教えられる生徒の学力、態度、関心の度合いである。新しい教授法が従来のそれに比べてより効果的であることを立証できれば本プロジェクトとは成功したとみなされよう。

(2) 効率性

効率性は、プロジェクトの実施過程における生産性を分析することによって評価される。実際には、投入と成果の関係を投入のタイミング、質、量の観点から評価し、より効率的に成果を生むような代替案を再考する。

(3) インパクト

インパクトは、プロジェクトの肯定的・否定的な波及効果に焦点を当て、社会、経済、組織、環境面から評価される。上位目標の指標は継続的に検討される必要がある。

(4) 計画の妥当性

計画の妥当性は、プロジェクトの成果、目標、上位目標がエジプト政府の優先事項と合致していたかを検証することで明らかにされる。同時に、PDMの要約（narrative summary）の各項目の関係、整合性を検証する。

(5) 自立発展性

自立発展性は、プロジェクトで行われた活動とその便益が継続するかどうかを見極めることによって明らかにされる。組織力、運営能力、財務力、技術力などを検証してプロジェクトの自立発展性を予見することが可能である。

8. ANNEX

8.1 Reference Tables and Figures
8.2 Action Plan of Training of Trainers by PPMU
8.3 Distribution of Mathematics Syllabus of Primary for 2001/2002
8.4 Distribution of Science Syllabus of Primary for 2001/2002
8.5 Results of Problems Analysis
8.6 Results of Objectives Analysis
8.7 The New Teaching Method for Improving Mathematics Lessons
8.8 The New Teaching Method for Improving Science Lessons
8.9 Overview of Project Activities
8.10 Experimental Language Schools in the Cairo Governorate
8.11 Image of Practical Activities at the Schools for Experimental Work
8.12 Budget of NCERD
8.13 Project Design Matrix (PDM)

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[1] MOE. 2001. Mubarak and Education: 20 Years of Giving by an Enlightened President, 10 Years of Education Development
[2] Central Agency for Public Mobilisation and Statistics. 2001. The Statistical Year Book 1993-2000
[3] MOE. 2001. Mubarak and Education: 20 Years of Giving by an Enlightened President, 10 Years of Education Development
[4] MOE. 2001. Mubarak and Education: 20 Years of Giving by an Enlightened President, 10 Years of Education Development
[5] UNICEF. 2001. Second National Workshop on Use of ICT in Science Education in Secondary Schools in Egypt. & 2000. Fourth National Workshop on Use of ICT in Mathematics Education in Secondary Schools in Egypt.
[6] All 15 selected governorates are as follows. 1) Behira, 2) Ghrabia, 3) Kahr El-shiki, 4) Kaliobia, 5) Dakahlia, 6) Damietta, 7) Sharkia, 8) Ismailia, 9) Fayoum, 10) Beni Suef, 11) Menya, 12) Souhag, 13) Qena, 14) Aswan, and 15) Luxor City
[7] EU. 2001. Annual Report 2000
[8] Inas Anwar Hegazi, EU consultant working at PPMU, answered the cost of training, questioned by the Japanese Preparatory Study Team on April 17, 2002.
[9] USAID Egypt <http://www.usaid-eg.org/detail.asp?id=9>
[10] JICA & NCERD. 2000. Minutes of Discussions between the Japanese Side and the Egyptian Side on the Mini-project Type Technical Cooperation for the Development of Creativity Lessons for Primary Education in the Arab Republic of Egypt
[11] Ministry of Foreign Affairs in Japan. Japan's ODA Annual Report: Japan's ODA in Egypt <http://www.mofa.go.jp/policy/oda/summary/1999/ref3_06.html#Egypt>
[12] Ministry of Foreign Affairs in Japan. Japan's ODA Annual Report: Japan's ODA in Egypt

<http://www.mofa.go.jp/policy/oda/summary/1999/ref3_06.html#Egypt>

5．PPMUに関するMinutes of Meeting

MINUTES OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
PROGRAMME PLANNING MONITORING UNIT OF
EDUCATION ENHANCEMENT PROGRAMME
ON
UTILIZATION OF THE GUIDEBOOKS OF
SCIENCE AND MATHEMATICS EDUATION
IN PRIMARY SCHOOLS

Resident Representative of Japan International Cooperation Agency (hereinafter referred to as "JICA") Egypt Office had a series of discussions with the Programme Planning Monitoring Unit (hereinafter referred to as "PPMU") of the Education Enhancement Program (hereinafter referred to as "EEP") , which is funded by European Union and the World Bank, about mutual cooperation on utilizing the teachers' guidebooks of science and mathematics education made by the former JICA's project.

As a result of the discussions, both Resident Representative of JICA Egypt Office and the authorities concerned agreed to report to the respective Governments the matters referred to in the document attached hereto.

Cairo, 18th February, 2003

下村則夫

Mr. Norio SHIMOMURA
Resident Representative
JICA Egypt Office

Nadia Gamal El Din

Dr. Nadia Gamal El Din
Director
Program Planning and Monitoring Unit
Education Enhancement Program

N

THE ATTACHED DOCUMENT

I. Background

JICA, in collaboration with National Center for Educational Research and Development (NCERD), implemented the Mini-project on the Development of Creative Science and Mathematics Lessons in Primary Education from 1997 to 2000 in Egypt. The teachers' guidebooks, which propose the new teaching method to Egypt, were one of the tangible outputs of the Mini-project and were highly evaluated by the Egyptian authorities concerned including Ministry of Education.

After the end of the Project, NCERD staff translated some parts of them into Arabic. And PPMU, which is an implementing body of EEP funded by EU and World Bank, carried out, in pilot the training of the teaching methods utilizing the guidebooks for inspectors of Ismailya and Qena governorates in 2001.

PPMU has a schedule of carrying out the training program in 15 governorates for three years beginning in 2002. And, in order to enhance the effect of the training, PPMU requested JICA to dispatch Japanese experts who worked on the development of the guidebooks.

On the other hand, JICA is going to implement the project on Improvement of Science and Mathematics Education in Primary Schools for three years from 2003 in order to have the teaching methods based on the guidebooks firmly take root in Egypt and revise the guidebook through practicing. As for activities, Japanese experts and NCERD staff make the rounds of four experimental language schools in the Cairo governorate and instruct teachers in the teaching method intensively.

Both the PPMU training program on a broad scale and attentive guidance on a limited scale by JICA are necessary activities for the consolidation and dissemination of the new teaching methods and will complement each other. In this sense, both sides agreed to recognize that mutual cooperation is effective for each other, and both PPMU and JICA will share the goal that the new teaching methods, that uses the guidebooks in science and mathematics, are used at the primary schools in Cairo governorate and

PPMU's target governorates.

Therefore, both sides also confirmed that they will make the maximum effort to implement the items below.

II. Contents

1. Training Program

1.1 Method

(1) NCERD staff will serve as lecturers.

(2) Japanese experts will help as technical advisers for lecturers.

(3) Participants will be divided into two groups and training will be conducted twice a year.

(4) Lectures and workshops which Japanese experts are involved will be conducted according to the table in the ANNEX I. The details of the curriculum will be completed through the discussion between PPMU staffs and Japanese experts.

1.2. Place for training

Building equipped with air-conditioner such as hotels will be highly recommended.

1.3. Measures taken by PPMU side

(1) PPMU will sponsor all logistics of training program including preparation of the place for training and accommodation for participants.

(2) PPMU will take necessary measures for Japanese experts to visit schools and observe classes delivered by teachers who are trained by PPMU training.

(3) PPMU will show that the training program is supported by JICA.

1.4. Measures taken by JICA side

JICA will provide PPMU training participants with observing classes at schools where the JICA project is targeted for.

Nadia

2. Revision of the guidebook

2.1. JICA will gradually revise the guidebook through implementation of its own project for three years. The final version of the guidebook will be completed until March 2006.

2.2. JICA will annually revise extracts for PPMU training, and PPMU will print and distribute them for PPMU training participants.

2.3. After the final version is completed, PPMU will print and distribute them to personnel concerned.

3. Expenses

3.1. JICA will sponsor Japanese experts' expenditure as follows:

- Transportation expenses
- Daily allowance
- Accommodation fee

3.2. PPMU will sponsor all expenses for the training program excluding the expenses shown in 3.1.

4. Coordination Arrangement

Technical Director of PPMU and Chief Advisor of JICA project team will be responsible for coordination between both sides and mutual cooperation.

5. Image of Collaboration between JICA and PPMU

Image of Collaboration between JICA and PPMU is shown in ANNEX II.

6. Others

PPMU and JICA will cooperate with each other for other related matters.

ANNEX I: Tentative training schedule (as long as Japanese experts are involved)

ANNEX II: Image of collaboration between JICA and PPMU

Nadia

ANNEX I

TENTATIVE TRAINING SCHEDULE (as long as Japanese experts are involved)

Program for the 1st group (27 Jul.-31 Jul.)

Participants: 70

Date	Morning	Afternoon
27 Jul.	Lecture (I) Lecture (II)	Workshop (I) Workshop (II)
28 Jul.	Lecture (I) Lecture (II)	Workshop (I) Workshop (II)
29 Jul.	Lecture (I) Lecture (II)	Workshop (I) Workshop (II)
30 Jul.	Lecture (I) Lecture (II)	Workshop (I) Workshop (II))
31 Jul.	Lecture (I) Lecture (II)	Workshop (I) Workshop (II)

Program for the 2nd group (3 Aug.-9 Aug.)

Participants: 70 (Second group)

Date	Morning	Afternoon
3 Aug.	Lecture (I) Lecture (II)	Workshop (I) Workshop (II)
4 Aug.	Lecture (I) Lecture (II)	Workshop (I) Workshop (II)
5 Aug.	Lecture (I) Lecture (II)	Workshop (I) Workshop (II)
6 Aug.	Lecture (I) Lecture (II)	Workshop (I) Workshop (II))
7 Aug.	Lecture (I) Lecture (II)	Workshop (I) Workshop (II)

Nada

ANNEX II

JICA Project & PPMU Project (The Year 2003-2005)
PPMU
NCERD Researchers
JICA Experts
Training Programme
15 Governorates (Spread Gradually)
STAGE 1: Training for Trainers
(NCERD Researchers→Inspectors)
STAGE 2: Training for Senior Teachers
(Inspectors→Senior Teachers)
STAGE 3: Activities at schools
(Senior Teachers→Subject Teachers)
Technical advice
Lesson observation
Observation of the effect
Instruction at the Selected Schools
(Cairo Governorate)
Instruction for the teachers
Observation of the effect
on teachers and on children
- Gradual revision of the guidebooks
- Recommendation for the improvement of training programs of PPMU
- Other remarks

6．EEPに関する資料

EUROPEAN UNION
DELEGATION OF THE EUROPEAN
COMMISSION IN EGYPT

The Education Enhancement Programme (EEP)

The History of EEP

The first phase of Egypt's current basic education reform can be considered to have been the period 1991-96. Expenditure on education rose from 12-19% of total GoE expenditure and gross enrolment in basic education (primary and preparatory) rose 12%.

Key elements of the reform are school construction, rehabilitation and maintenance. Innovative programmes of "one classroom schools" and "community schools" are reaching under-served populations with new teaching methodologies. The minimum entry-level qualification for teachers has been raised to a bachelor degree. A start is being made to upgrading the technology available to both teachers and students. The National Centre for Examinations and Educational Evaluation (NCEEE), launched in 1990, is upgrading the quality and usefulness of assessment in education.

EEP was designed in this context with the aim of furthering a reform process, which has started but will need 15 to 20 years to achieve its aims. EEP contains a variety of innovative interventions or activities, which are being implemented. But the ultimate goal is to contribute to the evolving education reform design. This is being done by learning lessons from implementation, studies and programme planning processes and then applying these lessons to the education system on a sustainable basis.

The Main Features of EEP

The programme has three main aims: to increase access and equity to basic education; to improve the quality of student performance and to increase the efficiency of the education system. The programme's success is being measured by enrollment trends; student performance data and a variety of efficiency measures. The main funders at present are GoE approximately US $635.5 million, the EC Euro 100 million and the World Bank US$ 75 million.

Access & Equity

Increase Enrolment: EEP is reducing obstacles to education faced by children with special emphasis on girls and disadvantaged groups.

- school construction and equipment in under-served areas;
- awareness campaigns and other forms of community based planning methods designed to address local obstacles to educational opportunity;
- provide special needs equipment to selected schools;
- provide special assistance to attract and retain underprivileged children.

Second chance education will be supported on the basis of needs as specified by communities in the next financial year.

Quality of Student Performance

Reduce Wastage in the System: Student wastage in the basic education system through drop out and repetition is a serious problem. Strategies being used to reduce it include:

- additional schools and classrooms are being constructed to reduce the occurrence of multi-shift teaching and classroom over-crowding;
- additional policies for reducing drop-outs are being studied and will be implemented where deemed appropriate at the local level;
- cadres of student counsellors and community liaison workers will be developed in 2001 onwards; and from the same year
- cadres of learning support teachers will be trained to support children with moderate learning difficulties.

Improving the Quality of Teaching & Learning: The quality of teaching and student learning is being improved by reforming in-service teacher training and ensuring the effective use of the government's investment in technology and distance learning. The key elements of this broad strategy are:

- in-service training on the use of all forms of teaching technology;
- a system of continuous professional development for teachers;
- substantial in-service training is being delivered using distance learning;
- pedagogic strategies are being introduced through the foregoing activities, which raise students higher order thinking skills and systems for measuring this accomplishment will be designed;
- proposal for reform of the inspection system are being drafted so as to improve teacher evaluation and the provision of professional support to teachers.

Pre-Service Training: An experiment has been conducted with internship training for graduates of non-education faculties newly appointed as basic education teachers as a means of initial teacher training.

Capacity Building Fund: The programme will build the capacity of agencies key to implementing the quality component of the reform including the NCEEE, Regional Training Centres (RTCs), National Centre for Education Research and Development, General Directorate for Inservice Training, Audio Visual Department and the governorates.

Systems efficiency

Strategic Planning & Management: The efficiency of human, physical and financial resource use has been improved by introducing cost saving design changes in school construction design. Improving the utilisation of both teaching and non-teaching school staff is another objective.

Information Systems Development The basis for education planning and management is being strengthened by implementing an up-to-date EMIS for MoE and linking this to other independent education agencies.

Motivation & Accountability The motivation and accountability of teachers will be enhanced if possible through restructuring of their compensation system. Parental involvement in school management will be increased. School managers have started to receive management training.

EEP Management An effective management system has been developed for EEP based upon a Programme Planning and Management Unit (PPMU) with implementation being the responsibility of governorates supported by their own GPMUs, MoE agencies, NGOs and the private sector.

Stakeholder Capacity Building Reform capacities at both national and governorate level are being strengthened by ensuring wide participation of MoE agencies and governorates in EEP planning and implementing processes.

Programme Feedback A constructive feedback system has been established which enables appropriate modification of activities. Programme plans will all have clearly defined indicators. Base line data has been collected where necessary.

Programme Progress

EEP was established with the formation of the PPMU in 1996. EEP is now in its third year of implementation. Progress at first was slow. WB Credit Effectiveness took place in July 1997. The EC contribution took some time to be forthcoming. However now most programme components have been launched or are in advanced stages of planning. EEP offices have been established in all 15 participating governorates. These are Fayoum, Beheira, Aswan, Luxor, Shargia, Gharbia, Dumiyat, Qaliobiya, Qena, Sohag, Minya, Beni Suef, Kafr El Shiekh, Dakahlia & Ismaelia.

School construction is progressing well. A first round of enrollment promotion campaigns have been implemented in pilot governorates before the opening of the school year. Eleven governorates will participate this year.

Initial training of over 11,000 newly qualified graduates has been completed and is moving into a second phase of intensive English and computer training. Almost all school managers have received a one-week management programme. A distance learning programme designed to upgrade subject teachers of Arabic and Mathematics has been launched. Baseline work has been started on measuring student achievement. A report has been prepared with proposals for Inspectorate reform. Needs assessment has been carried out for the capacity building of various implementing agencies.

Considerable preparatory work has been carried out in respect of systems efficiency measures. Project management systems are largely in place though not all are yet finalised and operational.

A programme coordination unit (PCU) funded by the EC has been established recently to provide technical assistance to EEP with a mixture of long term consultants (four) and a variety of short term consultancies determined according to need with EEP agencies. The PCU has established its offices, completed a series of familiarisation visits to programme governorates and implementing agencies. Working in partnership with the PPMU, the PCU will start a process of needs assessment for capacity building during the current quarter. Short term consultancy assignments have already been requested to provide training in Distance Learning and Special Needs Education.