INDEPENDENT ASSESSMENT OF

PAPUA NEW GUINEA'S UNIVERSAL BASIC EDUCATION PLAN

FINAL REPORT

SEPTEMBER 17, 2010

ROSEMARY BELLEW

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BASIC DATA 2008

Exchange Rate Kina:US$	2.7
Population (millions)	6.7
Income Per Capita US$ current (US$ PPP)	US$ 1,300 (US$ 2,100)
Population Living on < US$ 1 a day (percent)	39
Human Development Index Rank (2008)	145 th out 177 countries

WORLD BANK COUNTRY PERFORMANCE & INSTITUTIONAL ASSESSMENT RATING (QUINTILE RANK)

Economic Management & Structural Policies	Second Quintile
Public Sector Management & Institutions	Fourth Quintile
Policies for Social Inclusion/Equity	Fifth Quintile

ABBREVIATIONS AND ACRONYMS

DP	Development Partners
GoPNG	Government of Papua New Guinea
MTDS	Medium Term Development Strategy
NDoE	National Department of Education
NEFC	National Economic and Fiscal Commission
NEP	National Education Plan
PPP	Purchasing Power Parity
TTC	Teacher Training College
UBE	Universal Basic Education

PURPOSE

The purpose of this paper is to provide input into the appraisal process of Papua New Guinea's Universal Basic Education (UBE) Plan being undertaken by Development Partners (DPs), for eventual collective endorsement. The terms of reference of the assignment requests a consultant's technical appraisal of the Plan as an input to this process.

The paper first attempts to identify main achievements in recent years at the macro level and within the education sector, and main challenges that PNG faces going forward to reach the Education for All (EFA) and Millennium Development Goal (MDG) of achieving a complete quality primary education for all children by 2015. The purpose of these sections is to provide a basis for building a shared understanding of the main achievements and challenges in the sector and to serve as a basis for the technical assessment of the UBE Plan.

Building on these achievements and challenges, the technical assessment section aims at two things: (a) provide to DPs a technical assessment of the UBE plan utilizing the EFA-FTI appraisal guidelines as far as possible, and (b) based on the assessment, identify areas where further analysis, dialogue or strategy development may be beneficial.

The report is based primarily on three sources of information: (a) documentary sources, such as sector studies and economic assessments for which an exhaustive search was conducted and from which relevant information was extracted, (b) available data on education and expenditure which were complied and analyzed by the author, and (c) consultations with development partners, the UBE Task Force, and other staff and officials of the NDoE in PNG who gave generously and graciously of their time, information and individual perspectives and for which I am very grateful.

I. MACRO AND DEVELOPMENT CONTEXT: ACHIEVEMENTS & CHALLENGES

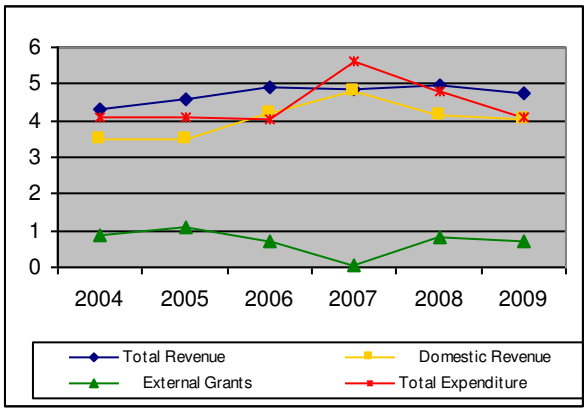
In 2004, GoPNG adopted a Medium-Term Development Strategy (MTDS) 2005-2010 which aims to grow GDP by 5 percent annually by according greater priority to investments in the export-driven economic sectors, in human resource development as the main strategy for rural development, poverty reduction and empowerment, and in governance. Development partners have endorsed the MTDS, are increasingly aligning their assistance according to its priorities, and are working with the authorities to strengthen the MDTS targets and indicators.

Since 2002, significant progress has been achieved in economic management. Important steps have also been taken to improve the quality of budget and financial management. The main challenges the MDTS faces in the medium-term are maintaining and balancing macroeconomic stability with social objectives while shifting a larger share of resources towards infrastructure, more directly attacking poverty and equity issues, and improving security and governance -- all within a more constrained resource environment.

Macro Stability and Economic Growth. Following a long period of economic contraction, recent assessments by the World Bank and IMF show that, since 2002, GoPNG has restored and maintained macro-economic stability and presided over the longest period of uninterrupted growth since independence in 1975 (WB 2008a). These achievements are attributable notably to: (a) policy consistency within the first Government since independence to serve a full term; (b) a sustained upward trend in revenue due to rising world prices for PNG's main exports (oil, copper and gold) combined with prudent expenditure restraint and management with windfall revenues being used for debt repayment and part kept in trust accounts for one-off investment spending in the future. In 2008, GDP growth had reached 7 percent and the public debt burden was reduced to a ratio of 35 percent of GDP, compared with 60 percent in 2003. As a result of this improvement, PNG ranked 19th out of 75 countries on the World Bank's economic management performance index in 2007.

Spillovers from the global financial crisis have so far been limited due to the limited exposure of PNG's financial sector. However, the global downturn is having an impact on export revenues owing to a fall in commodity prices (IMF 2009a). As a result, since 2007, revenue and expenditure have been declining in real terms (see Figure 1).

Figure 1. Revenue & Expenditure, 2004-09 (2004 Kina billions)



Source: Annex 2.

In the medium-term, revenue and expenditure are expected to be even more constrained. GoPNG's medium-term fiscal strategy (2008-2012) and the IMF's medium performance estimates for 2009-2012 assume a fall back to pre-boom commodity prices and a decline in annual GDP growth from 7 percent in 2008 to 3.9 percent in 2009 and to only 3 percent in 2012, implying little growth in income on a per capita basis. Further, as part of the strategy for macro stabilization and economic growth, public revenue is projected to fall as a share of GDP from over 30 percent during the peak of the commodity price boom in 2007 to 26 percent in 2009 and under 25 percent in 2010.

Social Issues. Notwithstanding the strong macro performance, and relatively higher level of GDP per capita in PNG relative to other developing countries, PNG compares unfavorably with other developing countries on most social indicators. In 2007/08, PNG ranked in the bottom quintile on the United Nation's Human Development Index and on the World Bank's assessment of country policies for social inclusion and equity.

Poverty and inequality continue to be major concerns. The World Bank estimates that the incidence of poverty rose sharply from 1996 to 2006 mostly due to the long economic contraction prior to 2002 and deteriorating infrastructure. In 2006, an estimated 39 percent of Papua New Guineans lived on less than US$ 1 per day (up from 25 percent in 1996) and over half the population lived under the national poverty line.

The provision of services to reach PNG's entire population is significantly challenged by its topography and crumbling infrastructure. PNG is comprised of 1,400 islands and a land area of 462,840 square kilometers. Some of the most rugged terrain in the world covers about 75 percent of

the mainland. The difficult terrain and lack of infrastructure isolates many communities and drives up the cost of transport and service provision. Only 7 percent of the population has access to electricity, and less than 3 percent has access to a phone.

Law and Order - Law and order is a serious national issue that poses further risks to the poor and constrains service delivery and access. Although internal stability has improved with peace in Bougainville, it remains a concern in some areas (e.g. Port Moresby, Lae, Southern Highlands). The causes vary. For example, in Port Moresby, urban drift and unemployment have led to crime that police have been unable to keep in check. In the Southern Highlands, tribal fighting and lawlessness have been sparked by conflict over oil and gas reserves (World Bank 2007).

Gender Issues - Men and women do not share equal status in most communities in PNG (ADB 2006). Most women do not have control or ownership of land or other substantial resources, and are poorly represented in decision-making positions. They have little knowledge of their rights in law, and receive unequal treatment at all levels of the judicial system (Brower 1998). Further, a high incidence of gender-based violence is an ever present constraint on women's capacity to participate in economic, social and political activities. Studies on domestic violence indicate that 70 percent of women have been beaten by their spouses. The fear of rape in many parts of the country limits women's mobility. Women generally do not report these crimes for fear of being harassed or blamed for them, and because the police force has a reputation of raping female complainants (Toohey 2009). Sexual harassment in the workplace is also common, and there is no legislation protecting women from it (Browuer 1998).

HIV/AIDS. Among sexually active adults, HIV prevalence exceeds 1 percent in many rural areas, 2 percent in many urban areas, and 3 percent in the capital, Port Moresby. It is estimated that about 66 percent of all infections are in the majority rural population. In 2007, the GoPNG released a report estimating that 1.28 percent of the population is living with HIV/AIDS.

Unemployed and Out-of School Youth. Over 70 percent of youths (about 600,000) between the ages of 14 and 18 are not attending school. Given the highly constrained access to secondary education, most labor market entrants have either a primary education or less. Their employment prospects are not bright. A lack of income earning opportunities in rural areas has resulted in an increasing migration of young people, particularly men, to cities and towns in search of jobs only to find that urban job markets are highly competitive and that they lack the skills needed to perform the few jobs that are available. High youth unemployment, extreme poverty and lack of basic services characterize the households living in settlements around urban areas. In one Port Moresby settlement, 90 percent of children never attend school (Toohey 2009). The abject conditions in the settlements and lack of employment have fueled the expansion of urban youth gangs whose members are not only at high risk of being lured into criminal activity but are also highly vulnerable to health risks such as HIV/AIDS, and alcohol and substance abuse.

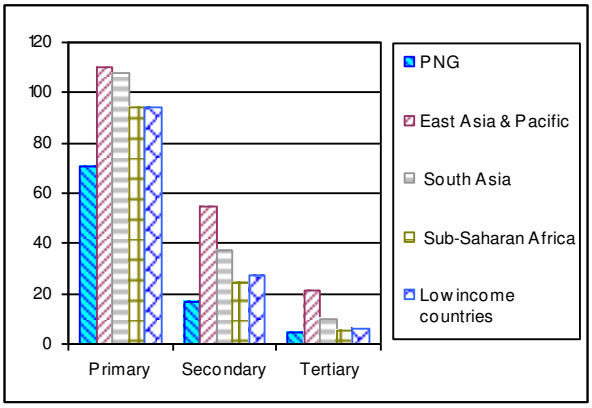
Employment, Competitiveness and Growth. Recent studies conclude that addressing prevailing employment issues is complex and will require the expansion of opportunities and services to increase employment and incomes in rural areas, sustained formal sector growth in the non-mineral sector in urban areas and increased productivity through a better educated labor force (Gosarevski et al 2004).

PNG's economy is dominated by a large labor-intensive agricultural sector which employs about 90 percent of the population and accounts for 38 percent of GDP. The formal sector employs only about 6 percent of the labor force (WB 2006). The formal private sector is dual with, on one hand, large, mostly foreign-owned, natural resource firms in the mining, petroleum and forestry sectors and, on the other, small and medium-sized enterprises engaged in manufacturing, construction and trade in the urban areas. The oil and mineral sectors represent about 13 percent of GDP. They account for the bulk of exports and foreign exchange but contribute little to employment (IMF 2006). Although formal employment in the private non-mineral sector has grown by about 10 percent a year since 2005, the low base from which it starts means that the economy is not creating opportunities fast enough for this level of skilled labor.

Economic growth and employment are constrained by low investment in infrastructure, weaknesses in the investment climate for private sector development (including labor laws that set wages and salaries well above productivity levels, corruption and insecurity) and low labor productivity which drives down the returns to capital. (IMF 2006, World Bank 2008b, Gosar 2004, Annex 2). [1]

A lack of access to education and the poor quality of education are major factors that impede productivity growth (IMF 2006). In 2006, adult and youth literacy rates were estimated at only 52 and 64 percent, respectively, for an increase of only two percentage points over their 1990 levels.[2] In 2007, gross enrolment in primary schools represented only 70 percent of the school-aged population and only 17 percent at the secondary level. Figure 2 shows the large gap in access to education at all levels in PNG compared with the average for low-income countries, the East Asia & Pacific region and other world regions.

Figure 2. Comparison of Gross Enrolment Ratios, 2006



Management and governance. Recent assessments conclude that GoPNG has taken important steps to improve fiscal discipline and establish sound policies, laws, and oversight institutions in financial management and procurement. But improvements in practice are slow to achieve due to lack of enforcement, weak human and financial capacities, particularly in oversight institutions, and flaws in the decentralization framework that impede service delivery and accountability.

A 2005 Public Expenditure and Financial Accountability assessment found that public financial management is based on sound legislative and procedural frameworks, systems and processes, but weaknesses in implementation undermine accountability and budget credibility. Procedures are not always followed; and breaches are not effectively penalized. A lack of transparency in budget execution makes it difficult to track expenditures while a considerable diversion of budgeted

[1] On Transparency International's corruption perception index, Papua New Guinea scored 2 out of 10 in 2007 and 2008, placing PNG 162nd out of 181 countries in 2008. By way of comparison, other countries with a score of 2 in 2008 were Tajikistan, Central African Republic, Cote d'Ivoire, and Belarus.

[2] Source: UNESCO. 2006. EFA Global Monitoring Report: Literacy for Life.

resources and reliance on non-transparent extra-budgetary trust funds often translate into insufficient resources and staff for priority services.

Flaws in the decentralization framework include significant financial shortfalls of sub-national governments to fulfill their functions, inequitable resource distribution, and weak accountability of sub-national governments for their spending. Although local level governments are formally responsible for the delivery of basic services (e.g. education, health, village courts), a 2006 study found large financial shortfalls in all but six provinces (NEFC 2006). In response, GoPNG amended the allocation formula in 2009 to begin to progressively address this problem (NEFC 2009b). Nevertheless, imbalances are projected to continue in the medium-term if not longer.

Planning and budgeting practices are not well aligned. There are serious difficulties in the execution, monitoring and tracking of expenditure including lack of integration of Treasury officials in sub-national budgeting and execution processes, weak capacities in budgeting, planning, contract monitoring, financial management and accounting, and the lack of consolidated accounts and audits, particularly of capital expenditure (Center for International Economics 2007).

Transparent information and accountability are weak at all levels of government. In 2009, the IMF reported a near absence of financial reporting and accountability in local governments. In April 2007, GoPNG Public Accounts Committee estimated that between 25-50 percent of all public money had been misappropriated or misapplied in the previous five years. The Committee found corruption to be a characteristic of the operating environment with evidence of fraud, negligence, dishonesty, disregard for the law, and collusion to access public money in an illegal manner at every level in every inquiry with only one exception.[3] Transparency International further urges the government to halt its tolerance of such behavior and to take a central role in the reform process "given that the public service has shown no desire to improve itself" (Transparency International 2007).

The situation is similar in public procurement. In 2006, a World Bank procurement review assessed procurement risks as very high for, although legal and regulatory frameworks for public procurement have improved and some other actions have been taken such as establishing a central tender board, improvements in practice are slower to achieve. The assessment found widespread waivers of competitive processes and lack of transparency. Few cases referred for criminal investigation are prosecuted, and core procurement specialists are needed on a large scale including in oversight entities.

Due to these weaknesses, the management of donor funds also incurs high risk. Donor partners are continuing to work with the authorities to support implementation of the GoPNG's strategies to strengthen budgeting, financial management, procurement, auditing and oversight agencies.

[3] The Department of Labor and Industry was the exception.

DEVELOPMENT ASSISTANCE AND AID EFFECTIVIESS

Main bilateral and multilateral DPs in PNG are Australia, Japan, New Zealand, the EC, the Asian Development Bank, World Bank and the UN agencies. Australia dominates the field, accounting for over 80 percent of ODA.

ODA finances an important share of public expenditure in PNG and is high relative to the average for low-income countries. Over the period 2003-2007, ODA averaged US$ 300 million a year in disbursements and US$ 350 million a year in commitments (OECD 2009). Grant aid represented 5-7 percent of GDP, 20 percent of total government expenditure and 70 percent of development expenditure. On a per capita basis, disbursements have averaged US$50 per person, which is about three times higher than the average for low-income countries.[4]

ODA has had a mixed history of success in PNG. A recent review of AusAID's support concluded that although positive outcomes have been achieved in some pilot programs, overall, AusAID assistance has had little impact on PNG's long-term development (Packer et al 2009). Similarly, evaluation of the World Bank's assistance programs during the 1990s rated results as unsatisfactory and also highlighted the limited impact of World Bank assistance on institutional development and sustainability (World Bank 2000). This assessment, combined with GoPNG's contravention of agreements within the forestry sector, resulted in the suspension of World Bank assistance from 2002 to 2007.

Due to high procurement and financial management risks, all aid is project-based aid and the use of government systems is very low. Even recently, donors have tended to prefer Project Implementation Units for procurement and contract management. In 2002, the World Bank began to shift responsibility for procurement management to government implementing agencies with oversight by the central tender board. Results have been satisfactory thus far which provides a greater level of comfort for an expanded use of government procurement systems in the future.

Although there is room for improvement, GoPNG has taken initial steps to enhance aid effectiveness. In 2005, GoPNG instituted an annual joint Government-Donor Consultation Forum and established a series of Thematic Working Groups. In 2008, GoPNG and DPs adopted "Joint Commitment of Principles and Actions" (the Kavieng Declaration on Aid Effectiveness) which sets out a series of shared principles for aid effectiveness with targets and indicators to measure progress. GoPNG is now in the process of developing a Poverty Reduction Strategy which is set for completion in 2010. In the interim, the MDTS has a provided a development framework and the alignment of aid with MDTS priorities has improved. However, the harmonization agenda faces important challenges, notably in the strengthening of fiduciary and accountability systems.

[4] The source for the low-income county average is The World Development Indicators 2007, World Bank.

II. EDUCATION SECTOR: ACHIEVEMENTS AND CHALLENGES

In 2005, GoPNG adopted a National Education Plan (NEP) for the ten-year period 2005-2014. The NEP provided a framework for translating the EFA, MDG and MDTS goals and priorities into some time-bound outcome targets and programs to achieve them organized around three main cross-cutting themes -- Access, Quality and Management. The NEP covered all levels of education but placed priority on basic education.

For Basic Education, the NEP prioritized the following objectives and strategies to achieve them:

- Provide greater access by:
    - expanding and improving school infrastructure, mainly at the elementary level,
    - lowering fees in primary schools and replacing the lost income with public subsidies, and
    - supplying a sufficient number of certified teachers while achieving an equitable distribution across Provinces and higher pupil:teacher ratios for greater efficiency.

- Provide better quality education by:
    - completing the revision of the primary curriculum,
    - providing textbooks at a ratio of 1 book: 2 students in lower primary and 1:1 in upper primary,
    - producing more locally developed instructional materials and new orthographies at the elementary level,
    - updating pre-service primary teacher training programs,
    - providing in-service opportunities (mainly for primary school teachers),
    - monitoring learning achievement in primary schools, and
    - shifting greater responsibility for the appraisal of teacher attendance to (school) Boards of Management (BoMs) and communities.

With respect to the management theme, the NEP did not propose a program for capacity building for improved management and accountability. Management improvements under the NEP concerned a more equitable deployment of teachers by establishing a Provincial Allocation Committee and the involvement of the BoMs in teacher appraisals.

Since the start of the NEP, some interventions have achieved some degree of success even though they may not have all been specified in the NEP. They include the following:

- Provincial capacity building in the development of infrastructure plans - Currently, ten Provinces have prepared infrastructure plans. Although much more remains to be done to strengthen Provincial and LLG capacities, this effort begins to address a key gap in management capacity.
- A reformed primary school curriculum was developed.
- BoMs in several Provinces have contributed to teacher appraisals.
- The piloting of School Learning and Improvement Plans (SLIPs) has helped strengthen community involvement and a focus on learning outcomes.

Despite these achievements in implementation, the impact of NEP interventions overall on outcome targets is difficult to discern.

NEP Outcomes & Results. Results to date present a mixed picture of outcomes achieved relative to the NEP targets, as well as of domestic financial effort in support of the Plan.

Annex 3 summarizes the outcomes set by the NEP for Basic Education along with actual values up to the latest data available, generally 2007. At the time of NEP preparation, base-line learning achievement data were unavailable, so no achievement targets were set. Rather, the NEP proposed to introduce regular assessments of student achievement at the primary level.

It should first be noted that the outcome targets set by the NEP for universal basic education enrolment and completion are not entirely consistent with the expectations of international goals, commitments and efforts to scale up faster than what may be possible with business as usual. Although the NEP plans for an average annual enrolment growth rate in basic education of about 4.5 percent a year over the period 2004-2014, this rate is significantly lower than that achieved in the years prior to the NEP and will only marginally increase the GER in basic education to an estimated 79 percent in 2014, or by 1.8 percentage points a year. Most importantly, the NEP does not plan for a significant increase in primary enrolment, and completion rates are planned to rise only very slowly -- from 58 percent in 2004 to 70 percent in 2014 in grade six, and to only slightly over 50 percent in Grade 8 by 2014. At this rate of progress, it will be another 30 years before PNG attains universal enrolment and completion of basic education. Nevertheless, this was the level of expansion that was considered feasible and sustainable at the time.

In the medium-term (2004-2007), the NEP aimed for a total basic education enrolment growth rate of 5.9 percent a year. The NEP placed emphasis on first getting all 6 year olds to enroll in EP. As a result, it projected an annual enrolment growth rate of about 9 percent in EP-Gr 2 over the ten-year NEP period and a medium-term growth rate (2004-2007) of over 14 percent a year. Considerably less priority was given to the primary grades (i.e. grades 3-8) where enrolment was projected to grow at only 2.1 percent a year over the ten-year period and at only 1.7 percent in the medium-term (2004-2007).

Enrolment. Progress has been achieved in raising enrolment in basic education, although falling below the NEP targets (Figure 3). Between 2004-2007, total enrolment in basic education grew at an average rate of 4.8 percent a year, which is about 65 percent higher than the growth of the school-aged population but under the NEP target of 5.9 percent. Consistent with NEP priorities, enrolment in EP-Gr. 2 grew even faster at an average annual rate of 9 percent, but also fell below the NEP target of 14 percent. In contrast, enrolment in the primary grades averaged only 2.9 percent but nevertheless exceeded the low NEP target of only 1.7 percent. As a result of this growth pattern, the GER for the elementary grades increased significantly from a 2004 baseline of 54 percent to 65 percent in 2007. However, as shown in Figure 4, this increase boosted the overall GER for basic education by only slightly more than one percentage point a year, increasing from a baseline of 67 percent in 2004 to 71 percent in 2007 partly because the increased intake of students has yet to make its way into the primary grades but also due to drop-out which remains high in all grades and most particularly at the transition point between grades 2 and 3, and in grades 6 through 8 which contribute to the slow progress registered in primary enrolment and completion rates.

Figure 3. NEP Projected and Actual Enrolment, 2004-07

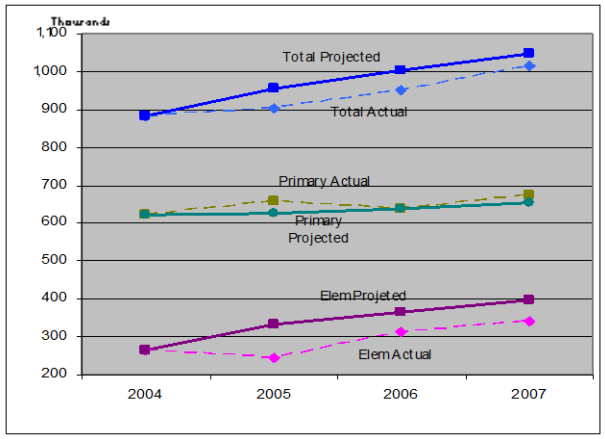
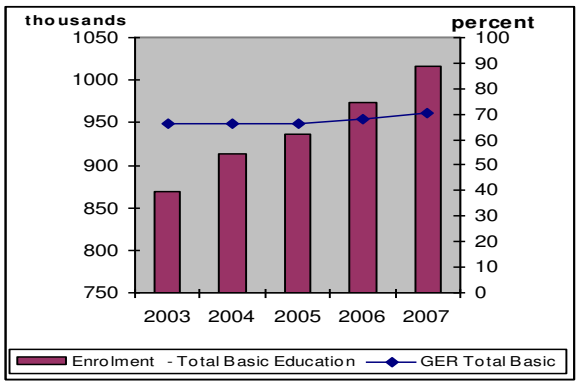


Figure 4. Total Enrolment & Gross Enrolment Ratio, 2003-07

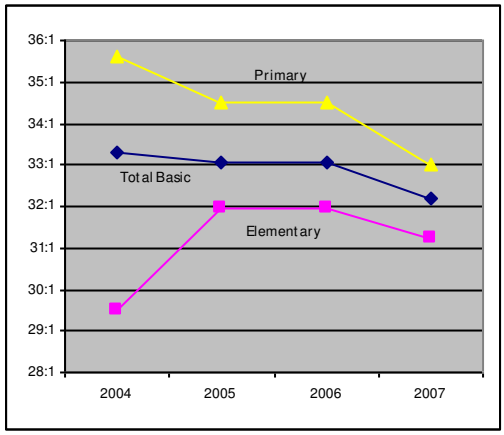


Teacher Supply and Equitable Distribution – In order to provide "a sufficient number of appropriately trained and qualified teachers," the NEP estimated a need for 1,100 elementary teachers to enroll each year in the mixed-mode program. The program, however, was insufficiently funded, if at all.[5] As a result, a World Bank study of teacher policy (World Bank 2009) notes that since the introduction of the mixed-mode training program in the mid-1990s, an estimated 11,500 teachers have been enrolled (averaging 1,150 a year) but only 6,000 have completed, pointing to the need to investigate and address the constraints to completion and for more widespread teacher development and support at the elementary level.

At the primary level, the NEP estimated a need for 1,200 to enroll in the pre-service primary TTCs each year which was only slightly higher than the output level at the time. So, no major growth was projected in the medium-term. However, during the first half of the NEP, the number of TTC graduates far exceeded the estimated need, increasing from about 1,400 in 2004 to about 2,000 in 2006.

Pupil: teacher ratios. Teacher hiring outpaced projected enrolment increases at the primary level. During 2004-2007, pupil: teacher ratios trended downward rather than upward, falling from 36:1 in 2004 to 33:1 in 2007 (Figure 5).

Figure 5. Pupil: Teacher Ratios



Equality in teacher deployment. The primary pupil: teacher ratio has fallen in all Provinces since 2004, except for Gulf and Oro. However, the equality gap between the worse and best staffed regions increased from a factor of 2.4 to 2.5 with the lowest Province (Manus) averaging only 20 students per teacher and the two highest Provinces (Eastern and Southern Highlands) averaging over 40 students per teacher. Despite the greater availability of teachers, distribution remains an issue (World Bank 2009). There

[5] The mixed-mode model included six weeks full-time training a year delivered by mobile trainers at local centers (World Bank 2009).

continues to be numerous reports of vacancies in rural schools and of school closings as a result (World Bank 2009, Pasingan 2005, World Bank 2004).

Planned NEP Outputs and Inputs.

Infrastructure. Over the medium term, the NEP projected the need for only 360 classrooms a year at the elementary level (for EP) and only 150 a year at the primary level (for grade 7). It did not take into consideration infrastructure requirements for the other grade levels even though larger numbers of students would be flowing through the system. Although information is not available on the number of classroom constructed over the NEP period to date, given the small number planned, one would not expect the infrastructure program to have had a significant impact on access overall, particularly at the primary level, even if it had been fully implemented. Therefore, although most studies on the accessibility of school pre-date the NEP, their findings regarding access most probably remain relevant. In particular, studies have pointed to widespread difficulties that many families have in accessing school, especially in remote areas, and especially a primary school. Based on a survey of rural and remote schools, Pasingan (2005) concludes that long walking distances to and from school is a main cause of lower student attendance and an especially binding constraint for girls (Brouwer 1998). Long walks are especially characteristic of primary schools where over 40 percent of Grade 4 students walk more than two hours back and forth to school each day, often through insecure areas (World Bank 2004).

Instructional Materials. Available information shows that teaching and learning materials remain in critically short supply across all grades, and that primary schools, which depend more on government provision, may be faring even worse than elementary schools which rely more heavily on locally- and teacher-developed materials (Freeman et al 2003). No effective policy or system has yet been developed to ensure an acceptable supply of materials. Studies proposed in the NEP that would inform such decisions have not yet been carried out, such as an assessment of the instructional supply needs of elementary schools and of the curriculum materials policy.

Curriculum revision. Pragmatically, the NEP placed priority on developing curriculum materials and resources on a regular basis in order to boost learning. It did not propose any significant re-orientation of the curriculum. The curriculum work undertaken in recent years has, however, focused on revising the primary school curriculum. A revised curriculum structure and syllabuses for primary schools were completed in 2006. The new orientation represented a major departure from the existing curriculum structure and syllabuses which created important challenges for implementation. On the positive side, all primary schools purportedly received the new syllabuses;[6] significant progress was achieved in developing in-service modules at the start of the reform; and much was learned from the testing of the modules in terms of their relevance and of the capacity building needs of trainers to deliver them. However, the introduction of the new curriculum came up against many challenges. The new (outcomes-based) approach was unfamiliar to teachers, yet it relied heavily on teacher-developed curriculum, materials and methods. In general, implementation was characterized by insufficient teacher materials and support from the system as a whole. No textbooks accompanied the reform which made it difficult for teachers to understand the fit of the

[6] This is a common belief. However, Pasingam (2005) and Guy et al (2005) report that not all schools received the materials. In the latter study, 10 percent of teachers in the in-service program reported not having received them.

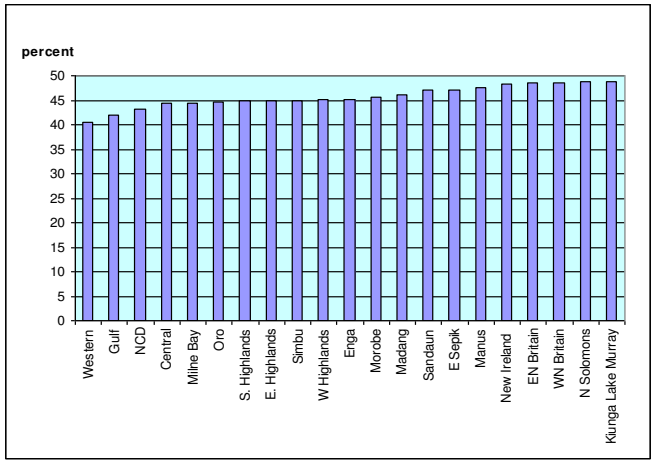
revised syllabuses with content teaching.[7] In-service support systems struggle to meet teacher development needs. In one survey of teachers participating in the in-service program, nearly half of all female respondents reported receiving little to no support from anyone – neither head teachers, senior teachers, inspectors, nor peers (Guy et al 2005); and TTCs have yet to fully integrate the approach into pre-service teacher education.

School Subsidies – The provision of additional school subsidies (additional to the Education function grant allocated to Provinces) began prior to the NEP. The subsidies were first channeled through the Provinces, and later in 2002, by the NDoE directly to schools which considerably reduced leakage in the chain of disbursements (World Bank 2004). Under the NEP, the NDoE continued to provide the subsidies to schools. However, there does not appear to be a significant linkage between the school subsidy and increased demand for schooling since enrolment ratios have remained relatively flat. It is possible that the subsidy and lower school fees may have averted a drop-off in enrolment and may have provided a steady resource flow to schools (when disbursed on time). However, the number of children out of school has remained relatively constant. It is important to understand why. One reason may be that the fees and other costs of education are still too high for many parents and, therefore, the subsidy is too low. There is some reasonably strong evidence to support this hypothesis (World Bank 2004; Freeman et al 2007). However, the low demand response may (also) reflect insufficient access, and there is reasonably strong evidence to support this hypothesis as well. There may also be other constraints that mitigate the hoped for impact of school subsidies even if fees are lowered and subsidies increased such as insecurity.

Equity. Neither Geographic nor Gender Equity featured as specific objectives in the NEP with the exception of equity in teacher distribution across Provinces. Although the NEP notes the existence of an NDoE Gender Equity Policy (2003) whose implementation is constrained by lack of resources, it does not include implementation of this policy in its priority programs and financing requirements. However, both gender and geographic equity remain important issues.

Gender Equity. More males than females are represented at every educational level and this has changed little for at least a decade. From 2004-08, the gender parity index in basic education remained at a relatively constant level of .86-.87.[8] Females comprise only 45 percent of enrolment with a slightly higher level in elementary schools (47 percent) and lower in primary (44 percent). Figure 6 shows disparities by Province with girl's share of enrolment lagging behind particularly in Western, Gulf, NCD, Milne Bay, Oro, the Highlands and Simbu Provinces.

Figure 6. Girls' Share of Enrolment in Basic Education by Province, 2006



[7] Note also that all the references in the reformed syllabi pertained to only one (Australian) publisher as its source.
[8] In 1996, the gender parity index was reported at .84 (Brouwer 1998).

No recent studies document the barriers to girls' education which impairs the development of effective policies and strategies to address them. In 1998, Brouwer et al conclude that, across all studies, cultural factors have been found to be the major impediment to increasing the enrolment of females at all levels, including the low status of women in society, poorer employment prospects, and the distance and perceived dangers of traveling to school or living away from home to attend school.

Geographic Equity. In 2007, the basic education GER ranged between a low of 52 percent in Southern Highlands to a high of 110 percent in the AR Bouganville. As shown in Table 1, although enrolment levels are an issue across all Provinces (but AR Bouganville), eight fall below the mean, and of those eight, four fall more than one standard deviation below the mean. These eight Provinces combined make up over half the school-aged population and they have not been progressing in recent years. Since 2004, enrolment growth has averaged only 2 percent a year which would suggest declining enrolment ratios in this group of 8 Provinces.

Table 1. Geographic Disparities in Enrolment in Basic Education, 2007

1+ st.dev. below GER < =60	1 st.dev. below 60<GER<70	Mean 70<=GER<=77	1 st. dev. Above. 77<GER<=87	1+ st. dev above GER > 87
S. Highlands	E. Highlands	Western	Central	Bouganville
Sandaun	Enga	NCD	Milne Bay	
Gulf	Morobe	Simbu	Manus	
Oro	Madang	W Highlands	New Ireland	
		E Sepik	EN Britain	
			WN Britain	

Source: UBE Plan, 2009

Financing Issues. Financing issues are several:

- Based on trends in public expenditure, education does not appear to have consistently been a high priority sector.
- Resources at the sub-national level are, in the main, inadequate so that communities still bear the cost of classroom construction and maintenance continues to fall on BoMs and communities.
- The financing structure of basic education and of the NEP programs, as they have been implemented, is unnecessarily complex with financing expected to come through several channels -- central government (through an NDoE budget appropriation and a separate Trust Fund Treasury account), provincial governments, LLGs/districts, communities and parents, and donor financed projects -- often intended to finance the same inputs. The result has been a fragmented financing system with multiple school subsidies coming from various sources which obscures the full financing picture and complicates accountability.

Public Expenditure Effort. Table 2 shows several key indicators of expenditure effort in recent years and corresponding FTI targets where relevant.

Table 2. GoPNG Expenditure on Education, 2007-2009

	2007	2008	2009	FTI Targets
Total Education Expenditure				
As a % of GDP	4.4	3.7	3.9	na
As a % of total public expenditure a/	11.4	11.7	15.1	na
Recurrent Education Expenditure				
As a % of GDP	4.0	3.3	3.5	2.8-3.6
As a % of public recurrent Expenditure a/	14.5	15.7	21.4	20
Non-salary recurrent education expenditure as % of recurrent education expenditure	25.7	25.5	25.9	30

Source: Annex 5.
a/ Excludes debt servicing.

Recent trends in education expenditure illustrate the impact of GoPNG's commitment to education in the face of declining revenue following the commodities boom. Between 2007-2009, expenditure on education has fallen less rapidly that the overall decline in real revenue. As a result, education's share of total public expenditure rose from only 11.4 percent in 2007 to an estimated 15.1 percent in 2009. Education's share of recurrent expenditure rose even more sharply from 14.5 percent of total recurrent spending in 2007 to an estimated 21.4 percent in 2009, exceeding the FTI benchmark of 20 percent. Due to declining revenue, however, GoPNG expenditure effort on education has fallen as a share of GDP from 4.4 percent in 2007 to 3.9 percent in 2009, a level that falls below the developing country average of 4.7 percent and the East Asia and Pacific average of 4.9 percent. Thus, compared with other countries, the major constraint is not a question of commitment to allocate public resources to achieve education goals, but one of a more constrained public revenue base relative to GDP.

Significant progress has also been registered within the education sector in the budget share allocated to non-salary expenditure which has averaged about 25 percent of recurrent spending in recent years, reflecting the impact of GoPNG policy to increase school subsidies to replace school fees. In particular, the school subsidy envelope has more than doubled since 2006 owing to an additional allocation of K100 million a year in a separate Trust Fund Account for distribution by the NDoE.

Going forward, five areas where further assessment and monitoring of expenditure would be useful concern: (a) actual expenditure on school subsidies from each budget line in which they are contained to obtain a more accurate picture of actual subsidy allocations and expenditure per student; (b) expenditure on goods and services which would appear to be very low at less than 3 percent of recurrent budget allocations; (c) the ratio of capital to recurrent expenditure which would appear to be very low (at 10:90) in light of the significant infrastructure needs; and (d) the budget authority, allocations and expenditure of sub-national governments wherein there are three main issues as follows.

Budget authority. Although Sub-national governments (Provinces, Districts) have the main responsibility for providing basic and secondary education (see Annex 6), they have budget authority over only 11 percent of the total non-salary budget for education. Most goods, services and transfers that are publicly financed continue to be centrally provided. Even in the provision of school operational subsidies, total Provincial Education Function Grants are less than one-fifth of the school subsidy allocation under the budget authority of the NDoE. Teachers, school heads and human resources are also centrally managed by the TSC and NDoE. The NEP does not attempt to shift this balance and many NEP programs are also expected to be co-financed by the Provinces, such as the cost of teachers to participate in professional development, the operating cost of inspectors (although a central responsibility), the cost of developing local curriculum materials to supplement syllabuses, etc. on for which the majority of Provinces do not have resources. As a result, in practice, the onus for funding these activities most often lies with school BoMs and/or teachers themselves (Stores et all 2007, Freeman et al 2007).

Financing gap in under-resourced Provinces. In 2006, the NEFC estimated that only six Provinces collect sufficient revenue to deliver at least minimum services (NEFC 2006).[9] These are primarily Provinces with mineral and timber wealth. In four Provinces, resources cover only between half to 75 percent of minimum costs, while in seven Provinces; resources are less than half of what is required. [10]

For education, in 2007, the NEFC estimated the minimum cost to Provinces and Districts of providing services at K 69.4 million (K 58.6 million for the Provinces and K10.8 million for rural LLGs).[11] In comparison, targeted transfers to Provinces through the Education Function Grant represented only 30 percent (K20.7 million) of the cost of providing education services. Assuming that the 12 under-financed Provinces spend their entire Education Function Grant on education (which they do not always do), and that districts spend one-third of their unconditional grants on education, this would still leave a minimum gap of K 13 million (US$ 4.8 million) a year for minimal operation of basic education in the 12 underfinanced Provinces.

Provincial "Priority Gap". Although over half the Provinces are underfinanced relative to the NEFC minimum cost estimates, under-financed Provinces are not necessarily the worst performers in terms of access to basic education. S. Highlands, Enga and Morobe stand out for their low enrolment and slow progress relative to their revenue, while Central, Milne Bay and Manus have significantly higher levels of enrolment relative to their resources.

Subsidy Issues

Adequacy of the Subsidy. It is unclear what an appropriate level of subsidy should be for school operational costs and for Provincial and district administration. In 2005, the NEFC estimated the minimum operating cost to sub-national governments for basic education school subsidies, school supplies and maintenance at K 58 per student (K 46 for supplies and school operating costs, K12 for maintenance). This is comparable to the per student subsidy targeted in the NEP. In contrast,

[9] The Provinces are WNB (106%), Enga (110%), NIP (126%), Morobe (136%), SHP (162%), and Western (312%)
[10] The Provinces are Sandaun (28%), Manus (29%), ESP (32%), Simbu (34%), MBP (35%), and Central and Oro (41%).
[11] N.B.: The total excludes salaries, leave payments, and capital expenditure.

however, a study in March 2007 estimated the average operating cost per student at about K 340, nearly six times the NEFC amount (Coffey International 2007).

Equity and Transparency. Under the NEP, subsidies have been provided through various channels – central, provincial and district governments, and through projects for the financing of SLIPs and maintenance in select schools. [12] Given the multiple subsidies and various channels, it is unclear what the actual level of subsidy is and how equitably subsidies are being distributed across Provinces and schools. A World Bank study (2004) suggests that government subsidies, particularly when provided directly to schools, has improved equity in school financing, although there is still large variation depending upon Provincial revenue, while project financed subsidies have tended to concentrate on easy to reach schools, thereby increasing inequality.

The multiple sources of subsidies also blur transparency and accountability. In 2004, an expenditure review found a great deal of confusion among school administrators regarding subsidy entitlements and payments due to frequent policy changes, poor communications and periodic adjustment when Provinces are faced with budget constraints (World Bank 2004). These difficulties apply not only to Provincial subsidies but also to the school subsidy envelope under the administration of the NDoE which takes a non-negligible share of the envelope to finance its own operating costs. Because a large share of the total school subsidy envelope administered by the NDoE is channeled through a Trust Fund account, actual expenditure is not available.

III. External Financing and Aid Effectiveness

Between 2006-2009, ODA to education in PNG averaged US$ 25 million a year (K 73 million), representing only about 8 percent of total ODA to PNG or US$ 3.8 per capita (K 11).

Few multi-lateral and bi-lateral donors provide ODA to education in PNG. They include AusAID, NZAid, JICA, UNICEF and the EU. With the exception of AusAID which accounted for 95 percent of total external financing to the sector, donor contributions are low and targeted to the implementation of specific activities (e.g. purchase of textbooks, information campaigns, math and science education).

In recent years, ODA to education has been delivered through project and technical assistance modalities. Because AusAID has been the main provider of ODA, it is useful to draw lessons from that experience. Since 2000, Aus AID has disbursed about $ 300 million through 14 projects. Since 2004, and with the NEP providing a framework, resources have been disbursed through fewer projects in support of capacity building and service delivery to implement NEP programs.

Nevertheless, despite the consolidation of projects and better alignment with the NEP, assessments of AusAID funding to education have found effectiveness illusive. One among several reports concluded that the AusAID education portfolio "appeared to have had limited success in achieving

[12] The Basic Education Development Project provided K 5.6 million in maintenance grants to primary and community schools in 2008 at an average of 5,000 per school for slightly over 1,000 schools. K5.6 million is the equivalent of half of the total NEFC estimated cost to districts but it covered less than 10 percent of schools. Source: Maintenance grants by province at www.pngbedp.com/maintenance-grants.html.

planned outcomes in a sustainable way or in impacting on the broader PNG education system" (2008 desk review). A number of factors contribute to this, including inter-alia, few donor partners and nascent coordination mechanisms, use of Australian contractors to manage and implement projects, and heavy reliance on expatriate Technical Assistance for implementation which disempowered national staff. Other weaknesses noted that are pertinent to all donor partners and the UBE Plan include:

- an insufficient knowledge base derived from sector analysis,
- little sharing of information, and
- lack of direct policy dialogue between DPs and PNG authorities.

DPs have taken these lessons learned seriously. Consistent with the aid effectiveness agenda, partners have been actively working together, and supporting the NDoE to develop and implement an 18-month Plan that will put in place the necessary foundation for more effective management of external assistance to the education sector. Over the next 18 months, the NDoE Preparation Phase Plan aims to put in place the planning, monitoring and evaluation, and institutional, financial management and procurement frameworks for the UBE Plan. As part of the process, a Joint Commitment of Principles is under discussion.

The Joint Principles support the goals of the country-wide PNG Commitment on Aid Effectiveness. The Education Partnership agreement will adopt the same indicators to measure progress where relevant including, inter alia, joint reviews, information sharing, providing PNG authorities with the necessary information to ensure that 100 percent of development aid is recorded in the national budget, reducing PIUs by 50 percent, and delivering at least 50 percent of aid for capacity building through GoPNG-led and coordinated programs by 2012.

IV. TECHNICAL ASSESSMENT

The UBE Plan builds on the experience gained under the NEP thus far, and pays greater attention to gaps in the NEP in relation to equity, access to primary education, the drop out problem, quality at the elementary level and capacity building for better management and governance. These areas are clearly important although the desired targets and strategies to achieve them remain to be incorporated in the plan.

Grounding in Sectoral Analysis and Data. The availability of reliable and robust data in PNG is limited, including national accounts data, household survey data and education data. The last household survey conducted was in 1997; the last census was in 2000. The EMIS has been the source of most data. But the data are released with at least two year delays; reliability is highly uncertain; and statistical publications provide only raw data with no computation of basic monitoring indicators. The combination makes it extremely difficult to monitor key indicators over time and to provide policy makers with timely and reliable data to inform decisions.

The availability of sector analyses and reports is also very limited as illustrated in Annex 1 which provides a comprehensive catalogue of available studies.

Due to the weak information base, UBE baseline indicators are available for only some UBE Plan indicators, namely those pertaining to enrolment and teacher numbers. Others, such as learning achievement, textbook: student ratios, and the number of existing classrooms and their condition are not yet available. The NDoE has made progress, however, in the past two years on reviving and improving the EMIS. Under the UBE plan, these efforts could usefully be continued and broadened to enable the collection of reliable data for all UBE Plan monitoring indicators and the production of the indicators and basic data in a more timely manner. At present, a proposed strategy to strengthen data collection and production capacity in the sector represents an important gap in the UBE plan.

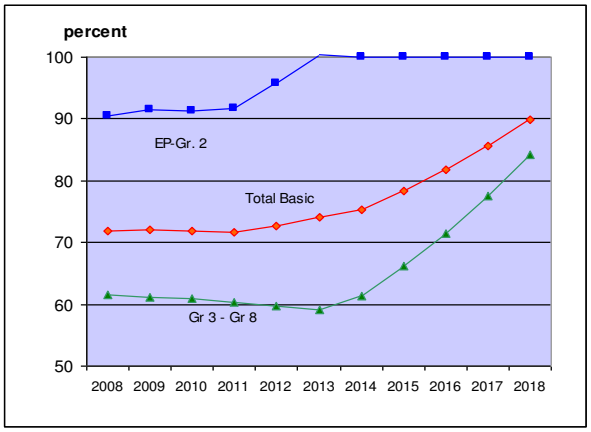
Credibility of the Targets.

Annex 6 shows key outcome and output targets that underlie the plan for the Access and Retention components.

Since the UBE plan is derived from the NEP, it has similar issues. At a strategic level, three main issues common to both are: (a) their under-ambitious objectives relative to the EFA/MDG goals, (b) an imbalance between the investments in expansion of access to the elementary grades (EP-Gr. 2) relative to the primary grades (Gr. 3-8), and (c) inattention to the quality of elementary education.

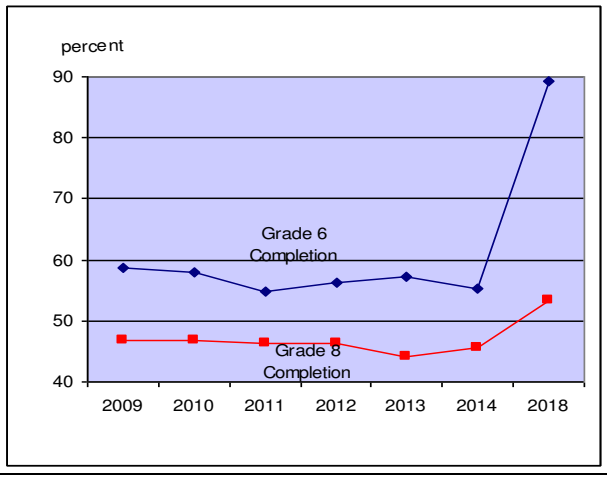
Figures 7 and 8 show the annual projected gross enrolment ratios, and completion rates for grades 6 and 8 that the UBE plan aims to achieve in the medium-term and long term. Like the NEP, the UBE Plan focuses on expanding enrolment at the elementary grades in the medium-term, postponing an expansion of the primary grades until the second half of the plan. As a result, the primary gross enrolment ratio (Gr, 3-8) stagnates over the next five years and reaches only 84 percent in 2018 (at which time it is also assumed that all children will be of age for their grade). Because Grades 3-8 comprise two-thirds of the grades in basic education, total basic education enrolment is projected to grow at only 3.6 percent a year to 2014 which would raise the GER by only one percentage point a year, a level even lower than the NEP targets. Completion rates are also projected to stagnate during the medium term mainly due to the assumption of continuing low transition rates until the second half of the plan when they shoot up at the elementary level but remain low in the primary grades. So, it should not be surprising if progress towards the EFA/FTI/MDGs is slow even if what is planned for is achieved.

Figure 7. Projected UBE Gross Enrolment Ratio Targets



Note: The numerator is the total number of students in the grades EP-2 and 3-8 whether enrolled in elementary or primary schools.

Figure 8. Projected UBE Completion Rates



Main program outputs pertaining to infrastructure and teachers are largely consistent with the relatively low outcome targets. Infrastructure requirements at the elementary level are estimated at an average of 1,000 classrooms per year in the medium-term and fall significantly thereafter. At the primary level, infrastructure requirements over the next five years are close to zero. They increase only in the long run. Since transition rates are assumed to shoot up during the second half of the plan period, classroom requirements then soar to 1,800 a year. This implies that if there is a need for more space at the primary level over the next five years, parents and communities would have to continue to bear the cost.

The projected teacher requirements are similar to those for infrastructure. The UBE plan projects a need for an additional 1,100 new teaching positions a year up to 2014, and about 2,600 a year thereafter broken down as follows:

- 1,000 new teaching positions a year for elementary up to 2014 and 550 thereafter; and
- only 50 new teaching positions a year for primary schools through 2014, and 1,900 a year thereafter.

In terms of the capacity of TTCs, producing this number of primary teachers in the medium-term should not pose a significant problem. However, unless the primary teacher requirements are better balanced between the medium- and long term, TTCs will significantly over produce in the medium-term. According to NDoE data, in 2006, the existing TTCs already enrolled slightly over 5,000 students and produced about 2,000 graduates. However, in the longer-term that capacity will need to double. By smoothing out primary expansion over the 10-year period, rather than deferring it to the second half of the plan period, one can avoid overproduction in the medium-term or erosion in TTC capacity that may result if TTC budgets were limited to accommodating the estimated needs. If growth were more even across the years, only a marginal increase in TTC capacity would be required in the second half of the plan which may be more reasonable from the perspective of sustainable development and less disruptive to the existing capacity.

Cost Analysis

NB: The UBE baseline needs to be checked against the 2009 budget estimates. There are important discrepancies in: (a) the salary estimates which are much lower in the UBE baseline, (b) capital expenditure which is also much lower in the UBE baseline, and (c) goods and services which are much higher in the UBE baseline.

Total Costs. The total cost of the basic education sub-sector and pre-service teacher education would require significant additional public resources. Table 3 shows the total cost of the plan for basic education and the public expenditure effort that would be required in the medium-term. Over the medium-term (2010-2014), expenditure more than doubles, increasing from Kina 1 to 1.5 billion. This translates into an annual growth rate of 12 percent a year in nominal terms, or about 6 percent in real terms, with capital expenditure growing at a rate of 8 percent, and recurrent at 4 percent a year.

Although these growth rates are not out of line with a growing system, projected recurrent expenditure translates into important fiscal pressure given the medium-term outlook of the economy and of public revenue and expenditure. If we assume that the structure of Government revenue and expenditure will remain stable relative to 2009 levels, which is what the IMF and Government project, at the projected rate of growth, education expenditure as a share of GDP would increase from 3.9 percent in 2009 to 5.3 percent in 2014. While this level may be necessary to establish the foundations for a sustainable system, it does exceed what most countries spend on the entire education system. It will also require a non-negligible shift in public recurrent expenditure towards education from 21 to 25.6 percent of public recurrent expenditure for basic education and teacher education only (see below for an analysis of the wage bill constraint).

Table 3. Total Program Cost 2009-2014

	2009 UBE baseline	2010	2011	2012	2013	2014	Average 2010-14
Total Cost (nominal Kina 000s)	771,104	946,344	1,047,718	1,182,934	1,332,948	1,463,012	
In US$ 000s	282,759	333,931	359,159	396,047	438,042	480,785	
Percentage Distribution	100	100	100	100	100	100	100
Capital	1	15	16	14	18	17	16
Recurrent	99	82	81	81	78	79	80
Unidentified	0	2	4	5	4	5	4
Expenditure Growth (Total)	1.2	23	11	13	13	10	12
Capital		3,367	15	3	38	4	14*
Recurrent		2	8	13	9	11	10
Percentage of GDP - Total	**3.4**	**4.0**	**4.2**	**4.5**	**4.8**	**5.3**	**4.6**
Capital	0.0	0.6	0.7	0.6	0.9	0.9	0.7
Recurrent	3.4	3.3	3.4	3.6	3.8	4.2	3.6
Percentage of Government Expenditure	**13.5**	**15.6**	**16.4**	**17.6**	**18.9**	**20.7**	**17.8**
Capital	0.2	8.0	8.8	8.6	11.3	11.8	9.7
Recurrent net of interest payments	21.0	20.2	20.7	22.3	23.1	25.6	22.4

*Excludes the 3,367 percent increase in 2009-10 which most likely results from a 2009 baseline error.

Cost by UBE Investment Component**.** Table 4 shows the share of cost by UBE Plan Component. Because the strategies that aim to increase retention are also strategies to increase enrolment overall, here they are combined into one component. The strategies include the school subsidies, advocacy and appropriate sanitation facilities, all of which are under the retention program. Interventions to support the access and retention goals comprise about 75 percent of the total cost of the UBE Plan.

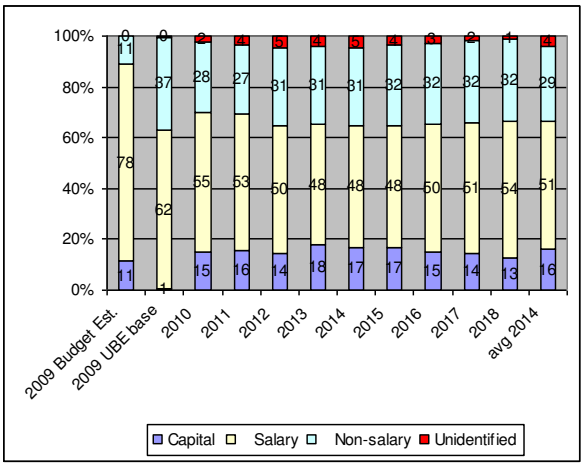
Investments in capacity building for more effective management and administration and in interventions to achieve greater equity comprise only 1 percent each of the cost of the UBE Plan which appears quite low particularly given the challenges in these areas. This also reflects a need for a more meaningful strategy to address capacity constraints.

Table 4. UBE Costs by Component

UBE Components	2010	2011	2012	2013	2014
Total Component Cost (Kina 000)	409,302	468,329	562,101	672,423	735,131
% of Total Basic Education Cost	43	45	48	50	50
Distribution by UBE Component (%) excl salaries and administration	100	100	100	100	100
Component 1: Access & Retention	78	75	69	72	73
Component 2: Quality	19	22	30	26	25
Component 3: Management	1	1	1	0	1
Component 4: Equity	2	1	1	1	1

Capital Costs & Teacher Housing. Figure 9 shows the distribution of program costs across capital and recurrent -- salary and non-salary -- expenditure. Under the UBE plan, a larger share of total expenditure is allocated to construction which increases from only 1 percent in 2009 to an average of 16 percent of expenditure over the medium term.[13] However, this is still a rather low share of capital to recurrent expenditure given the poor condition of shortage and poor condition of infrastructure. Further, school infrastructure accounts for less than 60 percent of the total infrastructure cost for a school capital: recurrent ratio of only 10:90.

Figure 9. Distribution of Program Costs by Capital, Salary and non-Salary Recurrent, 2009-2018



Source: Annex 9.

The other approximately 40 percent of capital spending is for the construction of housing for primary teachers (22 percent), the construction of school libraries (13 percent) and the construction of pre-service teacher education facilities (6 percent).

The primary teacher housing program is a tactic that aims to attract and retain primary teachers to teach in rural areas. The proposed scope of the intervention (providing 70 percent of all teachers with a house), its direct costs (both capital and recurrent maintenance), and potential opportunity costs (e.g. potentially less funding for school construction, water and sanitation facilities) suggest that the UBE plan could benefit from a more comprehensive consideration of the scope of the teacher supply constraints and the factors that contribute to it which, combined, may suggest other options to address the difficulties of attracting and retaining teachers to remoter schools. For example, the EMIS data would suggest that school staffing shortages are not so widespread as to affect 70 percent of the teaching force. Shortages vary significantly across Provinces and districts with the Highlands being the most affected. Further, a recent World Bank (2009) study of teachers points to several weaknesses that may cause or exacerbate the lack of teachers in difficult to staff schools. These include inadequate functioning of the appointment system, high levels of insecurity in certain areas, poor school working conditions, lack of possibility for promotion, among others. In

[13] Note: The baseline may be incorrect. According to the 2009 budget estimates, development expenditure is about 11 percent of the total budget.

order to provide a more evidence-based foundation for strategy development to address teacher shortage issues in remoter schools, the study identifies the need for better identification of difficult to staff schools and districts, more in-depth research on teacher deployment, management and compensation issues, and consideration of the cost-effectiveness of alternative options to address the range of factors operating throughout the chain.

The construction of primary school libraries poses a similar policy challenge. The UBE plan aims to provide all primary schools with libraries stocked with sufficient and appropriate texts in order to improve the quality of education. Once constructed and stocked, BoMs are responsible for maintenance and adding to the library collection. School libraries can be an important asset to students and teachers if they provide useful materials and are utilized. The investment is significant in both capital and recurrent costs if libraries are to function as a tool to support learning. In practice, libraries are often of conceived of, or used as, storage facilities for which other cost-effective options could be explored.

In both cases, PNG already has some experience with the provision of housing and libraries. An evaluation of these experiences may provide useful insights into the effectiveness of their operation before scaling up.

Recurrent Costs

Teacher Wage Bill Constraint. The teacher salary bill is projected to grow at between 9 – 11 percent a year in nominal terms, or in real terms, by about 3 percent a year in the medium term and 5 percent a year over the longer term. Although this does not sound like a high rate of increase, GDP is projected to grow only at about that level and government revenue is projected to fall as a share of GDP relative to its 2009 level, which means that the wage bill, under the UBE assumptions, will require a larger share of revenue to finance.

It will be important to seek ways to manage the teacher wage bill in order to create fiscal space for the recruitment of more teachers and for operating costs. Most of the pressure on the teacher wage bill comes from a projected increase in the salaries of elementary teachers to bring them more in line with primary school teachers and for pay rises for primary teachers rather than in new positions. New teaching positions account for only 25 to 33 percent of the projected marginal increase in wage bill requirements over the medium-term.

Relative to other countries, the average salary expenditure per primary teacher is on the high end at 4.9 times per capita income, or 40 percent higher than the FTI benchmark of 3.5. And, this excludes leave fares and other benefits. Further, the average salary expenditure per primary teacher is projected to rise to 5.7 times GDP per capita in 2014. There would appear to be a need for a clear policy on the evolution of teacher salaries and benefits. If there are sound reasons why the average teacher salary expenditure should be so high relative to per capita income, it would be useful to provide them. The risk inherent in the high salary expenditure is that it will continue to squeeze operational budgets and constrain the hiring of new teachers for the projected expansion.

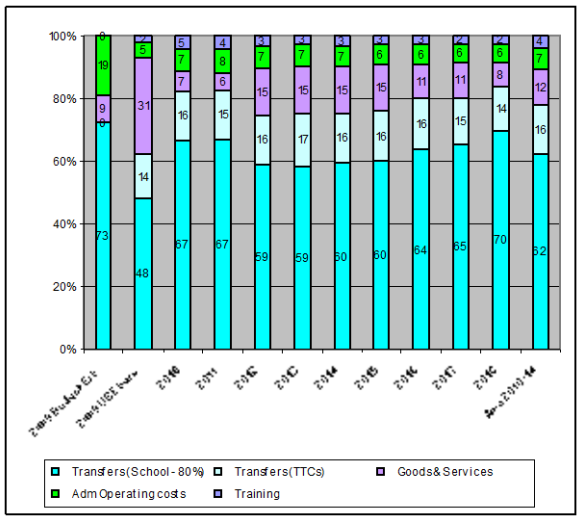
Administration Salaries – The burden of the cost of compensation for administration is very low. NDoE and Sub-national administration costs comprise at most 5.3 percent of total costs. This would

appear quite low and suggestive of a human resource gap, particularly at the provincial and LLG levels.

Recurrent Non-Salary Costs. Recurrent non-salary expenditure is the fastest growing category of expenditure, growing at about 9 percent a year in real terms (2010-2104). This would be welcomed, and consistent with the fee abolition policy and maintaining and improving the learning environment. Figure 10 shows the breakdown of these costs.

Three issues:

Figure 10. Distribution of UBE Recurrent Costs



School subsidies account for about 62 percent of non-salary recurrent expenditure. While increasing school subsidies is a main objective of the Plan, further clarification on the subsidy level is desirable given the fiscal pressures.

On a per student basis, the subsidy averages K180 (US$46) per student (K120 per elementary student and K236 per primary student) which is three times the NEFC estimate of the minimum per student cost of service provision – double at the elementary level and four times at the primary level.

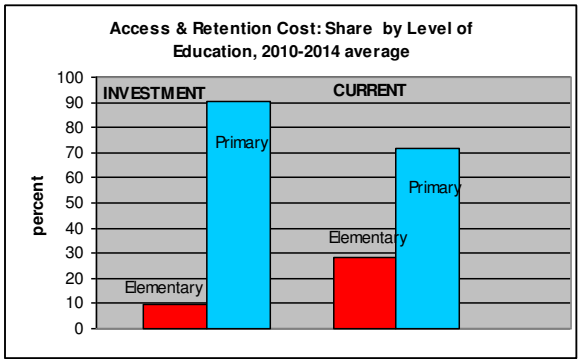
It is difficult to determine if this is an appropriate level since the composition is not given nor is there a baseline. Further, it is extremely difficult to have a comprehensive view of the subsidies in the UBE plan because there are several of them, all of which have more or less the same objectives, distributed across components. There is the subsidy for fee abolition, a subsidy for SLIPs, and a subsidy for maintenance coming from different sources. There is a strong argument to be made for having a subsidy policy and formula that sets an appropriate subsidy level and positively adjusts for Provincial disadvantage. From there, one can determine the sources of financing with central government filling the gap, similar to the approach taken by the NEFC to the financing of local governments.

Operational costs of primary teacher education appear very high, averaging 10,000 kina per trainee per year. By way of comparison, this is 10 times the primary cost per student and about 30 percent more than the total cost of primary school infrastructure investments over the period. There would appear to be a need for a sustainable policy for the financing of the operational costs of TTCs.

Unidentified is a non-negligible share of the UBE cost estimates, averaging 4 percent of total recurrent expenditure in the medium-term. This category includes the special programs for over-aged youth, remote and overcrowded schools, special needs education, and advocacy. They are categorized as unidentified because, although important, more than any other intervention they lack objectives of what they aim to achieve and indications of what the estimated costs may pertain to.

Priority by Level of Education. If priority in the medium-term is given to elementary enrolment, one would expect investment expenditure to be highest at this level. Figure 11 shows the distribution of the costs of Access and Retention by level of basic education. Over the medium term, on average, capital investments in elementary education account for only 10 percent of capital costs.

Figure 11. UBE Costs by Level of Education



Per student expenditure is highly skewed towards primary – Per student expenditure in basic education would average about 800 kina, increasing from 700 to 900 over the medium term (or from US$ 260 to US$ 290). As a share of GDP per capita, per student expenditure is comparable to the average for developing countries at about 20 percent. However, the UBE plan shows a highly skewed distribution in favor of primary education. As shown in Table 5, on average, allocations per student in primary education are more than double those for students in elementary school. This applies across all categories of expenditure. Teacher salaries are more than double; subsidies are the double; expenditure on instructional materials is nearly five times as much per student; and infrastructure costs are three times as high. It is unclear why expenditure should be so much higher on students in grades 3-8 compared with those in the lower grades.

Table 5. UBE Recurrent Cost per Student

	2009	2010	2011	2012	2013	2014	Average 2010-14
Recurrent Expenditure Per Student (Kina)	709	709	749	815	846	896	803
in US$	260	250	257	273	278	294	270
Elementary Expenditure per student (Kina)	325	403	392	407	423	448	415
Primary	820	776	855	965	1025	1113	947
As % of GDP per capita	20	19	20	21	21	22	21
Primary as a multiple of elementary	2.5	1.9	2.2	2.4	2.4	2.5	2.3
Teacher Salaries	2.3	2.3	2.3	2.4	2.5	2.5	2.4
Subsidies	1.7	1.8	1.9	1.9	2.0	2.2	2.0
Instructional materials	0.0	0.0	16.0	22.5	8.1	9.7	4.7
In-service teacher education	1.0	0.5	0.5	0.5	0.6	0.6	0.5
Recurrent expenditure per Primary Teacher Trainee	8,749	9,046	9,750	12,511	11,545	10,291	10,629
as a multiple of expenditure per primary student	12	13	13	15	14	11	13
Salary & Leave Expenditure per Teacher							
Elementary	7,423	7,955	8,477	9,026	9,605	10,214	
Primary	17,085	18,260	19,408	20,613	21,877	23,203	
As a multiple of Income per capita							
Elementary	2.1	2.2	2.2	2.3	2.4	2.5	2.3
Primary	4.8	5.0	5.1	5.3	5.4	5.7	5.3

IV. CONCLUSION: SOME IMPLICATIONS AND CONSIDERATIONS FOR FURTHER POLICY DIALOGUE AND PROGRAM DEVELOPMENT

The development of basic education in PNG in the recent past can be characterized as having undergone a number of reforms, many of which remain incomplete and whose results would appear to have had a modest impact on progress towards the EFA/FTI/MDG outcomes in recent years. It is difficult to disentangle the many factors that may have contributed to these results. Below are a few thoughts and options to consider for the further development of the plan.

Evidence suggests that the following strategies have resulted in positive outcomes and are areas which GoPNG may wish to consider prioritizing or scaling-up in the UBE Plan:

- school subsidy program, although not necessarily in the current form,
- community participation in school oversight and management,
- the mixed-mode elementary teacher education program, and
- Provincial capacity building for the preparation of local education development priorities and plans.

Important gaps include:

- policies and programs to address gender and geographic inequality,
- and
- the projected financing framework for the plan including resources expected to come from government and from donors and the gap for which financing remains to be mobilized.

Areas where the plan may benefit from further reflection include:

- the outcome targets, particularly for primary education;
- the balance in infrastructure investments between elementary and primary education;
- the amount of the school subsidy and delivery strategy;
- programs for teacher education, in-service support and instructional materials at the elementary level,
- capacity strengthening to support implementation and results monitoring, particularly at the local levels,
- programs for teacher housing, and school libraries.

The reasons for the suggested areas for further reflection are elaborated below with the exception of teacher housing and libraries which were addressed in the previous section.

Outcome Targets. The EFA/FTI/MDG goals are universal completion of a quality primary education by all school-aged children by 2015, and gender equity at the primary and secondary levels. These are the goals against which progress is measured and which the UBE plan should aim to achieve, albeit in a slightly longer time frame perhaps.

At present, the outcome targets are set at under-ambitious levels relative to the MDG and EFA goals while two key policies -- restricted entry into EP and the phasing in of school subsidies by grade level -- are likely to work against achieving the UBE goals.

A main reason the enrolment and completion outcomes are set at such low levels is because the main outcome targeted by the NEP and the UBE plans is enrolment of all 6 year olds in EP by 2012, and the expansion strategy underlying the targets focuses nearly exclusively on expanding access to elementary education during the entire 10-year NEP period, and the first half of the UBE plan, while postponing the expansion of primary education and progress towards reducing the high drop out rates until well into the future. The strategy is underpinned by a proposed policy that will permit only six-year olds to enroll in EP starting in 2012, and will disallow the current practice of entry into grade 1 in schools where that is the norm. With the new policy, in principle, older children will be turned away from school, which is contrary to the objective of full attendance among all school-aged children and will create the need for a large scale alternative program.

Mirroring this expansion strategy is the policy/strategy to phase out school fees and increase school subsidies over the next ten years, starting in the elementary and proceeding to lower primary in 2015 and finally to upper primary in 2018. Thus, the cost of education can be expected to remain a significant barrier to a large percentage of families for most of the plan period. Further, the policy may also provide a perverse incentive for parents to withdraw their children from primary school until the subsidy is phased in, thereby exacerbating drop-out and over-aged enrolment.

The near exclusive focus on expansion at the elementary level has not proven very effective in the past in ensuring that all children complete a quality primary education. When combined with the policy to restrict entry to six-year olds, it is unlikely to be more effective in the future until there is a better understanding of why children enroll in school at a later age. The approach creates three additional risks: (a) the risk that the foundations to scale up primary education during the second half of the UBE plan will not be present, (b) the risk that the positive impact on enrolment and retention that school fee abolition is intended to have will be limited by constrained capacity of primary education to accommodate increased demand, and (c) the risk that there will be an overproduction of primary teachers in the medium-term and a shortage in the longer term.

Alternatives that GoPNG may wish to also contemplate may be to:

- reconsider the policy to restrict enrolment in EP to six-year olds only, and
- striking a better balance between expansion at the elementary and primary levels simultaneously to accommodate increased retention and smooth out the projected large increases in primary classrooms, teachers and TTC capacity that is projected to be needed in the second half of the plan period.
- increase efforts to expand primary enrolment and completion by:
    - Thinking in terms of, and planning for, a complete 8 year cycle (9 with EP) of basic education rather than planning exclusively in the mode of the structural reform. There does not appear to be a strong argument to exclude other models such as the community school which starts in grade 1 or creating smaller complete basic cycle schools whenever cost-effective to alleviate the distance constraint.
    - Phasing in fee abolition and increased subsidies in primary grades along side the progression in the elementary grades (i.e. starting in EP and Gr 3 simultaneously), or in installments across all grades simultaneously if, due to resource constraints, it is not possible to eliminate fees and increase subsidies all at once.

Balance between Elementary and Primary. On one hand, the NEP and UBE Plan give nearly exclusive priority to the expansion of elementary education. On the other hand, the plans give nearly exclusive priority to primary education in terms of quality improvements such as pre- and in-service teacher development, textbooks and libraries, maintenance, and school subsidies. There is a notable lack of attention to, and resources allocated for education improvement at the elementary grades, including, for example, for orthographies, curriculum development, student and teacher materials, textbooks, teacher certification and in-service support, and strengthening the involvement and capacity of communities in school management.

School Subsidy Program. A number of questions that could usefully be clarified were already raised. Since school subsidies are a crucial pillar of the strategy to raise enrolment and completion rates, greater clarification on the subsidy policy would appear to be essential, including the formula for the determination of the per student subsidy, how the subsidy relates to the Provincial subsidies, how they will be disbursed, and how expenditure will be accounted for.

Elementary Teacher Education. There are three issues that one might explore further. First is the NDoE's assessment of the cost-effectiveness of the strategy to replace the mixed-mode elementary teacher education with a traditional pre-service model. Cross-country studies suggest that modalities like the mixed-mode have several advantages over a traditional model in terms of costs and effectiveness. Mixed modes are generally less costly because they save on boarding facilities, student subsidies and teacher salaries. They tend to be more effective because what is learned is more likely to be directly applied in the classroom. And, they also build up institutional support locally that can also be used for sustainable in-service support to all teachers. For these reasons, a 2009 review of teacher policy in PNG refers to the mixed mode as a representation of good practice (World Bank 2009). Second, there would appear to be a need to clearly state what the policy is regarding teacher certification requirements. Third, and linked to the imbalance growth of elementary and primary education, is how the plan will establish the foundation in the medium-term to significantly scale up primary teacher training capacity later on if the current approach to expansion is maintained.

Curriculum and Instructional Materials. In the area of curriculum and instructional materials, the UBE plan might be improved in three ways, by:

- Including the policy studies proposed under the NEP which have not yet been conducted. These assessments remain very pertinent in order to provide the foundation for informed policy decisions and strategy development for curriculum and instructional materials, including at the elementary level.

- Specifically outlining a strategy to address the issues surrounding the curriculum reform, and

- Addressing teaching and learning issues in the transition from elementary to primary education since reports suggest a difficult transition. Although a gradual shift from instruction in the vernacular to English is intended during the first few years of primary education, in practice, for many pupils the shift occurs abruptly. In one study some 70 percent of teachers reported that they did not use their own vernacular in the classroom because it was not the language of the children, there was no single language group within the class, and/or some children had begun their education in English. Further, 25 percent

stated that their reading and writing skills in their vernacular were insufficient for classroom use (Guy et all 2005).

Strengthening Policy Making, Planning, Management and Administration. Although the UBE plan places a slightly higher priority on capacity building for more effective management compared with the NEP, the scope of the program in terms of objectives and investment is quite narrow. In addition to small programs in head teacher training and DEA training, significant capacity strengthening will be needed in order to implement the UBE plan and build the foundation for sustainability. This includes capacity strengthening for EMIS data collection and analysis, for planning, for the management of personnel, procurement and delivery of inputs, and for financial management at all levels.

Policy making and strategy development are hampered by a lack of reliable information. In the absence of recent household surveys, a school mapping survey or impact evaluations, it is difficult to make informed assessments of whether a particular strategy on the supply or demand side might be effective. For example, there is no comprehensive view of the national coverage of the school network relative to the population. Information is not available on the demography of school enrolment, i.e., on proportion of children who never attend school, where they are located, and whether they have access to school within a reasonable distance from home. Similarly, there is no reliable information on the proportion of children who had once attended school but dropped out.

In order to better ground policy making and strategy development in evidence, the UBE plan could usefully further strengthen the EMIS so that it can be relied upon as a timely, valid and reliable tool to monitor progress in outcomes and outputs. In this regard, the UBE program could usefully place top priority in the first year of the program on producing a reliable baseline for the indicators that will be used to assess progress, and ensure that they are produced on an annual basis and available for annual progress reviews. Consideration could also be given to conducting periodically (e.g. every three years) a Core Education Indicator Survey using a household and school sample to provide an alternative source of information, calibrate the EMIS data, and gather data on any core indicators that are less amenable to collecting via a school census (e.g. enrolment in private schools, participation of communities, increased instructional time, etc.).

Planning, Budgeting and Financial Management Capacity is weak at all levels. Although capacity in the NDoE is being strengthened through a whole-of-government initiative and some capacity building has taken place at the Provincial level, there remains a large capacity gap at the Provincial and district levels to plan, budget, manage and account for expenditure, and in some cases, a gap in the political will to do so. It will be particularly important to arrive at a reliable consolidated view of resources spent on education by Provinces and districts on an annual basis in order to provide a more reliable basis upon which to make resource allocation decisions or adjustments. The financial assessment conducted by the World Bank in 2008 also identifies key gaps and recommends strategies to address them which should be seriously considered for incorporation into the UBE plan.

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Annex 2. Government Revenue and Expenditure, 2004-2009

	2004 Actual	2005 Actual	2006 Actual	2007 Prog	2008 Proj	2009 Proj	Average 2004-09
TOTAL REVENUE & GRANTS							
Total Revenue (Kina billions)	4.3	5.3	6.3	6.3	7.2	6.7	6.0
Domestic Revenue	3.5	4.0	5.4	6.3	6.0	5.7	5.1
External Grants	0.8	1.3	0.9	0.1	1.2	1.0	0.9
US$ millions	1,339	1,708	2,056	2,163	2,621	2,446	
Revenue Sources (%)							
Domestic	80	76	86	99	83	85	84.8
External Grants	20	24	14	1	17	15	15.2
Revenue Growth Rate (real)							
Domestic		0.2	21.5	13.8	-13.8	-2.7	3.8
External grants		29.9	-35.3	-92.6	1,461	-12.4	270.1
Revenue as % of GDP	34.1	34.9	36.7	33.9	32.4	29.8	33.6
Domestic	27.4	26.5	31.4	33.5	27.0	25.3	28.5
External Grants	6.7	8.4	5.3	0.4	5.4	4.5	5.1
TOTAL EXPENDITURE + NET LENDING (Kina billions)							
Total Kina billions (nominal)	4.1	4.8	5.1	7.3	7.0	5.7	5.7
Recurrent	2.8	3.1	3.0	5.5	5.1	4.0	3.9
Less Interest payments	2.5	2.7	2.7	5.2	4.7	3.6	3.6
Capital + Net Lending	1.3	1.7	2.1	1.8	1.9	1.7	1.7
Expenditure Shares							
Recurrent	69	65	59	76	73	71	68.6
Less Interest payments	60	58	53	71	67	64	62.1
Capital+Net Lending	31	35	41	24	27	29	31.4
Expenditure Growth Rates							
Total (2004 constant Kina)		0	-2	39	-14	-15	1.6
Recurrent		-6	-10	78	-18	-18	5.3
Capital + Net Lending		-4	-9	85	-18	-20	6.8
Expenditure as % of GDP							
Total	32	31	30	39	31	26	31.6
Recurrent	22	20	18	30	23	18	21.8
Wages & Salaries	10	8	8	7	6	7	7.6
Goods & Services	6	6	5	14	11	5	7.9
Transfers & Subsidies	2	2	2	7	4	5	3.7
Interest Payments	3	2	2	2	2	2	2.0
Other charges	1	1	1	0	0	0	0.5
Capital	10	11	12	9	9	8	9.8
Economic Classification (%)							
Recurrent	69	65	59	76	73	71	68.6
Wages	31	26	27	18	19	26	24.4
Goods and Services	20	20	17	36	35	18	24.5
Transfers and subsidies	7	7	7	17	13	20	11.7
Interest payments	9	7	6	5	5	7	6.5
Other Charges	2	4	3	0	0	0	1.5
Capital & net lending	31	35	41	24	27	29	31.4
% externally financed	75	84	50	10	73	72	60.5
Memo items:							
Exchange rate (Kina: 1US$)	3.2	3.1	3.1	2.9	2.7	2.7	3.0
GDP nominal Kina billions	13	15	17	19	22	22	18
GDP per capita Current US$	695	847	947	1,055	1,306	1,294	1,024
GDP per capita in PPP (Int'l $)	1,731	1,783	1,844	1,971	2,105	2,158	1,932

Sources: IMF On line data; IMF 2008, 2009a; BoPA 2009

ANNEX 3. NEP BASIC EDUCATION TARGETS AND RESULTS, 2004-2007

Results/Outcomes: Planned	Indicator	Baseline	Targets			
		2004	2005	2006	2007	2014
All six-year olds enroll in EP	Intake Rate of 6 year olds	na	na	na	na	100*
Increased Enrolment	Total Enrolment Projected	883,544	957,313	1,003,011	1,048,708	1,369,861
	Elem Projected	263,348	331,582	363,637	395,693	604,204
	Primary Projected	620,196	625,731	639,373	653,016	765,657
	EP-Gr2 Projected	365,409	431,213	449,744	468,276	604,204
	Gr 3 - 8 Projected	518,135	526,100	553,266	580,433	765,657
Increased Gross Enrolment Ratio	All Basic Planned	67	70	72	73	79
	Elementary Planned	54	67	71	75	98
	Primary Planned	74	72	72	72	70
	EP-Gr 2 Planned	75	87	88	89	112
	Gr 3-8 Planned	61	61	62	64	82
Increased transition and completion rates	Gr 6-7 transition rate 100%	85	87	88	90	100*
	Primary Completion Rate Gr 6	58	56	58	59	70
	Primary Completion Rate Gr 8		39	43	46	54
Teachers deployed efficiently	Pupil: Teacher ratio		33:1	34	34	37
Teachers deployed equitably	na	na	na	na	na	na

* target date 2012

Results/Outcomes: Actual		2004	2005	2006	2007
All six-year olds enroll in EP	Intake Rate of 6 year olds	na	na	na	11
Increased Enrolment	Total Actual	883,544	901,957	950,704	1,016,733
	Elem Actual	263,348	242,589	312,071	341,859
	Primary Actual	620,196	659,368	638,633	674,874
	EP-GR 2	365,409	346,190	413,611	444,840
	Gr 3 - 8	518,135	555,767	537,093	571,893
Increased Gross Enrolment Ratio	Total Basic Actual	67	66	68	71
	Elementary Actual	54	49	61	65
	Primary Actual	74	76	72	74
	EP-Gr 2 Actual	75	70	81	85
	Gr 3 - 8 Actual	61	64	60	63
Increased transition and completion rates	Gr 6-7 transition rate 100%	85	84	78	89
	Primary Completion Rate Gr 6	58	61	57	60
	Primary Completion Rate Gr 8		45	43	47
Teachers deployed efficiently	Primary Pupil: Teacher ratio	36	34	33	na
Teachers deployed equitably	Highest Province: Lowest Prov	2.4	2.4	2.5	na

ANNEX 4. TRENDS IN BASIC EDUCATION INDICATORS, 2004-2008

	2004	2005	2006	2007	Average 2004-07
Participation/Access					
Total schools	7,450	6,702	8,828	na	7,660
% Elementary	56	53	62	na	57
% Government	51	43	51	na	48
Intake					
Net Intake to EP	na	na	na	11	na
Gross Intake Rate to EP	59	55	67	77	64
Gross Intake Rate to Grade 1	85	79	94	92	88
Enrolment - Total Basic Education	912,670	936,940	973,822	1,016,733	na
% Public	51	48	51	na	50
Enrolment Growth Rates					
Total	4.9	2.7	3.9	4.4	3.7
Public	4.9	-4.1	11.2	na	na
Elementary	-2.3	-7.9	28.6	9.5	9.1
Primary	5.3	6.3	-3.1	5.7	2.9
Enrolment Rates					
Net Enrolment Ratio - Basic	na	na	na	53	53
GER Grades Elementary	54	49	61	65	57
GER Primary	74	76	72	74	74
GER Total Basic	67	66	68	71	68
GER EP-Gr 2	75	70	81	85	78
GER Gr 3-8	61	64	60	63	62
GER Grades 1-6 (ages 7-12)	75	74	75	76	75
Children out of School (000)	414,840	426,413	426,341	760,685	na
Completion Rates					
Completion Rate Grade 6 a/	58	61	57	60	59
Completion Rate Grade 8 a/	39	45	43	47	41
Cohort survival Grade 6	62	71	64	69	65
Cohort survival Grade 8	51	55	43	58	49
Service Quality (Gov & Church Agency)					
Teachers	26,914	27,424	29,674	na	na
% Female	42	42	42	na	42
Pupil: Teacher ratio	33:1	33:1	32:1	na	33
Elementary	30:1	32:1	31:1	na	32
Primary	36:1	34:1	33:1	na	35
Output of Teachers from Teacher Colleges (2 year)	1,194	1,534	1,968	na	1,482
Gender Equity					
Female enrolment (% of Total)	45	45	45	na	45
Elementary	47	47	47	na	47
Primary	44	44	44	na	44
Gender Parity Index (GER EP-8)	0.86	0.85	0.87	na	0.86
Memo Items:					
School-age population (000s)	1,328	1,363	1,400	1,438	

a /The FTI method would take Std. 8 enrolment, minus repeaters, and divide by the 13 year old population. This does not net out repeaters due to lack of data.

ANNEX TABLE 5. EDUCATION EXPENDITURE, 2007-2009

	2007	2008	2009	Average
	actual	app	app	2007-09
TOTAL EDUCATION (Kina millions)	**831.2**	**816.3**	**862.1**	836.5
Total US$ (millions)	283.7	296.9	316.1	298.9
Constant 2004 Kina (millions)	635.9	562.0	613.4	603.8
Of which Provincial Allocations (%)	58.2	58.3	58.9	58.5
Annual real growth		-12	9	-1.2
As % of GDP	4.4	3.7	3.9	4.0
% Government financed	91.3	90.7	91.3	91.1
% of Domestic Revenue	13.3	13.6	15.2	14.0
% Total Public Expenditure	11.4	11.7	15.1	12.7
% Public Expenditure (excl. debt service)	12.0	12.4	16.2	13.5
EDUCATION RECURRENT (Kina millions) a/	**752.8**	**734.5**	**780.5**	755.9
Total US$ millions	256.9	267.2	286.2	270.1
Constant 2004 Kina millions	576.0	505.7	555.4	545.7
Of which Provincial Allocations (%)	63.7	64.3	64.3	64.1
Annual real growth		-12.2	9.8	-1.2
% of GDP	4.0	3.3	3.5	3.6
% of Public Recurrent Expenditure	13.6	14.5	19.3	15.8
% Public Recurrent Expenditure (excl. debt service)	14.5	15.7	21.4	17.2
% of Total Education Expenditure	90.6	90.0	90.5	90.4
EDUCATION DEVELOPMENT (Kina millions)	**78.4**	**81.8**	**81.6**	80.6
Total US$ millions (current)	26.8	29.8	29.9	28.8
Constant 2004 Kina (millions)	60.0	56.3	58.1	58.1
Domestic Financing	5.8	5.6	6.5	6.0
External financing total	72.7	77.0	75.0	74.9
Domestic As % of domestic development expenditure	0.5	0.4	0.5	0.4
Development As % of GDP	0.4	0.4	0.4	0.4
Development as % of Total Education	9.4	10.0	9.5	9.6
% Externally Financed	92.7	94.1	91.9	92.9

Sources: IMF on-line indicators for GDP, exchange rates, deflators; IMF PRGF reviews for government expenditure; GoPNG Budget Books for education expenditure
a/ Totals include an amount of 100 million Kina kept in a separate Treasury Account intended for school subsidies. The amount actually allocated for school subsidies is, however, not available.

Annex 6. UBE Plan Outcomes and Outputs

ACCESS & COMPLETION	2008	2009	2010	2011	2012	2013	2014	2018	Average 2010-2014	Average 2014-2018	Average 2010-2018
Total Enrolment	1,050,716	1,076,808	1,100,040	1,127,554	1,176,207	1,230,093	1,285,688	1,710,865			
Elementary	378,013	414,416	443,904	477,847	532,723	592,907	616,224	687,223			
Primary	672,702	662,392	656,135	649,708	643,484	637,186	669,464	1,023,642			
EP-Gr2	473,507	491,990	504,149	520,939	559,145	601,655	616,224	687,223			
Gr 3 - Gr 8	577,209	584,818	595,890	606,616	617,062	628,438	669,464	1,023,642			
Enrolment Growth Rate		2.5	2.2	2.5	4.3	4.6	4.5	7.9	4.0	7.4	5.7
Elementary		9.6	7.1	7.6	11.5	11.3	3.9	2.8	8.5	2.8	5.6
Primary		-1.5	-0.9	-1.0	-1.0	-1.0	5.1	11.6	0.5	11.2	5.7
EP-Gr2		3.9	2.5	3.3	7.3	7.6	2.4	2.8	5.1	2.8	3.9
Gr 3 - Gr 8		1.3	1.9	1.8	1.7	1.8	6.5	11.6	3.0	11.2	7.0
Gross Enrolment Ratio (GER)	72	72	72	72	73	74	75	90	72	82	77
Elementary	72	77	80	84	91	99	100	100	86	100	93
Primary	72	69	67	65	62	60	61	84	65	72	68
EP-Gr2	90	91	91	92	96	100	100	100			
Gr 3 - Gr 8	62	61	61	60	60	59	61	84			
EP Intake Rate (gross=net)	84	89	93	97	100	100	100	100	96	100	98
Gr 2-3 Transition Rate	84	84	84	84	84	84	98	98	84	98	91
Gr 6 - 7 Transition Rate	86	86	87	88	89	90	91	98	88	94	91
Completion Rates Proxy FTI Method (%)											
Grade 6 Completion	60	59	58	55	56	57	55	89	57	67	62
Grade 8 Completion	46	47	47	46	46	44	46	53	46	48	47
Children out of school	409,707	418,640	431,415	446,036	440,729	431,425	421,678	193,138	433,649	317,934	375,792
Outputs Required											
Add'l Classrooms & (net) Teachers Annually		1,235	986	1,039	1,039	850	1,482	3,321	1,067	2,370	1,751
Elementary		1,170	986	1,039	1,039	850	666	528	1,017	539	734
Primary		249	0	0	0	0	816	2,793	50	1,831	1,017
Total Basic Certified Teachers Annually (incl. attrition)		3,043	2,554	2,625	2,440	2,300	3,321	5,587	2,592	4,404	3,549
Elementary		1,763	1,637	1,739	1,791	1,655	1,513	1,483	1,717	1,442	1,559
Primary		1,280	916	885	649	645	1,808	4,103	875	2,962	1,989
Total Teacher Training Output		3,300	3,715	3,863	3,737	4,247	4,893	5,508	3,772	5,087	4,555
Elem Output from Teacher Education		1,800	2,215	2,363	2,237	2,439	2,191	1,405	2,211	1,666	1,954
Primary TTC Output		1,500	1,500	1,500	1,500	1,808	2,702	4,103	1,562	3,421	2,601
Surplus (+)/Deficit		257	1,161	1,238	1,297	1,948	1,572	-79	1,180	683	1,007
Elementary		37	577	623	446	785	678	-79	494	224	395
Primary		220	584	615	851	1,163	894	0	687	459	612

Annex 7. UBE Cost Summary

	2009	2010	2011	2012	2013	2014	Average 2010-14
Total Cost (nominal Kina 000s)	771,104	946,344	1,047,718	1,182,934	1,332,948	1,463,012	-
Capital	4,136	143,390	165,088	170,616	235,194	244,584	-
Recurrent	763,669	780,196	844,250	958,095	1,040,268	1,151,886	-
Salary	480,844	519,915	558,626	595,648	633,367	698,613	-
Non-salary	282,825	260,281	285,623	362,447	406,900	453,272	-
Unidentified	3,299	22,757	38,381	54,223	57,486	66,543	-
Total Cost (nominal US$ 000s)	282,759	333,931	359,159	396,047	438,042	480,785	-
Capital	1,517	50,597	56,592	57,122	77,291	80,377	-
Recurrent	280,032	275,304	289,410	320,771	341,860	378,540	-
Percentage Distribution	199	182	181	181	178	179	100
Capital	1	15	16	14	18	17	16
Recurrent	99	82	81	81	78	79	80
Salary	62	55	53	50	48	48	51
Non-salary	37	28	27	31	31	31	29
Unidentified	0	2	4	5	4	5	4
Expenditure Growth (Total)	1.2	23	11	13	13	10	12
Capital		3,367	15	3	38	4	14
Recurrent		2	8	13	9	11	10
Salary		8	7	7	6	10	8
Non-salary		-8	10	27	12	11	15
Unidentified		590	69	41	6	16	31
Percentage of GDP - Total	**3.4**	**4.0**	**4.2**	**4.5**	**4.8**	**5.3**	**4.6**
Capital	0.0	0.6	0.7	0.6	0.9	0.9	0.7
Recurrent	3.4	3.3	3.4	3.6	3.8	4.2	3.6
Percentage of Government Expenditure	**13.5**	**15.6**	**16.4**	**17.6**	**18.9**	**20.7**	**17.8**
Capital	0.2	8.0	8.8	8.6	11.3	11.8	9.7
Recurrent net of interest payments	21.0	20.2	20.7	22.3	23.1	25.6	22.4
Distribution by level of Education (%)	**100**	**101**	**101**	**101**	**101**	**101**	
Elementary	17	21	20	19	19	19	20
Primary	71	65	66	65	65	66	65
Pre-Service Teacher Education	6	6	5	7	6	5	6
Administration	5	5	5	5	5	5	5
Unidentified	1	3	5	5	5	5	5
UBE Components							
Total Component Cost	276,623	409,302	468,329	562,101	672,423	735,131	
% of Total	36	43	45	48	50	50	47

Annex 7. UBE Cost Summary (continued)

Distribution by UBE Component (%) excl salaries and administration				100	100	100	100
Component 1: Access & Retention	49	78	75	69	72	73	74
Component 2: Quality	49	19	22	30	26	25	25
Component 3: Management	1	1	1	1	0	1	0.6
Component 4: Equity	1	2	1	1	1	1	1.3
Development by level of Education (%)							
Elementary		17	18	6	4	4	10
Primary		83	82	94	96	96	90
Recurrent by level of education (%)	100	100	100	100	100	100	100
Elementary	14	28	23	21	23	23	23
Primary	70	54	60	61	58	60	59
Pre-Service Teacher Education	15	17	17	17	18	17	17
Undistributed	1	1	1	1	1	1	1
Recurrent Expenditure Per Student (Kina)	709	709	749	815	846	896	803
in US$	260	250	257	273	278	294	270
As % of GDP per capita	20	19	20	21	21	22	21
Elementary	325	403	392	407	423	448	415
Teacher Salaries	233	251	267	273	274	292	271
Subsidies	88	104	112	120	128	136	120
Instructional materials	0	36	2	4	10	10	12
In-service teacher education	4	12	11	11	10	10	11
Primary	820	776	855	965	1025	1113	947
Teacher Salaries	538	577	615	647	681	716	647
Subsidies	148	192	211	231	253	293	236
Instructional materials	130	1	24	81	85	99	58
In-service teacher education	3	5	6	6	6	6	6
Primary as a multiple of elementary	2.5	1.9	2.2	2.4	2.4	2.5	2.3
Teacher Salaries	2.3	2.3	2.3	2.4	2.5	2.5	2.4
Subsidies	1.7	1.8	1.9	1.9	2.0	2.2	2.0
Instructional materials	0.0	0.0	16.0	22.5	8.1	9.7	4.7
In-service teacher education	1.0	0.5	0.5	0.5	0.6	0.6	0.5
Recurrent expenditure per Primary Teacher Trainee				12,511	11,545	10,291	10,629
as a multiple of expenditure per primary student	12	13	13	15	14	11	13
Salary & Leave Expenditure per Teacher							
Elementary	7,423	7,955	8,477	9,026	9,605	10,214	
Primary	17,085	18,260	19,408	20,613	21,877	23,203	
As a multiple of Income per capita							
Elementary	2.1	2.2	2.2	2.3	2.4	2.5	2.3
Primary	4.8	5.0	5.1	5.3	5.4	5.7	5.3

Main responsibilities in the education sector by level of government

Activity	National Government	Provincial Government	Local Level Government (with Assistance From Communities)
Policy & Planning	Overarching education sector plan – National Education Plan National Education Board and Teaching Services Commission Develop curriculum	Develop Provincial Education Plan	Identify local priorities
Elementary education	Set school fees Pay school fees subsidy in 1st and 3rd quarter Curriculum development (some locally based curriculum developed at community/school level) Deliver new curriculum materials to Provincial Government HQ Pre-service teacher training and registration	Decide to recognise new schools Pay school fee subsidy in 2nd and 4th quarters Distribute curriculum in province and acquire additional education materials Assist with logistics of teacher training (e.g., venues, transport)	Assist in securing land for new schools and community with construction Maintain schools; inspect buildings that are council funded
Primary education	Curriculum development and delivery to Provincial Government HQ Pay school fees subsidy in 1st and 3rd quarter Provide Grade 8 exams to Provincial Government and collate results across PNG Teacher training and in-service training Inspect schools	Store, then distribute curriculum throughout province Pay school fee subsidy in 2nd and 4th quarters Run Grade 8 exams and send results to NDoE Compile district monthly reports and submit quarterly to NDoE Logistical support for school inspections Payroll administration (in some provinces)	Construction and maintenance of primary schools Maintain schools; inspect buildings that are council funded
Secondary and Vocational	Run the National High Schools Grade 9 and 11 selection criteria Grade 11 selections Grade 10 and 11 exams prepared and delivered to Provincial headquarters; marking exams Granting of school certificate and higher school certificate Develop curriculum and deliver to Provincial headquarters Teacher training, admission and registration Inspections	Run and maintain Provincial High Schools Distribution of grade 10 and 12 exams and supervision then return unmarked to National department Compile district monthly reports and submit quarterly Grade 9 selections Prepare storage plan and distribute curriculum to schools Determines applications for in service training, organize venues and logistics (also District involvement) Payroll administration Some school inspections and logistic support for National inspections	

Source: NEFC Responsibility Specification Exercise matrix (unpublished)