

PAPUA NEW GUINEA:

**PUBLIC EXPENDITURE AND SERVICE DELIVERY
(PESD)**

30 June 2004

ABBREVIATION

ADB	Asian Development Bank
AusAID	Australian Agency for International Development
BOM	Board of Management
CASP	Commodity Assistance Support Project
DEA	District Education Administrator
DNPRD	Department of National Planning and Rural Development
EHP	Eastern Highlands Province
ENBP	East New Britain Province
GAQEP	Government Assistance to Quality Education Program
GOPNG	Government of Papua New Guinea
IMF	International Monetary Fund
LLG	Local-Level Government
MTDS	Medium-Term Development Strategy
NCD	National Capital District
NDOE	National Department of Education
NEB	National Education Board
NEC	National Executive Council
NEC	National Economic
NGOs	Non-Government Organizations
NEFC	National Economic and Fiscal Commission
NRI	National Research Institute
NSO	National Statistical Office
PDOE	Provincial Division of Education
PEA	Provincial Education Advisor
PEB	Provincial Education Board
PESD	Public Expenditure and Service Delivery
PNC	Parents and Community
PNG	Papua New Guinea
PPS	Probability Proportional to Size
PSRMU	Public Sector Reform of Management Unit
RIGFA	Review of Intergovernmental Financial Arrangements
TSC	Teacher Service Commission
UPE	Universal Primary Education
VSO	Voluntary Services Overseas
WNB	West New Britain Province

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PREFACE AND ACKNOWLEDGEMENTS

This report is the outcome of a study of public spending and service delivery issues in Papua New Guinea (PNG) undertaken as part of the work on the PNG Poverty Assessment. The study itself is the result of a collaborative effort involving several agencies and organizations including the National Research Institute, the National Department of Education, the Department of National Planning and Rural Development (DNPRD), AusAID and the World Bank.

The report utilizes new data from a Public Expenditure and Service Delivery (PESD) survey conducted during February to August 2002. The PESD survey was funded in large part through a trust fund set up by AusAID. The World Bank is grateful to AusAID for this support. The survey was carried out by the National Research Institute, Port Moresby.

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Preliminary analysis from the PESD survey was presented at meetings of the Working Group in Port Moresby during late 2002 and 2003. This report has benefited from comments received at these meetings.

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EXECUTIVE SUMMARY

1. **The PESD study is undertaken in a challenging economic and social context for PNG with growing concerns about delivery of basic services ...** The PNG economy has been in a state of recession since the mid-1990s with negative growth in 7 of the last 9 years. The fiscal situation has been compromised by large deficits. Debt-to-GDP ratio has risen to levels where debt servicing is significant claim on total revenues. Poverty levels have been rising. A growing imperative to contain levels of spending has raised significant concerns for maintaining the level of basic services while needs have grown, and it has also raised pertinent questions about how effectively social spending is translating into the actual delivery of services.
2. **The study focuses on the education sector though its findings have wider relevance ...** The problems that plague the education sector have close parallels in other sectors. The report presents some illustrative data for the health sector for which a limited amount of primary information was collected, but the study's inquiry into conditions promoting or impeding effective service delivery in education has broader relevance for other sectors in PNG, and beyond that for other countries too.
3. **The education sector in PNG has had some significant achievements since independence ...** The size of the education sector is large, and has grown substantially since independence in 1975. During 1992-2002 alone, the number of schools increased by 175%, enrolments doubled, and the number of teachers increased by 70%. Government expenditure on education (mostly by the national government) has been around 5% of GDP and about 15% of the national budget in recent years – these levels are not low relative to international standards, and compare favorably with other countries in the region. These levels of spending on education have also been maintained over many years.
4. **... but the key challenges of access, retention and quality remain.** The first two problems are indicated by the enrolment pattern (for 2001): starting with 135 thousand students enrolled in grade 1, the number plummets to 75 thousand in grade 6, 43 thousand in grade 8, 23 thousand in grade 10 and less than 4 thousand in grade 12. The problem of retaining female students in higher grades is more severe than male students.
5. **There are significant problems related to school facilities and environment, school finances, teacher and student performance, and the administration of education.** Data gathered through the study highlights a number of difficulties and concerns in each of these areas.

School facilities

6. **School facilities are deficient in many respects ...** The key areas with respect to which the school's physical environment is deficient are:

- physical infrastructure (condition of classrooms, administrative block, specialist classrooms, sports equipment, school vehicle, clear radio reception),
- school utilities (electricity, water, sanitation),
- access to other amenities (stores that sell basic school materials, post offices, banks, police stations, paved roads or public transport, and access to secondary or high school), and
- resources for teaching (textbooks for students, library, staff room).

School closure and security issues are also a significant factor for many schools.

7. **Poverty and remoteness matter, but not all the time ...** Some facilities are clearly worse for schools in poor or remote areas, especially those related to the classroom environment and access to other amenities, but this is not unilaterally so for all facilities.

8. **Agency type does not matter, but financial resources available to schools do ...** Differences between church and government-operated schools are often not significant, but facilities tend to be better at schools that have greater financial resources (in particular, higher levels of non-grant revenues per student).

School finances

9. **There are substantial gaps in financial data available at the school level ...** which possibly reflect both limited accountability as well as low incentives for regular record keeping. The head teacher's tenure at the school and his/her willingness to stay at the school next year tend to promote better financial record keeping. The available information nonetheless provides a detailed picture of school finances.

10. **Subsidies, fees and grants are the three main sources of revenue for schools, while teacher salaries are directly paid by the national government ...** Education subsidies are paid on a quarterly basis in support of operational (non-teaching) expenses at the school level. They could be in cash or kind, and have national and provincial government components. Fees comprise of school fees and project fees collected from parents. Grants could also be in cash or kind, and come from both government and non-government (mostly donors and private business) sources.

11. **Grants are not a dependable source of revenue for the vast majority of schools ...** Grants from both government and donor/business sources are often sporadic in nature, and their distribution across schools is highly skewed. A very small number of

schools account for most of the grants, while the vast majority receive little or nothing. For instance, one-third of the schools received no grants at all in 2001, while the top one-third accounted for 94% of all grants. There is no systematic pattern to the distribution of grants in terms of school characteristics, and they often tend to be a one-off event making them a highly unreliable source of finance for the vast majority of schools.

12. **Subsidies are prone to the problems of uneven distribution ...** While more evenly distributed than grants, there is still a wide variation in the amount of per student subsidy received across schools that is not explained by student composition, given that per student subsidy rates are fixed by grade, at least in principle. In practice, there are gaps between what schools should receive and what they actually receive.

13. **... and leakage ...** For 2001, our estimates of subsidy leakage, defined as the difference between budget disbursements and actual reported receipts at schools range between 16 and 29 percent (depending upon alternative assumptions on how much of the provincial education subsidies are allocated to the primary sector).

14. **... and delays and uncertainty ...** Delays in the receipt of subsidies at schools are as, if not more, serious a problem as leakages. In 2001, the average quarterly subsidy was delayed by nearly 3 months, though the length of delay varied both across schools, and by quarter. Delays go hand in hand with uncertainty about the timing of subsidy receipts (in cash or in kind). Thus, there is considerable uncertainty at the school level: they do not know how much subsidy they will get, when will get it, and whether it will be in cash or kind. This plays havoc with operational planning and management at the school level, often leaving the schools to their own devices to meet their needs for basic supplies or school maintenance.

15. **There is considerable tolerance for non-payment of fees ...** In practice the system handles non-payment of fees with considerable flexibility. The consequences of non-payment are not necessarily an expulsion from school or withholding of promotion to the next grade. “Allowed to pay according to ability” is the most common response. Together with fee exemption, this accounts for three-quarters or more of all schools (according to responses from head/grade-5 teachers). At one level this practice erodes the direct accountability of schools to parents, but at another level it also achieves a degree of needs-based targeting. One should however bear in mind, this does not include parents who either do not take the initial step to enroll their children in school or let them drop out of school because they are discouraged by the prospect of unaffordable fees.

16. **No clear or consistent policy on fees ...** The lack of a clear or stable policy on school/project fees is best illustrated by the short-lived “free” education experiment during the election year of 2002. The Government increased the subsidy allocation 2.5 times. All subsidy payment were to be made directly to schools in cash (through checks) bypassing the provincial budget processes. But, there was lack of clarity on whether parents were required to pay any fees at all.

17. **The experiment with “free” education in 2002 had some positive effects ...** There was a substantial increase in enrolments – a positive outcome from the perspective

of universal primary education. The amount of subsidies received at primary/community schools increased nearly four-fold, leakage virtually ceased to be a problem on account of the direct payment system, and delays in the receipt and use of subsidy at schools were drastically reduced (to one month relative to 3 in the preceding year). There was even an attendant increase in the share of basic education in the aggregate subsidy budget which should have rendered it more pro-poor.

18. **... but it also exposed systemic problems ...** A key problem related to the financial sustainability of the policy in tight fiscal environment. The schools' response to "free" education further illustrates the problematic environment of education finance in PNG. In response to the free education policy, the average fee set by schools declined from K84 per student in 2001 not to zero but to K46 in 2002 – about half the level in 2001. The schools did not give up on raising resources from parents. *First*, there was **uncertainty** – validated by hindsight – about how long the policy would last. *Second*, the **delay** though reduced was nevertheless excessive for some schools given their virtual lack of working capital in relation to their immediate operational needs. *Third*, the increase in enrolments (including that due to the return of earlier drop-outs) **enhanced schools' needs**, while the subsidy payments were based on previous enrolment levels. This was sought to be corrected later in the year, but the initial lag created serious operational difficulties for many schools. *Fourth*, there was a lot of **confusion about what the national policy really was**, and politicians and bureaucrats played their role in leaving behind a trail of conflicting messages. The **tension between different layers of government** also played out in the relay of conflicting messages. Provincial administrations on occasion appealed to decentralization under the Organic Law to defend their right to raise parental contributions.

Teachers

19. **The effective supply of teachers is eroded by ghost teachers ...** It is estimated that about 15% of teachers – or one in every seven teachers – are on the payroll for the school, but are not on the school roster. Thus, against the average of 7.5 teachers per school on the payroll, only 6.4 teachers could be found on the school roster, implying on average one extra "ghost" teacher in every school.

20. **... and teacher absence ...** The teacher absence rate (the percentage of teachers who are on the roster but were absent on the day of interview) is estimated to be about 15%. A quarter of those absent were absent for more than one week. The problem is compounded by teachers taking up their teaching post well into the academic year. Delayed start averaged about 10 days for all school, and about 17 days for very remote schools. About 13% of school days were lost due to the combined effect of late start and cumulative absence. And the combined effect of ghost teachers, teacher absence, and schools being closed due to lack of teachers is that starting with a 100 teachers on the payroll, the effective supply of teachers is reduced to 68.

21. **Absence of teachers partly reflects poor incentives ...** There is some evidence that delays in payment of teacher salaries encourage greater absence, and the number of textbooks per student is associated with lower teacher absence which suggests that more complementary teaching inputs improve teacher motivation by creating an easier teaching environment.

22. **But parent and community participation significantly reduces teacher absence ...** The more actively parents participate in school affairs, and the more schools and community are linked, the evidence shows that the less teachers are likely to be absent. The association is of a significant magnitude: an increase in parent and community participation from about one standard deviation below mean to one standard deviation above the mean reduces the probability of teacher absence from almost 20% to almost 10%. This salutary effect of parental involvement and community participation on curtailing teacher absence also holds controlling for a range of school input variables.

23. **Poor teacher motivation is also reflected in high teacher turnover and teacher shortages especially in poor or remote regions ...** Large fractions of teachers report that they have little or no say in teacher deployment and career management. Perhaps both as a cause and as a consequence of the lack of say that teachers feel they have in determining their own careers, there is a very high level of teacher turnover in schools. In 2002, the typical survey school had over two new teachers. This corresponds to almost 40% of teachers being newly appointed to the schools in which they are working. High turnover is related to the problem of teacher shortage which is more severe in remote areas. While there is a policy in place for Disadvantage School Allowances to encourage deployment in remote areas, a significant fraction of teachers report not receiving this and other allowances despite being eligible for them.

Students

24. **Parent and community participation and better school facilities improve student attendance ...** Overall, about 85% of students attended school on the day in question, that is a student absence rate of 15%. The rates are similar for male and female students, but there is variation across schools. Schools with greater parental and community participation have higher attendance rates. Student attendance is also influenced by school facilities and teacher absence: **better school facilities promote higher student attendance while teacher absence has a negative effect.**

25. The evidence on correlates of Grade 8 test scores suggests that **better school facilities also have a positive influence on student performance.**

26. **... and fees set by schools have a positive effect on student performance ...** The analysis of test scores indicates that total fees per student set by the school has a significant positive effect on test scores. Fees set by schools may be partly a measure of the parents' ability to pay and hence of their level of living (to the extent that is not reflected in the local poverty rate which is also controlled for). In that case, the result is

indicative of a **parental income effect** on student performance. Alternatively, schools that set higher fees are likely to feel more obliged to deliver better performance, indicative of a **market-based accountability mechanism**. The result probably has elements of both.

Education administration

27. **Provincial and district-level education administration fails to play an effective role ...** A potentially important layer within the decentralized system of education management in PNG is the provincial and district-level administration, operating in part through the offices of Provincial Education Advisors (PEAs) and District Education Administrators (DEAs). The wide-ranging (financial as well as operational) responsibilities of provincial and local-level governments within the national education system are spelt out under the *National Charter for Reconstruction and Development 2000-2002*. However, in practice, these agencies do not appear to function very successfully in ensuring effective delivery of education services. Their relatively ineffectual role is illustrated with regards to the management of subsidy payments. For instance, information collected through the study suggests that PEAs do not seem to keep good records of their accounts. This is reflected by their lack of knowledge of the total amounts of subsidies received by schools in their provinces. On comparing the budget disbursements of education subsidies the figures obtained from the PEAs, we can hardly find any match at all for any province or quarter. Similarly, the qualitative study gives several accounts of the disconnect of the provincial and district-level administration with schools and their local communities; for instance, the following .

The government officers at the district level in these communities are very isolated from the people whom they are meant to serve. A common remark that is made by the community is in a question form — “Em husat ol lain ya, mipela i no save long ol”, which, in English means, “Who are these people, (district workers) we do not know them.”

We learn who the DEA is when he is introduced as an invited guest speaker on speech days’... We do not know what his role is in education. (teachers) [NRI. 2003b, p. 85, 133]

28. **... and the inspection system is inadequate ...** Inspectors are entrusted with the important task of providing advisory services to teachers, schools and provincial administration, inspecting teacher performance and school operations, and recommending teachers for eligibility for promotions. However, for many schools they are nowhere to be found. In 2001 areas over 40% of schools in remote areas had received no visit from an inspector. But it is not only the extremely remote schools that weren’t visited: in accessible areas the average was just under 30. When inspectors visit schools, their visit usually involves only meeting with the head teachers and other teachers. For example, 93% of schools that had a visit in 2001 or 2002 report that the inspector met with the head teacher, 84% report that the visit included a meeting with teachers. Few visits involve any meetings with the Board of Management, fewer still with the PNC. Given the high importance that all respondents gave to the role of inspectors in assessing

teachers, a fairly high share—almost 44 percent—of inspector visits did not include classroom observation.

Overall messages and policy implications

29. **These can be examined within the framework of client-provider-policymaker relationships ...** The analysis of effective delivery of basic services is a complex issue. For organizing the overall messages and policy implication emerging from this study, the framework recently developed in the *2004 World Development Report* can be utilized. By this framework, the service delivery chain can be unbundled into the relationships between three sets of actors: the policymakers; the frontline providers of services; and the clients or citizens who are both the source of demand for services as well as their final destination as consumers. According to the framework, relationships amongst three sets of actors are important for understanding delivery of basic services.

(a) Client-provider relationship

30. **Parental participation and community involvement contributes to better service delivery.** The evidence summarized above indicates it does this by inducing lower teacher absence, lower leakage and higher student attendance.

31. **Non-governmental agencies such as the church are unable to guarantee more effective service delivery ...** The analysis in this report however is indicative of the relative absence of striking differences between church-operated and government schools for a range of indicators. Only in a few cases does the “altruistic” motivation seem to deliver better outcomes. The reason is not hard to guess. Church schools are operating in an overall financial and administrative environment that is fundamentally no different to that faced by the other schools.

32. **While there are impediments to the operation of the “market” link (the short route of accountability) ...** The direct “market” link of accountability of schools (provider) to parents and students (client) is broken because of the system of subsidized education in PNG. Even setting aside the free education experiment, education in PNG – not unlike many other countries at a comparable stage of development – is heavily subsidized once publicly-paid teacher salaries are taken into account. The “market” link is further eroded by the absence of a clear policy on school and project fees, and frequent changes in that policy, resulting in an environment where roles, responsibilities and entitlements are often poorly defined and understood.

33. **... there is a role for the “market” link of accountability ...** There is some evidence on the parents’ willing to pay for education. For instance, only about 20% of the parents interviewed in 2002 (the year of the free education policy) said that the government should pay for the cost of education; the rest (80%) thought the parents or parents and government together should bear the cost.

34. **... but the trade-off with equity would have to be directly faced ...** Evidence also shows that despite the subsidy, the income effects on primary enrolment are significant and positive. As also illustrated by the experience of 2002, enrolments did expand elastically to the substantially higher subsidies offered during that year. Thus, while there is evidence of willingness to pay for education on the part of parents, reductions in subsidy can be expected to have negative effects on enrolments. On the other hand, conditional transfer programs, like the Progresa in Mexico, are likely to defy successful implementation in PNG's context, where delivering subsidies to schools itself has proven to be extremely challenging.

35. **... There is a case for experimentation with greater flexibility in fee setting at the school level on a pilot basis (not for cost recovery but as an accountability mechanism) ...** While the subsidy element at least for basic education would need to be maintained in the interests of ensuring wider access to education by PNG's population, the policy on user fees could be liberalized, not so much as an instrument for cost-recovery but primarily as an accountability device. The liberalization could take the form of letting the schools (rather than the PEBs or the national government) decide through the institutions of BOMs and PNCs how much fees to charge. There is evidence of the parents' willingness to pay for education which the schools and the local community are best positioned to harness. Some **regulation of maximum chargeable fees** will perhaps be necessary, the enforcement of which itself would be a challenge. However, the evidence on the tolerance of non-payment of fees suggests that there do exist some local limits on the exercise of monopoly power by schools, and the de facto trade-off between accountability and equity need not be as sharp as it seems. Overall, there is thus a case for experimentation with school-based liberalization of fee setting, while maintaining a high aggregate level of subsidies together with a mass information campaign on resources available at the school level (see below).

(b) Policymaker--provider relationship

36. **There is evidence that delivery of financial resources is worse under decentralized setting ...** The evidence from the experimental policy of 2002 indicated that a direct cash payment system – from the national Department of Education to the schools – works much better in preventing leakages and equally damaging delays. In 2002, the 3-4 times larger than the usual quantum of subsidy was delivered to schools with minimal leakage and reduced delays. The evidence also indicates that the PEAs and DEAs fail to play an effective role and the inspection system is inadequate.

37. **There is a case for direct cash-based subsidy system ...** Thus, with regards to subsidies there is a case for direct cash delivery to schools through bank deposits or checks. Other subsidiary reforms, such as subsidy payments on a 6-monthly rather than quarterly basis to reduce transaction costs, and a front-loading of the subsidy payments in view of the larger (and immediate) needs of schools at the beginning of the school year, may also be worth considering in this regard.

38. ... that can be allocated on a more progressive basis (without reducing the overall level of education subsidies for the primary sector that is likely to have a negative impact on enrolments) Education subsidy policy in PNG has traditionally allowed for uniform per student subsidy rates across schools for given grades. The principle of uniformity has an element of built-in progressivity; the uniform amount translates into a higher proportion of per capita incomes in poorer areas. However, there is some scope for introducing greater progressivity by allowing the policy to offer higher per student subsidy rates for schools located in poorer or more remote areas, that may also face higher unit costs for comparable levels of education services.

39. ... and a case for grants from government sources to be consolidated under subsidies ... For government grants, there seems to be a case for consolidating them under subsidies rather than operating them as a separate channel of financial transfers to schools. This could contribute to a simpler and more transparent system. At the provincial level in any case the evidence suggests that there is not much additional spending on education beyond the revenues budgeted for teacher salaries and education subsidies.

40. ... and better coordination of grants from donors ... The distribution of the donors' component, which accounts for about 70% of all non-government grants, primarily reflects placement decisions related to individual donor-supported projects. There is scope here for better coordination of donor projects with a view to achieving a more equitable distribution.

41. Significant cost-savings are possible through elimination of ghost teachers, but danger that the problem may reemerge ... With respect to ghost employees, there is an effort already underway to cleanse the payroll system. Important as this effort is, the challenge will be that once this cleansing is completed, the problem does not recur.

42. The scope for cost-savings through higher pupil-teacher ratios or a squeeze on teacher salary levels is limited (without affecting quality of services) ... This is in a context where teacher salaries have been declining in real terms in recent years, and average student-teacher ratios are on the high side (about 38 students per teacher).

43. There is no effective alternative to centralized payment of teacher salaries ... With regards to teacher absence and teacher performance more generally, payment of teacher salaries by the national government subverts accountability at the school level. There is little local authority (with the head teacher/BOM) to take disciplinary action against teachers (or against head teachers). However, given the problems associated with decentralized delivery of financial resources (illustrated plainly in the case of education subsidies), there may be no viable alternative to a centralized payment mechanism. There may be a need thus to look elsewhere for avenues to improve teacher performance.

44. ... but payment of teacher allowances needs to be improved to mitigate high turnover and shortages ... Based on the analysis in the study, a more promising approach may have to rely on improving teacher motivation and promoting stronger parental and community involvement. The former points to measures such as better

provision of textbooks and teaching materials for students, reducing salary payment delays, fuller payment of allowances (and perhaps their consolidation under salaries as a means of ensuring fuller and more timely payment).

45. The inspection system needs to be better resourced, and there is a case for the provincial/district administrations to be more closely involved in this function.

(c) Client-policymaker relationship

46. There is a need for consistent, more stable and clearly-communicated policy ... An unstable policy environment – itself the product of an unstable political environment – can have a corrosive effect on short chain of accountability. For instance, during the “free” education experiment, the lack of a clear policy on fees at times placed schools in an antagonistic position vis-à-vis the parents who wondered why they should pay any fees if their fees had already been paid by the government.

47. ... a role for information that can be linked to actions ... Successful delivery of funds (if, for instance, accomplished through direct subsidy payments to schools) needs to be followed up by responsible utilization of funds at schools. The role of information can be potentially important here, as illustrated by the successful example of Uganda. Measures such as a mass information campaign by the central government on the transfer of funds to districts led to a large improvement in the receipt of funds at Ugandan schools. In the PNG context, the policy of direct subsidy payment to schools could be supplemented with an information campaign – through the print, electronic media (radio and TV) and mandated postings at school notice boards – on the amount of subsidy payment per student delivered to individual schools. This information could empower the local community not only in the setting of appropriate school fees (as discussed above) but also in monitoring the utilization of resources at schools.

48. ... but there are limits to the effectiveness of the long route of accountability under the current political system ... There remain some serious constraints to the long chain of accountability that are embedded in the political reality of unstable governments in PNG that are propped up by a complex system patronage of heterogeneous (mostly clan-based) interest groups. While there is an electoral reform process underway, including the introduction of a system of proportional representation, this reality is unlikely to change appreciably in the near future. **This reinforces the case for exploring some form of market link and strengthening the hand of the client.**

Table: PESD data at a glance

Total population (2000)	5.2 million
School-age population (2000)	1.5 million
Growth rate of school-age population	3 % per annum
Government expenditure on education as % of GDP (avg. 2000-2003)	5%
Government expenditure on education as % national budget (avg. 2000-2003)	15%
Relative contribution to overall spending education of ...	
... government	70%
... donors	20%
... parents	10%

Size of the education sector

2002					
Number of students:		Number of teachers:		Number of schools:	
Total	1,014,779	Total	32,022	Total	8,284
Primary education	890,680	Primary education	26,731	Primary education	7,916
Size of primary education sector (up to Grade 8)					
% of students		87%			
% of schools		93%			
% of teachers		83%			
% of national education budget		60%			

School facilities

		Poverty Status		Remoteness	
	All	Poor	Not Poor	Remote	Accessible
Classrooms					
Number of classrooms per 100 students	3.46	3.47	3.45	3.53	3.40
Proportion of classrooms					
... which need to be completely rebuilt?	0.33	0.32	0.34	0.36	0.29
... with a roof that leaks when it rains?	0.37	0.37	0.36	0.40	0.33
... with electricity that works?	0.07	0.04	0.12	0.01	0.13
Other infrastructure					
Adequate or good provision (0/1) of ...					
... clear radio reception	0.28	0.27	0.30	0.24	0.32
... sports equipment	0.42	0.34	0.54	0.36	0.48
... specialist science classroom	0.01	0.00	0.03	0.01	0.02
Electricity, water, and sanitation services					
Usable water tank (0/1)	0.55	0.55	0.54	0.41	0.70
Toilet facilities ...					
... need at least 1 for boys(0/1)	0.42	0.44	0.40	0.34	0.51
... need at least 1 for girls(0/1)	0.49	0.49	0.48	0.42	0.56
Access to facilities					
Time to nearest ...(hours)					
... High school or Secondary school	3.93	4.79	2.64	5.67	2.18
... Bank	4.51	5.17	3.50	7.31	1.73
School closure and security					
Total number of days the school closed in ...					
... 2001	14.65	16.30	12.27	16.69	12.32
Teaching resources					
Resource availability ... (0/1)					
... sufficient textbooks for student use	0.23	0.24	0.21	0.25	0.21
... enough desks for all students	0.52	0.54	0.49	0.54	0.50

Table: PESD data at a glance

Subsidy leakage

	2001	2002
What the school should have received (Kina/student):		
Budget disbursement b/ <i>Estimate I</i>	25	90
<i>Estimate II</i>	29	
What the school actually received (Kina/student):	21	84
Leakage rate (%), based on:		
Budget disbursement b/ <i>Estimate I</i>	16	7
<i>Estimate II</i>	29	

Delays in receiving subsidies

	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
	Schools receiving positive subsidies (%)	Total delay (weeks)	Schools receiving positive subsidies (%)	Total delay (weeks)	Schools receiving positive subsidies (%)	Total delay (weeks)	Schools receiving positive subsidies (%)	Total delay (weeks)
2001	82	9	58	14	36	14	37	15
2002	97	5	73	3				

"Ghost" teachers

	Number of teachers per school in payroll (1)	Number of teachers per school reported (2)	Net "Ghost" teachers per school (1) - (2)	Net "Ghost" teacher rate %
All schools	7.5	6.4	1.1	14.7

Teacher absence

	All teachers	Male teachers	Female teachers
% of teachers absent on the day of the school visit	15.1	16.3	13.3

Teacher salaries and allowances

Salary

Average salary (Kina/fortnight)	436
% of teachers paid by cheques	19.4
% of teachers paid by direct deposits	80.6
Average salary payment delay (days, incl. zeros)	3.3
Average salary payment delay (days, for those reporting a delay)	20.9
Average salary access delay period (weeks)	0.9

Allowances

% of teachers receiving additional monetary allowances	43.7
Average amount of monetary allowances (Kina/year), including zeros	194
Average amount of monetary allowances (Kina/year), excluding zeros	443
% of teachers who did not receive allowances they were eligible for	43.6
Type of allowance not received	
...Responsibility/disadvantaged school/multi-grade/housing	36.9
...Higher duty	4.3
...Mining or leave fare or domestic market	2.3

Table: PESD data at a glance

Student attendance rate					
(percent)	Community Schools		Primary Schools		All Schools
	Grade 1&2	Grade 3-6	Grade 3-6	Grade7-8	Grade1-8
All students	79.5	88.4	83.8	83.6	85.1
Male students	77.8	88.0	83.0	82.7	84.8
Female students	84.5	89.5	86.0	85.1	85.6
Inspector visits					
			Year		
			2000	2001	2002 (to date)
% of schools with no inspector visits			38.3	35.7	69.1
Parents' perception of fees					
% of parents	All schools		Schools in poor areas	Schools in remote areas	
...who think ____ should pay for the cost of education					
...government	21		19	20	
...parents	22		22	20	
...both	57		59	60	
...who found school or project fees too high	41		44	46	
...were able to pay the fees set by the school	64		62	56	
Consequence of not paying school fees					
(% of schools)	Exempted	Allowed to pay according to ability	Must leave school	Not allowed to go to next grade	Other
Response by					
... head teacher	10	77	5	1	7
... grade5 teacher	6	67	10	0	18
Board of management					
Average number of meetings in 2001					3.8
Average number of members					8.7
Chair of BOM is the parent of a student (% of schools)					84
Parent participation					
Percent of schools with a PNC					95
Average number of times PNC met in 2001					3
Percent of schools where parents collect assessment reports					57
Percent of parents in those schools who collect reports					65
Percent of parents who attend school meetings when called					57
Community partnership					
Percent of schools where ...					
... children go out to learn in community					35
... community members help develop school programs/activities					60
... teachers organise activities for community members					50
... community members teach cultural activities					27
... school uses village land for agricultural classes					45
... school is used for community meetings					63
... school is used for adult classes					17
... school use for community sports events					71

1. INTRODUCTION

The priorities of the Government in the field of education are well known. The top priority is to ensure that all children can receive a quality basic education of nine years. This is a long term dream of Government but is a pre requisite for the achievement of other government aims.

[Michael Laimo, Minister of Education, GoPNG, March 2003]

1.1 Visionary statements of long-term term goals in the education sector, such as the one above, are not new or uncommon in PNG. The National Education Plan for 1995-2004, endorsed by the NEC in 1997, for instance, articulated such a vision of universal basic education: “All children will have the opportunity to complete nine years of basic education.” While such statements could be interpreted as indicative of policymakers’ continued commitment to the well-known priorities, there is a large gap between the vision and ground reality of service delivery in education.

1.2 ***The perspective.*** This report takes a fresh look at the ground reality by collecting and analyzing new data on the elementary/primary education sector. The report is informed by three different perspectives. First, the provision of basic education is an important element of any multi-dimensional view of poverty reduction.¹ However, in an environment where income poverty has been on the rise in PNG over the last several years², the significance of assuring delivery of basic social services (including education) looms evens larger. The report hopes to document some important shortcomings in the delivery of education services.

1.3 Second, the provision of basic education is an important end in and of itself. From this perspective, the education sector in PNG is important in its own right, and the report hopes to provide important, hitherto unavailable, benchmark data for the sector that will be potentially important for monitoring future performance.

1.4 Third, the problems that plague the education sector are not just limited to the education sector. Many of them have close parallels in other sectors. On occasion, the report will give illustrative examples from the health sector for which a limited amount of

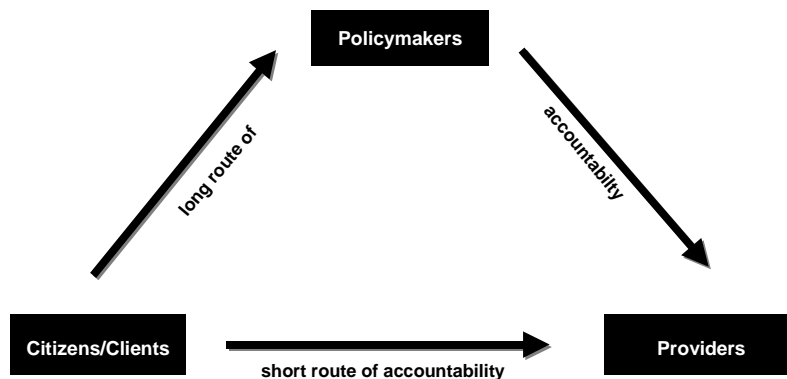
¹ Department of National Planning and Rural Development. 2003 *PNG Poverty Reduction Strategy 2003-2020*

² See World Bank (2003b), East Asia Update: From Cyclical Recovery to Long run Growth, East Asia and the Pacific Region, October; Datt and Walker (2004).

primary information was collected (more on this in chapter 2), but the issues raised have even wider relevance to other sectors, and beyond that to other countries too.³ The broader question here relates to the conditions or factors that promote or impede effective service delivery, and in particular the role of different links in the progression of public resources through the budget system and their translation into services actually delivered on the ground. From this perspective, the evidence presented in this report is like a case study, but one that can offer some insights beyond its immediate empirical context.

1.5 **The triadic framework.** The analysis of effective delivery of basic services is a complex issue. To cut through some of the layers of complexity and marshal the plethora of data⁴ collected through this study into a more coherent picture, this study utilizes a simple framework recently developed in the World Bank's 2004 *World Development Report*. According to this framework, the service delivery chain can be unbundled into the relationships between three sets of actors: the policymakers; the frontline providers of services; and the clients or citizens who are both the source of demand for services as well as their final destination as consumers.⁵ Drawing upon the *World Development Report 2004*, the framework can be readily illustrated with the help of Figure 1.1.

Figure 1.1: A triadic framework of accountability relationships



Source: Based on *World Development Report 2004*

1.6 According to this framework, relationships amongst three sets of actors – clients/citizens, providers and policymakers – are important for understanding delivery of basic services. Clients – as students in schools or parents of students, patients in clinics, users of water, sanitation and transport facilities – are the ultimate beneficiaries of

³ The 2004 *World Development Report*, “Making Services Work for Poor People”, collates a body of evidence on service delivery issues in the developing world (World Bank, 2003a).

⁴ This is not to suggest that there aren't significant gaps in the data collected. Many of the information gaps, that in fact are an important part of the story, will be discussed later in the report.

⁵ This framework is further elaborated in Chapter 7.

services. They have a direct relationship with frontline providers, with schoolteachers, doctors, bus drivers and water companies. In a competitive market transaction, the consumer holds the service provider accountable through the power of the purse – by paying for satisfactory service or taking her or his business elsewhere. This is the “short route” of accountability.

1.7 However, for many basic services such as education, health, water, electricity, sanitation, the provider is often not directly accountable to the client because societies have decided – frequently for good reason – that these services will be provided or financed or regulated by the government. There is then the “long route” of accountability, whereby the clients as citizens must first influence policymakers, and policymakers must then influence providers. When relationships along either route of accountability break down, service delivery suffers.

1.8 The study adopts this framework as it seems quite a flexible device for introducing a broad range of issues impacting education service delivery in PNG. This is done by discussing at some length particular problems within each of the three relationships of the triadic framework. Another important advantage of the framework is that while very useful for the education sector itself, it is also readily applicable to other sectors in PNG.

1.9 ***Outline of the report.*** A short Chapter 2 offers an introduction to the study instruments and data so that the reader can place the evidence presented later into an empirical and methodological context. Chapters 3-6 then proceed to documents some significant problems with the delivery of education services in PNG, focusing on the elementary/primary sector. They cover problems in the following areas: school facilities and environment, financial flow of resources, and teachers, administration and students. The discussion is not intended to be an exhaustive coverage of problems in the sector, but is guided by what seems important from the perspective of the report and what can be documented with the data at hand.

1.10 The last Chapter of the report takes a closer look at the three bands of the triadic relationship. The three sections of the Chapter respectively explore the client-provider, policymaker-provider and the client-policymaker relationships within the context of PNG’s education sector. This discussion revisits some of the problems examined in the preceding chapters from the perspective of the particular relationship discussed, but it also offers an opportunity to introduce additional issues that are relevant. The Chapter also seeks to pull together the main conclusions and policy implications of the study.

2. STUDY INSTRUMENTS, SAMPLE, DATA

2.1 The study used both quantitative and qualitative instruments to generate new information on the issues introduced in Chapter 1. The quantitative instrument took the form of a service delivery survey – referred to as the Public Expenditure and Service Delivery, or simply the PESD, survey. The qualitative instrument used participatory methods to gather information in twelve schools, and is referred to as the Twelve-School study. The 12 schools were selected from within the sample of schools for the PESD survey. The two instruments are briefly described below.

PESD SURVEY

2.2 The PESD survey covered 214 schools in 19 districts across 8 provinces⁶ (out of a total of 20 in the country), with two provinces selected in each of the four main regions. The following provinces were covered:

Southern (Papua) region:	Gulf; National Capital District (NCD)
Highlands region:	Enga; Eastern Highlands
Momase region:	West Sepik (Sandaun); Morobe
Islands region:	West New Britain; East New Britain

2.3 These provinces cover a wide spectrum both in terms of poverty levels and educational development (Table 2.1). They range from the relatively rich (NCD and Gulf with headcounts of 19 and 28%) to the poor Sandaun (headcount of over 60%), from the well-educated (NCD and East New Britain with adult literacy rates of 84 and 74%) to poorly-educated (Enga and Eastern Highlands with adult literacy rates of 26 and 38%), from those with high primary enrolment (NCD and ENB) to those with low enrolment (Enga, Gulf and Sandaun), from those with high grade 1-8 retention rates (NCD with 79%) to those with low retention rates (Eastern Highlands and Sandaun with just above 20%).

⁶ Counting NCD as a province.

Table 2.1: PESD sample schools

	Headcount rates ^{a/} (%)	Adult literacy rates	Grade3 to 8 enrolment rates 2001 ^{b/}	Grade1 to 8 retention 1993-2000 ^{c/}	Grade1 to 8 retention 1994-2001 ^{c/}
Province					
Eastern Highlands	28.3	37.5	53.2	25.5	20.6
East New Britain	30.7	74.0	77.4	42.3	45.4
Enga	29.5	25.5	46.8	28.7	28.1
Gulf	27.3	42.5	47.1	34.7	33.2
Morobe	34.9	51.4	52.9	26.5	30.5
NCD	19.4	84.1	82.7	72.6	78.6
Sandaun	62.6	40.2	46.8	22.7	21.7
West New Britain	30.7	64.8	64.4	40.2	38.5
PNG	37.1	44.8	56.7	35.0	35.5

Note: a/ Based on Gibson et al. (forthcoming 2004), "Mapping Poverty in Rural Papua New Guinea"

b/ Grades 3 to 8 enrolment as a percentage of the 9 to 14 year age group. This enrolment includes grades 7 and 8 students in both the primary schools and the high schools.

c/ Percentage of students who were grade1 in 1994 completed grade8 in 2001. The enrolment for grade 8 includes children in both the primary and the secondary schools.

Source: DOE (2002b, 2003), "The State of Education in PNG", PNG census and Gibson et al.(forthcoming 2004)

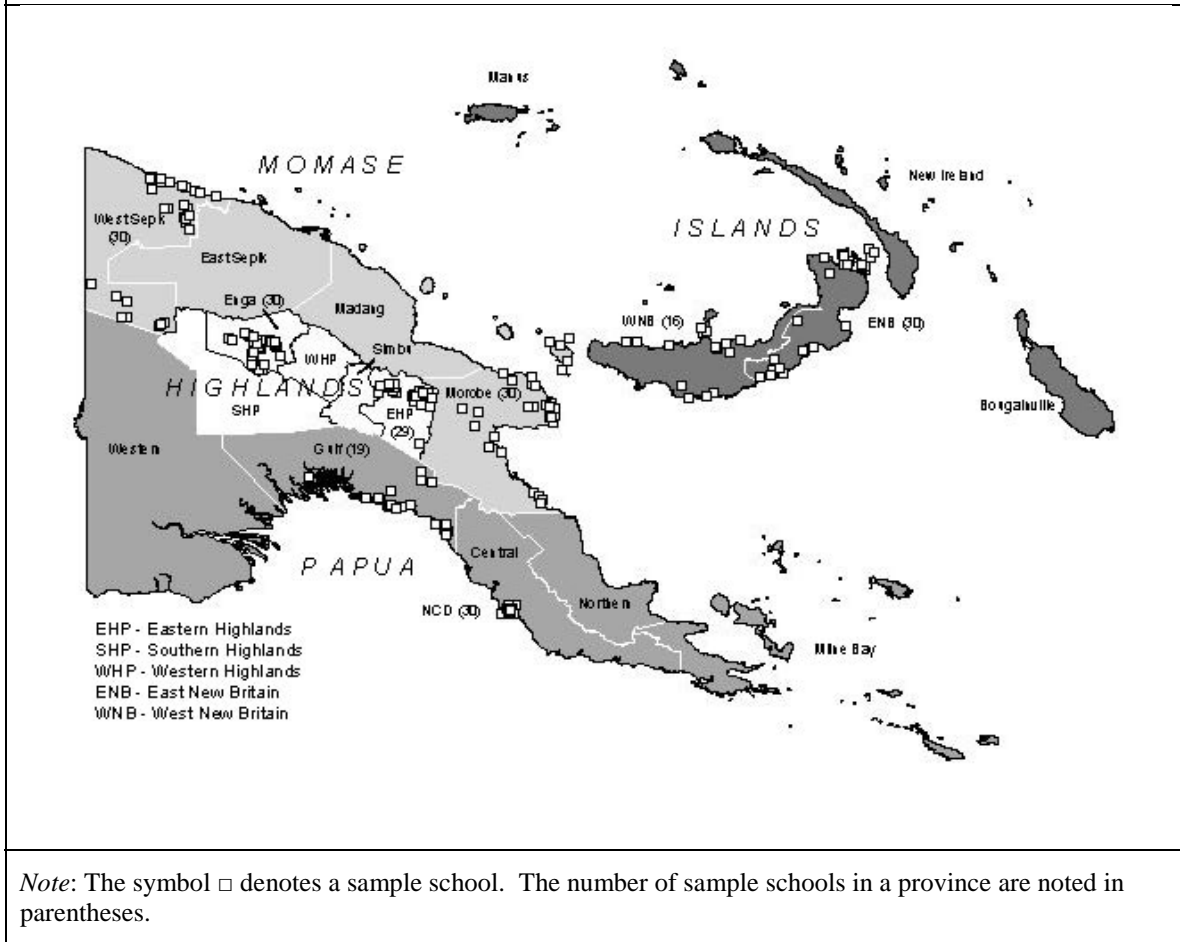
2.4 Three districts were randomly selected within provinces with probability proportional to the number of schools in the district. In two of the provinces, viz. Gulf and West New Britain, that only had two districts, both were selected. Ten schools were then selected randomly within each district. In NCD, which does not have districts but is organized by wards/census enumeration areas, 30 schools were randomly selected.

2.5 The original sample included 220 schools. Many of the schools in the original sample could not be covered for a variety of reasons. In these cases, replacement schools (randomly selected from the same district) were used. A special effort was made to ensure coverage of remote schools. In particular, some sites were revisited later to cover schools that could not be surveyed during the first attempt due to logistical difficulties. Figure 2.1 plots the location of the 214 schools in the final sample. As the Figure shows, the schools are widely dispersed throughout the country.

2.6 The PESD schools are further classified by the level of poverty and remoteness. The level of poverty is measured by the estimated poverty rate for the LLG where the school is located, and the remoteness index is based on a composite measure of distance and travel time from the school to a range of facilities. The PESD sample of schools is well distributed across the remoteness and poverty spectrum.⁷ Also, while poverty rate and the remoteness indices are significantly correlated across the PESD sample, these attributes are not collinear. The weighted correlation coefficient is 0.15, while the unweighted correlation is 0.27, both statistically significant at the 5% level or better.

⁷ For further details on the measures of poverty and remoteness, see Annexes 2 and 3.

Figure 2.1: Location of the 214 PESD sample schools



2.7 The survey used a series of instruments for collecting data at different levels. These included:

Instruments at the school level:

- School survey – the main instrument (S1)
- Grade 5 teacher survey (S2)
- Board of Management survey (S3)
- Parent survey (S4)

Instruments at the district/provincial level:

- District Education Administrator (DEA) survey (D2)
- Provincial Education Adviser (PEA) survey (P1)

An instrument for health centers:

- Health facility survey (H1)

2.8 These instruments were used to collect data on a range of topics including: characteristics of the head teacher, teachers, characteristics of schools, inspectors, BOM, parents, school finances, classroom environment, teacher activity, resources for teaching, community-school interaction, organization and structure of DEA/PEA offices, District and Provincial Education Boards, budget process, school fee subsidy and other sources of funding, and roles and responsibilities in education.

2.9 The health facility survey was not intended to be a full service delivery survey in order to keep the field operations and costs within manageable limits. It was added as a rider to the school survey. Health facilities that could be reached within 20 minutes from the sample schools were covered. Thus, as against a sample of 214 schools, the survey covered 117 health facilities. A short instrument collected information on how often the facilities were open, the presence of staff, and the availability of key medicines. Table 2.2 gives details of PESD sample coverage by instrument, province and district.

Table 2.2: PESD Sample coverage by type of survey instrument

Province and District	Sample	S1				Gr.5 Teacher S2	BOM S3	Parents S4	Health H1	DEA D1	PEA P2
		School	Teacher Roster	Select Teachers	Data Appendix						
East New Britain	30	30	28	28	29	25	30	30	8	3	1
Gazelle	10	10	10	10	10	8	10	10	1	1	
Kokopo	10	10	10	10	10	10	10	10	2	1	
Pomio	10	10	8	8	9	7	10	10	5	1	
Eastern Highlands	29	29	29	29	29	27	27	29	9	3	1
Kainantu	10	10	10	10	10	10	10	10	1	1	
Obura/Wonenara	9	9	9	9	9	7	8	9	4	1	
Unggai/Bena	10	10	10	10	10	10	9	10	4	1	
Enga	30	29	29	29	29	22	29	30	13	2	1
Kandep	10	10	10	10	10	7	10	10	8	1	
Laigaip/Porgera	10	10	10	10	10	8	10	10	2	1	
Wabag	10	9	9	9	9	7	9	10	3	0	
Gulf	19	18	18	18	18	12	18	19	14	2	1
Kerema	10	9	9	9	9	6	9	10	9	1	
Kikori	9	9	9	9	9	6	9	9	5	1	
Morobe	30	29	27	27	28	24	28	29	25	3	1
Finschaffien	10	9	8	8	9	9	10	10	8	1	
Huon	10	10	10	10	10	8	8	9	8	1	
Tewae/Siassi	10	10	9	9	9	7	10	10	9	1	
NCD	30	30	30	30	30	30	26	30	15	1	1
Sandaun	30	30	30	30	30	24	30	30	22	3	1
Aitape/Lumi	10	10	10	10	10	6	10	10	6	1	
Nuku	10	10	10	10	10	10	10	10	8	1	
Telefomin	10	10	10	10	10	8	10	10	8	1	
West New Britain	16	15	15	15	15	14	14	16	11	2	1
Kandrian/Gloucester	8	7	7	7	7	6	7	8	6	1	
Talasea	8	8	8	8	8	8	7	8	5	1	
Total	214	210	206	206	208	178	202	213	117	19	8

Source: PESD 2002.

2.10 Work on the PESD project was launched in late 2001 as part of the World Bank's analytical work on poverty in PNG. The project was launched in close consultation with

the Government of PNG and AusAID.⁸ Work on the PESD survey started in early 2002. The survey operation itself was implemented by the Education Department of the National Research Institute (NRI) in Port Moresby. Fieldwork for the survey was spread over the period February-August 2002. The first school was surveyed on February 5, 2002, and the last on August 7, 2002; however, all except 3 schools and one health facility were surveyed during March-July 2002, and 90% of the schools were surveyed over the two months of April and May 2002.

2.11 Further information was also collected from relevant agencies to chart the flow of resources from the national government to the school level, and additional data were collated from several governmental sources on such other items as enrolment, teacher payroll and public expenditures.

2.12 As is obvious from Table 2.2, not all instruments could be completed for all the 214 schools. Key respondents for particular instruments were sometimes not available. The smaller number of schools covered for the Grade 5 Teacher Survey (S2) partly also reflects the fact that several (13) of our sample schools were single-teacher schools (for which a separate S2 instrument was not fielded).

TWELVE-SCHOOL STUDY

2.13 The qualitative Twelve-School study was intended to complement the quantitative data collected through the PESD survey. To strengthen the complementarity, the 12 schools were chosen from within the PESD sample. However, the schools were selected purposively with a view to optimize representativeness in terms of five different dimensions: coverage of the four main regions, remoteness or accessibility of the school, level of poverty in the school's catchment area, school infrastructure, the level of resources available to the school and its academic performance.⁹ Thus, three schools were selected from one province in each of the four regions of PNG, with a wide spread across the other dimensions as shown in Table 2.3. The motivation for such selection was that the contrasts in the experience of schools across these diverse settings could offer additional insights into the complex structures determining service delivery. Figure 2.2 shows the geographical location of the twelve schools.

⁸ A PESD Working Group was established as a reference group for this activity. The Working Group had representation from key agencies including: the Department of National Planning and Monitoring (Chair), National Department of Education, Treasury, Finance, Department of Provincial and Local Government Affairs, Catholic Church, PSRMU, AusAID and World Bank. The Working Group held its first meeting on October 26, 2001, in Port Moresby. The Group met several times over the course of the activity and provided valuable input into the development of PESD survey and subsequent analysis.

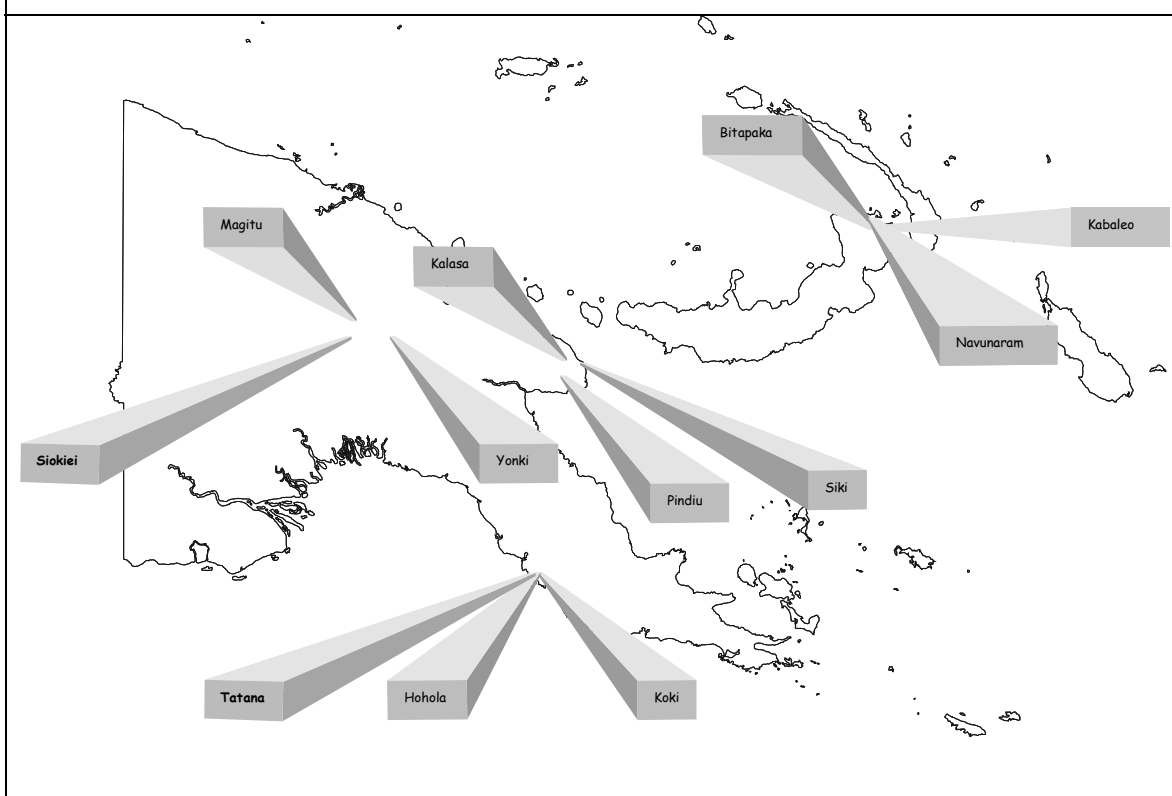
⁹ The construction of measures of poverty and remoteness is described in Annexes 2 and 3. School infrastructure is based on indices related to classroom facilities, other infrastructure at schools, and teaching resources, based on PESD survey data; see Chapter 3 for details. Revenue per student include both grant and non-grant revenues (fees and subsidies); see Chapter 4 for further details. The academic performance of schools is based on an index of performance in the three subject areas included in the Grade 8 examinations for 2001 and 2002, and the subsequent categorization of schools into low, average and high performance groups (NRI, 2003b).

Table 2.3: The twelve study schools

School name	Province	District	Remoteness	Poverty	School infrastructure	Revenue per student	Grade8 academic performance
Magitu	Eastern Highlands	Unggai/Bena	Accessible	Not Poor	High	Average	Average
Siokie	Eastern Highlands	Unggai/Bena	Accessible	Not Poor	High	.	High
Yonki	Eastern Highlands	Obura/Wonenara	Easily Accessible	Poor	High	High	High
Bitapaka	Eastern New Britain	Kokopo	Accessible	Poor	Average	.	Low
Kabaleo	Eastern New Britain	Kokopo	Easily Accessible	Not Poor	High	Average	Average
Navunaram	Eastern New Britain	Gazelle	Accessible	Not Poor	High	High	High
Kalasa	Morobe	Tewae/Siassi	Extremely Remote	Poor	Low	High	Low
Pindiu	Morobe	Finschaffien	Extremely Remote	Poor	High	High	Low
Siki	Morobe	Finschaffien	Easily Accessible	Well Off	High	.	Low
Hohola	NCD	NCD	Easily Accessible	Well Off	High	High	High
Koki	NCD	NCD	Easily Accessible	Well Off	High	.	Average
Tatana	NCD	NCD	Accessible	Well Off	Low	High	Low

Note: Three schools were sampled from one province in each of the four regions of PNG.

Source: NRI (2003b) "Wok Bung: A Qualitative Study of Twelve Primary Schools in Papua New Guinea", and PESD 2002.

Figure 2.2: Location of the 12 study schools

Source: NRI (2003b), "Wok Bung: A Qualitative Study of Twelve Primary Schools in Papua New Guinea."

2.14 Information was collected through interviews with key informants and focus group discussions with representatives of relevant local institutions and organizations

identified in the field through a social mapping exercise. Four research team were set up for four regions. The teams spent six days at each school site.

2.15 Data collection involved investigating three major focus areas of the study: (i) contribution of education to the quality of life; (ii) problems, challenges and priorities defined by different social groups within the community; and (iii) the participation and empowerment of local institutions. To impart both structure and uniformity to the information gathering process, focus questions were developed for each one of these areas.

2.16 Like the PESD survey, the Twelve-School study was also carried out by the Education Department of NRI, with some support from World Bank Staff. The detailed case studies for the 12 schools are written up in the NRI Report, “Wok Bung: A Qualitative Study of Twelve Primary Schools in Papua New Guinea” (NRI, 2003b). In this report, we selectively draw upon this material to supplement and enhance the discussion based on the quantitative data.

3. THE EDUCATION CONTEXT: SCHOOL FACILITIES AND ENVIRONMENT

SETTING THE CONTEXT¹⁰

3.1 Of a total of 5.2 million persons in 2000, PNG has a school-age population of 1.5 million in the age-group 7-19 years, that has been growing at about 3% per annum. In 2002, there were about a million students enrolled in the PNG education system at all levels. The education sector thus caters directly to nearly one-fifth of the country's population. The size of the sector has grown substantially since independence. During 1992-2002 itself, the number of schools has increased by 175%,¹¹ enrolments have doubled, and the number of teachers has increased by 70%.

3.2 Government expenditure on education (mostly by the national government¹²) has been around 5% of GDP and about 15% of the national budget in recent years – these levels are not low relative to international standards and compare favorably with other countries in the region. Government spending is supplemented by contributions from donors and parents; the relative shares of the three sources in overall education spending are about 70, 20 and 10 percent respectively. The basic education component – comprising of elementary (up to grade 2) and primary (grades 3-8) – is the largest, accounting for about 93% of schools, 87% of students, 83% of teachers, and about 60% of the national budget. Teacher salaries are about half the Ministry of Education budget, and there has been some concern with the growth in this expenditure. However, while the number of teachers has increased rapidly over the years, it has barely kept pace with the growth in enrolment (Figure 3.1). The student-teacher ratio has not changed much over the last decade; if anything, it has increased a little in recent years, in line with the expectation of cost saving from the education reforms since 1993.¹³

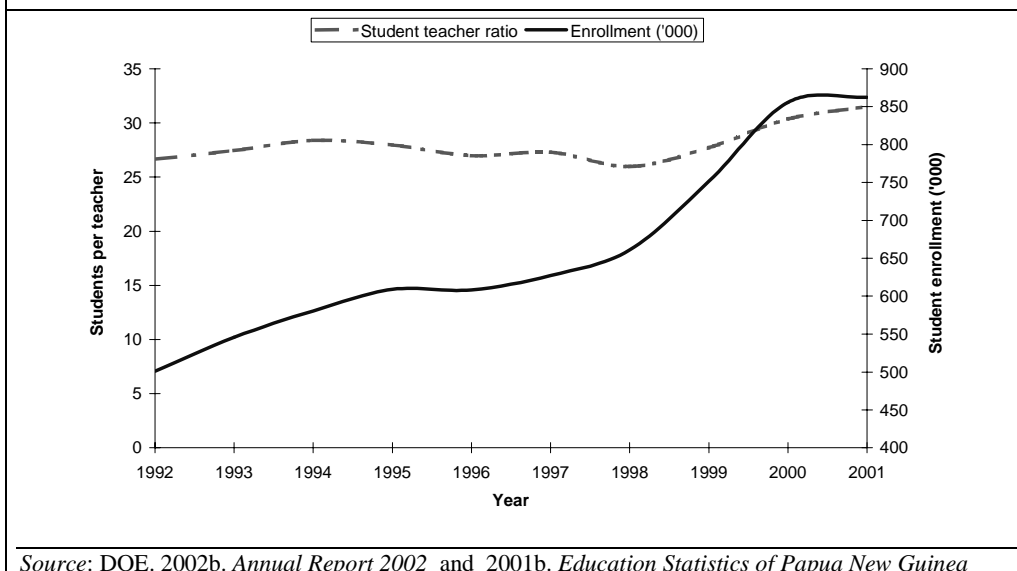
¹⁰ This brief description is based on DOE (2001a, 2002a, b), and AusAID (2003).

¹¹ Most of the increase in the number of schools is on account of elementary schools (since the start of the education reforms of 1993). Elementary schools go up to grade 2, and are relatively small schools with about 68 students and 2.4 teachers on average in 2001 (DOE, 2001b).

¹² Spending by provincial governments out of their own resources is very limited (see Chapter 4 for further discussion).

¹³ Nor is there any evidence of an increase the average teacher salary in real terms; on the contrary, real salaries have declined in recent years.

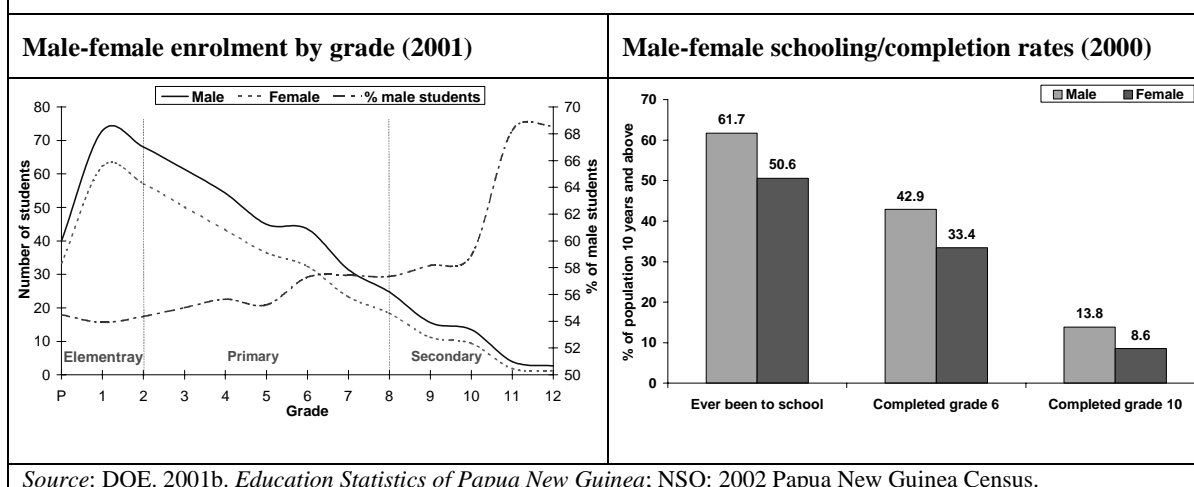
Figure 3.1: Student enrolment and student-teacher ratio, 1992-2001



Source: DOE. 2002b. *Annual Report 2002* and 2001b. *Education Statistics of Papua New Guinea*

3.3 Access, retention and quality remain the main policy objectives as well as challenges for primary and post-primary education in PNG. The problem of retention of students in higher grades is illustrated by Figure 3.2. Starting with 135 thousand students enrolled in grade 1, the number plummets to 75 thousand in grade 6, 43 thousand in grade 8, 23 thousand in grade 10 and less than 4 thousand in grade 12. The problem of retaining female students in higher grades is more severe than male students. Data from the 2000 census indicate a similar picture of lower grade 6 and grade 10 completion rates for female relative to male population.

Figure 3.2: Access and retention, by gender



Source: DOE. 2001b. *Education Statistics of Papua New Guinea*; NSO: 2002 Papua New Guinea Census.

3.4 With this brief introduction to the sectoral context, we now turn to the ground reality of the environment in PNG's schools where the challenges of access, retention and quality of basic education are encountered on a routine basis.

THE SCHOOL ENVIRONMENT

Box 3.1: Surur Community School

Surur Community School serves one big village called Masele. It has a population of well over 600 adults. The school is located on top of a hill. The school is far away from Lablab Station for any services such as transport to Lae or health services. Bank facilities are not available either at the station or in the few shops around Lablab station.

There is no water available either at the school or at the village. Students carry water for teachers from creeks for cooking, washing and drinking. There are three roads that lead to the school. All of them are unsafe to travel on during the rainy season.

There is one double permanent classroom building and one single classroom of bush material. The double classroom is quite new. The bush material classroom needs replacement. The toilets are pit type and all need replacement. The students use the bush, which is very unhealthy.

All the teachers are new to the school with the exception of the headmaster. He has been in the school for one year. The attendance books have been kept up to date since the beginning of the year. Grade 2 has no Maths books while other Grades from 1 to 6 have from 5 to 60 books.

Source: Extracts from field notes, PESD 2002 survey.

3.5 While conditions vary across schools, Surur Community School in Tewae-Siassi district in Morobe Province is not an uncommon example of the many respects in which the facilities and environment at PNG schools leave a lot to be desired (Box 3.1). The school is located in an area that is poorer but less remote than the average school.¹⁴ It is a relatively small government school (established 1991) with 66 students (35 girls). Neither of its two classrooms has a chair and a table for the teacher or electricity that works. There is no staff room, no sports area or equipment, no agricultural area, not to mention a library or any specialist rooms. While the school has easy access to a working telephone and trade store, the nearest town/station, postal service, police station and secondary school are all more than 2 days away. Water availability is such a significant constraint that lack of water led to a closure of the school for 61 days in 2001.¹⁵ Such

¹⁴ It has a remoteness index of 0.215 (below the median value of 0.299 across all sample schools) and a poverty rate of 36% (above the average value of 29.7%).

¹⁵ Lack of water was also noted by the parents to be a major problem facing the school.

conditions clearly inhibit the quality of education the school is able to offer to its students. Surur community school is unfortunately not unique in this regard.

3.6 The rest of this Chapter looks at some of the main deficiencies in school facilities and environment as revealed by the PESD data. We focus on physical infrastructure, school amenities (electricity, water, sanitation), access to other facilities, school closure and security, and resources for teaching. We begin with a few basic details on school background.

3.7 The typical primary or community school in PNG was built in the mid-1970s, was about 18-years old at the time of the PESD survey. It has just over 230 students of which about 45% are girls (Table 3.1). About half the schools are government schools, the main alternative being Church schools, and about a third have completed the transition from community to primary schools.¹⁶ Primary schools tend to be larger relative to community schools, as do government schools relative to community schools. Schools in remote and poor areas are typically smaller and more likely to be church schools. They are also more likely to be community rather than primary schools (indicating a slower progress of the education reform process in their case). Remote schools also tend to be relatively newer.

Table 3.1: School Background

	All		Poverty Status				Remoteness			
			Poor		Not Poor		Remote		Accessible	
	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)
Government school (0/1)	0.52	0.05	0.46	0.04	0.60	0.10	0.48	0.06	0.57	0.05
Primary school (0/1)	0.36	0.05	0.34	0.05	0.38	0.08	0.25	0.04	0.47	0.07
Year established	1975	1.26	1975	0.92	1974	2.63	1977	1.33	1972	1.50
Year became primary (among primary)	1999	0.38	1999	0.42	1999	0.49	2000	0.29	1998	0.52
Number of students	233	17.84	217	19.96	257	33.26	173	12.10	301	29.96
Percent of students girls	0.44	0.01	0.43	0.01	0.45	0.01	0.43	0.01	0.45	0.01
School land owned by ...(0/1)										
... customary	0.55	0.06	0.56	0.06	0.53	0.08	0.64	0.05	0.45	0.08
... state	0.19	0.04	0.17	0.04	0.22	0.06	0.13	0.04	0.25	0.06
... church	0.20	0.04	0.23	0.04	0.17	0.04	0.18	0.04	0.22	0.05
... school	0.03	0.01	0.02	0.01	0.04	0.02	0.03	0.02	0.03	0.02

Source: PESD 2002. Means of valid responses.

3.8 The school itself rarely owns the land on which it is built. This is of some relevance since disputes over land rights have at times thwarted plans for expansion or other construction projects at schools. A little over half the schools are on land that is owned by customary tenure – nearly two-thirds in remote areas. State-owned and church-owned land each account for about 20% of schools. It is notable that even amongst government schools 60% are on customary land (29% on state land), and

¹⁶ This transition has been the subject of the ongoing national education reform program that started in 1993; for further details on the education reform, see DOE (2002a), *The State of Education in Papua New Guinea*, and DOE (2002b), *2002 Annual Report*. The reform process seems to have progressed further in more accessible rather than remote schools.

amongst church schools 48% are on customary land (42% on church land). The phenomenon of customary land for schools is thus quite pervasive.

PHYSICAL INFRASTRUCTURE

3.9 Classrooms. The average school has 7 classrooms or about 3.5 classrooms per 100 students. Just under two-thirds of the classrooms are made of permanent materials, 20% of semi-permanent materials and 16% of bush materials (Table 3.2). In remote or poor areas, only a little over half the classrooms are made of permanent materials. Not all the classrooms are in good shape. One-third of them are in such disrepair that they need to be completely rebuilt. Factoring this in, the number of *effective* classrooms per 100 students drops to 2.3.

Table 3.2: Physical infrastructure at schools

	All		Poverty Status				Remoteness			
	Mean	(SE)	Poor Mean	(SE)	Not Poor Mean	(SE)	Remote Mean	(SE)	Accessible Mean	(SE)
Classrooms										
Number of classrooms per 100 students*	3.46	0.15	3.47	0.20	3.45	0.30	3.53	0.26	3.40	0.23
Proportion of classrooms										
... made of permanent materials?*	0.64	0.03	0.55	0.04	0.77	0.05	0.54	0.05	0.75	0.05
... made of semi-permanent materials?	0.20	0.04	0.25	0.05	0.13	0.04	0.26	0.06	0.13	0.03
... made of bush materials?	0.16	0.01	0.20	0.02	0.10	0.04	0.20	0.03	0.12	0.02
... which need to be completely rebuilt?*	0.33	0.03	0.32	0.04	0.34	0.06	0.36	0.05	0.29	0.03
... with a roof that leaks when it rains?*	0.37	0.02	0.37	0.03	0.36	0.03	0.40	0.04	0.33	0.03
... a chair and table for the teacher?*	0.42	0.06	0.37	0.06	0.50	0.09	0.38	0.07	0.47	0.09
... storage space that can be locked ?*	0.27	0.02	0.21	0.03	0.37	0.03	0.21	0.03	0.35	0.04
... with electricity that works?*	0.07	0.01	0.04	0.01	0.12	0.03	0.01	0.01	0.13	0.02
Overall index (0 to 1)	0.42	0.02	0.38	0.02	0.48	0.03	0.36	0.02	0.48	0.03
Other infrastructure										
Adequate or good provision (0/1) of ...										
... administration block*	0.17	0.02	0.13	0.03	0.23	0.05	0.08	0.03	0.26	0.04
... clear radio reception*	0.28	0.03	0.27	0.04	0.30	0.04	0.24	0.04	0.32	0.04
... school vehicle*	0.02	0.01	0.01	0.01	0.05	0.02	0.00	0.00	0.05	0.02
... agriculture area for student use*	0.59	0.04	0.62	0.05	0.55	0.06	0.65	0.06	0.53	0.05
... agriculture area for teacher use*	0.46	0.03	0.48	0.04	0.43	0.06	0.54	0.06	0.37	0.04
... land for expansion*	0.60	0.03	0.60	0.03	0.60	0.05	0.63	0.07	0.57	0.05
... sports area*	0.68	0.03	0.70	0.05	0.66	0.03	0.69	0.06	0.68	0.05
... sports equipment*	0.42	0.04	0.34	0.05	0.54	0.07	0.36	0.07	0.48	0.06
... specialist science classroom*	0.01	0.01	0.00	0.00	0.03	0.02	0.01	0.01	0.02	0.01
... specialist technology classroom*	0.04	0.02	0.02	0.02	0.07	0.02	0.02	0.02	0.06	0.03
... specialist home economics classroom*	0.05	0.02	0.03	0.03	0.08	0.03	0.02	0.02	0.09	0.04
Overall index (0 to 1)	0.30	0.01	0.29	0.02	0.32	0.02	0.29	0.02	0.31	0.02
<i>Note: * Overall index is based on items marked with *</i>										
<i>Source: PESD 2002. Means of valid responses.</i>										

3.10 Conditions within classrooms are pretty deficient too, and worse still for schools in poor or remote areas. 37% of classrooms have roofs that leak when it rains (40% in remote areas). Only half of them have a chair and desk for the teacher (37% in poor areas, 38% in remote areas). Only about a fourth have a storage space that can be locked

up overnight in poor areas (21% in poor/remote areas). Less than one-tenth have working electricity in the classrooms (4% in poor areas, 1% in remote areas).

3.11 There is not much difference between government and church schools with regards to classroom infrastructure (Annex Table A4.3).¹⁷ In some respects (e.g. chair and desk for the teacher, electricity in the classroom), government schools are better, although this could partly reflect that church schools are more likely to be located in relatively remote/poor areas. A similar comment applies to the better conditions in primary relative to community schools.

3.12 Anticipating some of the discussion in Chapter 4, we also classify schools in terms of the non-grant revenue per student as a measure of their financial resource base.¹⁸ Not surprisingly perhaps, there is a positive correlation between resources available and the state of classroom infrastructure, which improves as we move from the bottom 40% (ranked by non-grant revenue per student) to the middle 40 and to the top 20% of schools (Annex Table A4.4).

3.13 As a summary measure, we also present an overall index for a particular category of facilities, constructed as a simple average of individual facilities within that category. Thus, for instance, the classrooms index is a simple average of the 7 marked items in the top panel of Table 3.2.¹⁹ The index suggests that for classroom facilities in general, schools in poor or remote areas tend to do significantly worse.

3.14 ***Other infrastructure.*** Beyond the classroom, there are also significant deficiencies in other infrastructure facilities. For instance, only one in six schools has an administrative block, and one in four has clear radio reception. About 60% of schools have agricultural land for student use and also land for expansion. But one-third of schools do not have a sports area and nearly 60% have no sports equipment. Specialist classrooms (for science/technology/home science) are virtually non-existent. Almost no school has a school vehicle.

3.15 Several of the deficiencies, such as those relating to an administrative block, specialist classrooms, sports equipment, school vehicle, are more pronounced for schools in poor or remote areas. In most of these respects, primary schools tend to fare better than community schools, and government schools better than church schools (except for somewhat better provision of sports equipment in church schools). These facilities also tend to be better for schools with greater financial resources, i.e., higher levels of non-grant revenue per student (Annex Table A4.4).

¹⁷ Annex 4 presents a parallel set of tables on school environment and facilities – corresponding to Tables 3.1-3.6 – by school type (primary or community), by agency type (government and church), and by level of non-grant revenue per student (the bottom 40%, middle 40%, and top 20%).

¹⁸ This anticipates discussion in Chapter 4 which suggests that grant revenues are not a dependable source of income for schools. For further discussion of this point and the measurement of school revenues, see Chapter 4.

¹⁹ Prior to taking the average, continuous variables such as the number of classrooms per 100 students are converted into binary variables for adequate provision taking the value of 1 if the continuous variable is above average, zero otherwise.

ELECTRICITY, WATER, SANITATION

3.16 Few schools (15%) are connected to the public electric grid—virtually none (3%) in remote areas (Table 3.3). 55% of schools have a usable water tank—the most common source of drinking water in schools—but in remote areas only 40% of schools do. One-third of schools (44% in remote areas) depend on rivers/springs/lakes as their main source of drinking water. In the vast majority of schools the main drinking water source was functional on the day of the visit, but only 58% of the schools say that drinking water is available from that source all year round.

Table 3.3: Electricity, water and sanitation

	All		Poverty Status				Remoteness			
			Poor		Not Poor		Remote		Accessible	
	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)
Public grid/Elkom electricity (0/1)*	0.15	0.02	0.12	0.03	0.20	0.05	0.03	0.02	0.29	0.04
Usable water tank (0/1)*	0.55	0.05	0.55	0.07	0.54	0.06	0.41	0.07	0.70	0.05
Main source of drinking water supply ...										
... none	0.02	0.01	0.02	0.01	0.02	0.02	0.04	0.02	0.00	0.00
... rain water tank	0.45	0.06	0.48	0.07	0.39	0.07	0.34	0.07	0.56	0.06
... spring/lake river	0.33	0.06	0.32	0.07	0.34	0.09	0.44	0.07	0.21	0.06
... well/bore hole	0.06	0.02	0.05	0.02	0.07	0.04	0.05	0.03	0.07	0.03
... piped water*	0.14	0.02	0.13	0.03	0.16	0.03	0.12	0.03	0.16	0.02
Able to drink from that source today (0/1)*	0.89	0.03	0.87	0.04	0.91	0.02	0.88	0.04	0.90	0.03
Available all year round 2001 (0/1)*	0.58	0.03	0.58	0.05	0.57	0.08	0.67	0.05	0.48	0.04
Toilet facilities ...										
... none available for teachers(0/1)	0.01	0.01	0.00	0.00	0.02	0.01	0.01	0.01	0.00	0.00
... none available for boys(0/1)	0.02	0.01	0.02	0.01	0.03	0.02	0.03	0.02	0.02	0.02
... need at least 1 for boys(0/1)*	0.42	0.03	0.44	0.05	0.40	0.04	0.34	0.04	0.51	0.04
... none available for girls(0/1)	0.02	0.02	0.01	0.01	0.03	0.02	0.02	0.02	0.02	0.02
... need at least 1 for girls(0/1)*	0.49	0.03	0.49	0.06	0.48	0.05	0.42	0.06	0.56	0.04
Overall index (0 to 1)	0.48	0.02	0.47	0.02	0.49	0.03	0.48	0.02	0.48	0.02

Note: * Overall index is based on items marked with *

Source: PESD 2002. Means of valid responses.

3.17 Virtually all schools said that they have toilets for teachers and students, but a large number say that they need at least one additional toilet. 42% of schools report need for one or more additional toilets for boys, and 49% for girls. In accessible schools, the reported shortage is even greater with over half the schools saying they need more toilets for boys and girls. Accessible schools tend to be larger, with about 300 students on average relative to 170 in remote areas. It appears that the availability of toilet facilities does not match the greater needs of larger schools. In non-poor areas, there are substantial reported (unmet) needs as well. The reported needs are also quite flat across schools with different levels of non-grant revenue resources (Annex Table A4.6).

ACCESS TO FACILITIES

3.18 *Access to secondary/high school.* The nearest secondary or high school is almost 4 hours away (8 hours return trip) from the average primary/community school – about 5 hours away for schools in poor areas, about 6 hours for schools in remote areas (Table 3.4). Similarly, the nearest vocational center is 3.5 hours away, about 4 hours for poor areas, 5 for remote areas. The significantly more limited access to (and the implicit high cost of) education beyond the primary level can have a negative impact on the demand for primary education itself. Some of this may explain the relatively low retention rates in PNG,²⁰ but the lack of an effective post-primary alternative can also erode the demand from parents for better quality of services at the primary level itself.

Table 3.4: Access to facilities

	All		Poverty Status				Remoteness			
			Poor		Not Poor		Remote		Accessible	
	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)
Time to nearest ... (hours)										
... High school or Secondary school	3.93	0.76	4.79	0.92	2.64	0.83	5.67	1.15	2.18	0.62
... Health center/aid post	0.91	0.26	1.03	0.41	0.72	0.28	1.47	0.53	0.28	0.10
... Vocational center	3.36	0.64	4.04	0.75	2.40	0.75	4.97	0.92	1.71	0.32
... Nearest store that sells basic materials	4.57	0.95	4.68	1.16	4.40	1.67	7.05	1.75	2.18	0.66
... Trade store	0.75	0.22	0.92	0.21	0.50	0.36	1.20	0.39	0.28	0.16
... Postal service	3.95	0.82	5.06	1.08	2.33	0.76	5.75	1.19	2.18	0.84
... Bank	4.51	0.75	5.17	1.06	3.50	1.20	7.31	1.24	1.73	0.39
... Police station	4.98	1.49	5.05	1.21	4.87	2.81	7.07	1.81	2.88	1.29
... Bitumen road	4.00	0.83	5.21	1.19	2.04	0.76	6.90	1.44	1.46	0.49
... PMV pickup point	3.10	0.63	4.30	1.18	1.35	0.34	5.76	1.22	0.73	0.29
... Town / station	3.14	0.61	3.80	0.70	2.20	0.73	4.34	0.84	1.92	0.56
... Provincial capital (of this province)	6.57	1.52	7.41	2.46	5.33	2.06	9.17	1.79	3.95	1.44
... Air strip	4.19	0.87	5.08	1.13	2.79	0.92	5.75	1.26	2.66	0.67
... Telephone that is working	3.60	0.60	4.39	0.85	2.37	0.72	6.02	1.12	1.19	0.21
... VHF radio that is working	2.02	0.43	2.47	0.61	0.96	0.18	2.69	0.76	1.19	0.22

Note: * Overall index is based on items marked with *

Source: PESD 2002. Means of valid responses.

3.19 *Access to other facilities.* Schools' access to basic facilities can often be limited. For instance, the average school is 3 to 5 hours away from stores that sell basic school materials, post offices, banks, police stations, paved roads or public transport. Remote schools are (by definition²¹) further from these amenities, but poor remote schools are particularly deprived, for example, more than 7 hours away from the nearest bank. Schools in poor areas tend to have worse access to facilities than schools in non-poor areas. Community schools have worse access than primary schools partly reflecting their greater concentration in relatively remote areas. For the most part, there is not much difference between government and church schools' access to facilities.

²⁰ See Department of Education (2002a 2003), *The State of Education in Papua New Guinea*, for further discussion of retention rates.

²¹ See Annex 3 for details on the construction of the remoteness index for schools.

Box 3.2: Health facilities: access to alternative or supportive facilities

Health facilities near surveyed schools were visited as a part of the PESD exercise. The data suggest that there are typically no alternative facilities that can be easily reached. The nearest hospital or source of commercial drugs is typically more than 9 hours away. The accessibility is worse for facilities in poor or remote areas, and for non-government rather than government-operated facilities.

How far is the nearest ...

	Poverty Status						Remoteness				Agency			
	All		Poor		Not Poor		Remote		Accessible		Govt.		Non-govt.	
	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)
Hours' travel time to nearest:														
... hospital	9.06	2.31	9.89	3.04	7.69	2.74	10.40	3.47	7.07	3.02	5.80	1.14	15.31	5.57
... alternative health facility	4.42	1.21	4.69	1.75	3.97	1.07	5.32	1.45	3.09	1.00	2.97	0.62	7.19	2.47
... source of commercial drugs	9.48	2.44	9.60	3.78	9.27	2.14	11.84	2.86	5.99	1.92	9.30	2.36	9.81	4.00

Source: PESD 2002.

SCHOOL CLOSURE AND SECURITY

3.20 Closures. Schools are often closed for unusual reasons for a substantial number of days in the year. About half the schools reported unusual closings during 2001 (Table 3.5). As a result, these schools lost 28 school days in the year. For all schools including schools with no closings, on average about 15 school days were lost on account of unusual school closures during 2001. The average loss of school days is greater in remote or poor schools, greater in government relative to church schools, and greater in community relative to primary schools (Annex Table A4.9). The loss of days due to closure also tends to be very low (under 3) for the top 20% of schools, ranked by per student non-grant revenue, relative to about 17-18 days for both the bottom and middle 40% (Annex Table A4.10).

3.21 Schools are closed for a variety of reasons (Table 3.5), but lack of water stands out as the single most important factor accounting for nearly two-fifths of all closures. How irregular water supply can cause serious disruptions to school life was already noted above for the Surur Community school, where it led to the school being closed for 61 days during 2001. Water-related problems also figure prominently for several schools in the Twelve-School Study.²² Sewage/toilet problems account for another 10% of closures. Overall, school facilities related problems account for half of all closures.

²² The need for safe drinking water was cited as the biggest problem by Papua New Guineans during a recent participatory assessment (ADB 2002, *Priorities of the Poor in Papua New Guinea*).

Table 3.5: School closure and security

	All		Poverty Status				Remoteness			
	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)
School schedule										
Proportion of schools reporting closure ...										
... 2001	0.52	0.05	0.60	0.05	0.42	0.06	0.53	0.06	0.52	0.05
Total number of days the school closed in ...										
... 2001*	14.65	3.29	16.30	4.05	12.27	5.32	16.69	5.64	12.32	4.26
... 2002 (through to survey date)	3.08	0.46	3.12	0.77	3.01	0.96	3.49	0.96	2.61	0.68
Reasons of school closure in 2001 (0/1)										
... lack of water	0.38	0.04	0.33	0.06	0.48	0.08	0.18	0.03	0.60	0.05
... sewage/toilet problems	0.09	0.04	0.07	0.04	0.12	0.06	0.08	0.05	0.10	0.05
... poor facilities and maintenance	0.02	0.02	0.04	0.03	0.00	0.00	0.04	0.04	0.00	0.00
... shortage of teachers	0.07	0.03	0.05	0.03	0.10	0.08	0.09	0.05	0.04	0.04
... teacher pay problems	0.03	0.02	0.05	0.02	0.00	0.00	0.03	0.03	0.04	0.03
... school break-ins	0.04	0.02	0.03	0.01	0.05	0.03	0.03	0.02	0.04	0.03
... death in local community	0.10	0.02	0.10	0.03	0.10	0.04	0.14	0.04	0.05	0.03
... disputes between communities	0.05	0.02	0.06	0.03	0.03	0.02	0.08	0.04	0.03	0.02
... dispute between community and school	0.04	0.03	0.06	0.04	0.00	0.00	0.07	0.05	0.00	0.00
... special events/ poor weather	0.07	0.03	0.06	0.03	0.08	0.05	0.11	0.05	0.02	0.02
... other	0.03	0.02	0.04	0.03	0.00	0.00	0.05	0.04	0.00	0.00
Security										
With effective security fencing in 2002										
... around school	0.15	0.04	0.10	0.03	0.22	0.09	0.04	0.03	0.27	0.06
... around teacher houses	0.08	0.02	0.04	0.01	0.14	0.05	0.00	0.00	0.16	0.05
Employed security guards in 2002	0.15	0.03	0.11	0.02	0.21	0.06	0.09	0.02	0.22	0.05
Number of times broken into in ...										
... 2000	0.73	0.13	0.59	0.12	0.97	0.27	0.57	0.10	0.93	0.22
... 2001*	0.78	0.09	0.68	0.14	0.95	0.12	0.61	0.09	0.99	0.16
... 2002	0.39	0.06	0.21	0.05	0.66	0.11	0.26	0.06	0.54	0.12
Overall index (0 to 1)	0.31	0.03	0.31	0.03	0.32	0.04	0.28	0.04	0.35	0.04

Note: * Overall index is based on items marked with *

Source: PESD 2002. Means of valid responses.

3.22 This estimate of school days lost is an underestimate because the final PESD school sample (on which this estimate is based) includes many replacements for schools that were found closed at the time of the survey. As many as 34 schools out of a total of 283 schools, or 12% of schools, could not be surveyed due to some form of school closure (Box 3.3). Factoring this in (and assuming the same rate to apply to 2001), the proportion of schools reporting unusual closures during the year is better estimated at 58 rather than 52 percent.

3.23 Of the remaining half, teacher-related problems (shortage of teachers, teacher pay problems) account for 10%, community-related problems (death in local community, disputes between communities or between community and school) account for 19%, while school break-ins account for only 4%. For schools in accessible or nonpoor areas, school facilities-related causes are even more important while community-related problems are more important for school in remote or poor areas.

Box 3.3: Replacement schools

	# schools	Percent
Schools that could not be surveyed because ...	69	24.4
... school suspended	7	2.5
... school closed due to lack of teachers	18	6.4
... fighting zone	9	3.2
... sub-total: school closure	34	12.0
... inaccessible	28	9.9
... not in this district	6	2.1
... don't know	1	0.4
Schools surveyed	214	75.6
Total	283	100.0

Source: PESD 2002 survey.

3.24 **Security.** Though not a significant reason for closure, break-in are very common at PNG schools. As many as 40% of schools experienced at least one break-in during 2001, and nearly half of them (19%) reported being broken into more than once. Perhaps not surprisingly, schools in accessible areas are more likely to be broken into than schools in remote or poor areas. However, even amongst remote schools, 35% reported break-ins during 2001. Government and primary schools appear more vulnerable appear to be being broken into relative to church community schools respectively, and the incidence of break-ins declines steadily with no-grant revenue per student (Annex Tables A4.9 and A4.10).

3.25 Despite the relatively large number of break-ins, few schools have effective security fencing or employ security guards. Only about 15% of schools do so. Even in the relatively more dangerous non-poor or accessible areas, only around a quarter have security fences and only about a fifth employ guards. Government and primary schools are more like to deploy fences or guards. The top 20% of schools (in terms of non-grant revenue per student) are the most likely to have a fence around the school (40% of them do); they also have the lowest incidence of break-ins (20%).

RESOURCES FOR TEACHING

3.26 The resources available to teachers to facilitate teaching are meager for the vast majority of schools. For instance, less than a quarter of teachers reported having sufficient textbooks for student use in their classrooms (Table 3.6). Primary schools appear to be the worst in this regard with 85% of teachers reporting insufficient textbooks. Library facilities are an uncommon luxury; only 13% of schools report an adequate provision of library. So are staff rooms; 16% of schools report an adequate provision. Provision of library is especially deficient in schools in poor areas (9%), in community schools (8%) and the bottom 40% of schools in terms of per student non-grant revenues (6%), while provision of staff rooms is particularly deficient in remote

schools (12%), in community schools (8%), and in the bottom-40% schools (8%). Nearly half the teachers also report that there are not enough desks for their students. This proportion is quite flat across different types of schools (Annex Table A4.11).

Table 3.6: Teaching resources										
	All		Poverty Status				Remoteness			
	Mean	(SE)	Poor		Not Poor		Remote		Accessible	
Resource availability ... (0/1)	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)	Mean	(SE)
... sufficient textbooks for student use*	0.23	0.04	0.24	0.06	0.21	0.05	0.25	0.05	0.21	0.05
... adequate or good provision of library*	0.13	0.03	0.09	0.02	0.19	0.05	0.12	0.03	0.14	0.05
... adequate or good provision (0/1) of staff-rooms*	0.16	0.04	0.13	0.04	0.21	0.06	0.12	0.04	0.21	0.04
... able to produce teaching aids*	0.78	0.06	0.82	0.07	0.73	0.10	0.82	0.05	0.74	0.08
... enough desks for all students*	0.52	0.05	0.54	0.06	0.49	0.09	0.54	0.06	0.50	0.06
... money allocated for classroom use*	0.12	0.02	0.12	0.03	0.11	0.03	0.13	0.04	0.11	0.03
Overall index (0 to 1)	0.33	0.02	0.33	0.02	0.32	0.03	0.33	0.03	0.32	0.02
<i>Note:</i> * Overall index is based on items marked with *										
<i>Source:</i> PESD 2002. Means of valid responses.										

3.27 There are hardly any financial resources allocated to teachers for classroom use. When asked if the head teacher allocated any money to spend for your classroom, only 12% of the teachers replied in the affirmative. For the handful of schools where such allocations did occur, the average amount was about 9.50 Kina per student enrolled in the class. With such limited financial and other resources at their disposal it is remarkable that about three-fourths of the teachers report that they are able to produce the teaching aids they need for use in their classrooms.

Box 3.4: Availability of drugs at health facilities

Availability of drugs at health facilities is a significant problem. The problem is more acute for facilities located in poor or remote areas. Drug availability is also worse for government-operated agencies, relative to others mainly operated by church institutions. In the majority of cases, drugs are offered free to the patients. The average price charged tends to be lower at facilities in poor or remote locations, but difference (relative to non-poor or accessible facilities) is often not significant.

Drug availability														
	All		Poverty Status				Remoteness				Agency			
	Mean	(SE)	Poor Mean	(SE)	Not Poor Mean	(SE)	Remote Mean	(SE)	Accessible Mean	(SE)	Govt. Mean	(SE)	Non-govt. Mean	(SE)
Panadol														
... available today	0.78	0.06	0.70	0.08	0.91	0.04	0.80	0.07	0.75	0.07	0.75	0.08	0.84	0.07
... longest no. of weeks unavailable in 2001	4.38	0.95	5.59	1.14	2.49	0.89	4.87	1.20	3.66	0.98	4.71	1.27	3.80	0.93
... free of charge	0.55	0.09	0.60	0.10	0.48	0.12	0.55	0.12	0.55	0.10	0.53	0.12	0.60	0.10
... price in Kina (zero if free)	0.32	0.07	0.28	0.07	0.40	0.09	0.30	0.08	0.36	0.08	0.34	0.08	0.29	0.07
Fansidar														
... available today	0.92	0.03	0.91	0.04	0.95	0.03	0.97	0.02	0.86	0.06	0.89	0.04	0.98	0.02
... longest no. of weeks unavailable in 2001	2.68	0.75	3.09	0.94	2.02	1.31	3.25	0.97	1.85	0.94	2.47	0.95	3.07	1.19
... free of charge	0.56	0.09	0.61	0.10	0.48	0.12	0.56	0.11	0.56	0.10	0.54	0.12	0.60	0.10
... price in Kina (zero if free)	0.32	0.07	0.27	0.07	0.40	0.09	0.28	0.08	0.37	0.09	0.35	0.09	0.26	0.06
Camoquine														
... available today	0.97	0.02	0.96	0.02	1.00	0.00	0.98	0.02	0.97	0.03	0.96	0.02	1.00	0.00
... longest no. of weeks unavailable in 2001	1.84	0.54	2.76	0.74	0.38	0.21	2.06	0.66	1.51	0.64	1.84	0.70	1.83	0.68
... free of charge	0.56	0.09	0.59	0.10	0.51	0.12	0.54	0.11	0.59	0.08	0.56	0.11	0.56	0.10
... price in Kina (zero if free)	0.34	0.06	0.32	0.08	0.38	0.08	0.34	0.09	0.33	0.07	0.34	0.07	0.35	0.09
TB blister packs														
... available today	0.51	0.06	0.48	0.07	0.56	0.11	0.44	0.09	0.61	0.07	0.45	0.08	0.61	0.10
... longest no. of weeks unavailable in 2001	5.99	2.30	7.19	2.91	3.96	2.45	7.99	2.94	3.07	1.95	5.97	2.89	6.03	3.20
... free of charge	0.61	0.09	0.65	0.07	0.53	0.16	0.58	0.13	0.64	0.08	0.61	0.12	0.59	0.09
... price in Kina (zero if free)	0.16	0.06	0.12	0.04	0.22	0.10	0.15	0.08	0.18	0.06	0.16	0.07	0.16	0.07
Condoms														
... available today	0.94	0.02	0.93	0.03	0.96	0.04	0.94	0.03	0.94	0.03	0.96	0.02	0.91	0.05
... longest no. of weeks unavailable in 2001	1.42	0.54	2.02	0.85	0.45	0.26	1.26	0.78	1.67	0.56	1.52	0.76	1.23	0.63
... free of charge	0.81	0.05	0.86	0.05	0.73	0.09	0.85	0.05	0.76	0.08	0.83	0.06	0.77	0.06
... price in Kina (zero if free)	0.14	0.04	0.12	0.05	0.16	0.05	0.09	0.03	0.21	0.06	0.10	0.04	0.20	0.06
Liniment														
... available	0.75	0.05	0.74	0.07	0.77	0.07	0.76	0.08	0.74	0.06	0.75	0.06	0.74	0.09
... longest no. of weeks unavailable in 2001	5.69	1.30	5.85	1.76	5.42	1.81	6.13	1.75	5.05	1.59	7.40	1.96	2.55	0.45
... free of charge	0.63	0.08	0.69	0.09	0.54	0.12	0.63	0.09	0.63	0.08	0.60	0.10	0.70	0.09
... price in Kina (zero if free)	0.30	0.05	0.27	0.07	0.35	0.08	0.26	0.07	0.36	0.07	0.32	0.08	0.26	0.06

Source: PESD 2002.

Source: PESD 2002.

THE OVERALL PICTURE

3.28 While the details on individual school facilities are important, an attempt is now made to provide a composite picture. For this purpose, we focus on the overall indices

for the five main categories of facilities discussed above, and explore their proximate correlates in terms of the location of the school in a poor or remote area, the agency of the school (government or church), the type of school (primary or a community), and the school's resource position as measured by per student non-grant revenues (Table 3.7).

3.29 The results suggest that for some facilities none of these factors seems to make any difference, as for instance in the case of electricity, water and sanitation, and teaching resources (Table 3.7). But for other facilities, one or another factor does exert an influence. Thus, controlling for other factors, schools in poorer areas tend to have poorer classroom facilities as also do schools in remote areas. Similarly, classroom facilities are also poorer in community schools relative to primary schools. However, poverty, remoteness, agency or type of school do not appear to have an effect on any of the other categories of facilities. It is notable that *ceteris paribus* government and church schools have comparable levels of facilities across all categories.

Table 3.7: Correlates of school facilities						
	Classroom index	Other Infrastructure index	Electricity, water and sanitation index	Closure and break-ins index^{a/}	Teaching resources index	Overall facility index
Poor (0/1) ^{b/}	-0.080 (2.13)**	-0.034 (1.34)	-0.017 (0.42)	0.005 (0.11)	0.002 (0.05)	-0.019 (0.64)
Remote (0/1) ^{c/}	-0.086 (2.75)**	-0.010 (0.28)	0.013 (0.37)	-0.078 (1.23)	0.019 (0.58)	0.010 (0.45)
Government (0/1)	0.019 (0.52)	-0.009 (0.32)	0.001 (0.04)	0.058 (1.05)	-0.024 (0.74)	0.001 (0.04)
Primary (0/1)	0.097 (3.63)***	0.018 (0.99)	0.032 (0.97)	0.023 (0.44)	0.043 (0.88)	0.027 (1.31)
Non-grant revenue quintiles:						
...middle 40% (0/1)	0.060 (0.84)	0.058 (1.57)	-0.018 (0.41)	-0.081 (0.73)	0.018 (0.44)	0.051 (1.43)
...top 20% (0/1)	0.099 (0.81)	0.108 (2.97)***	0.100 (0.93)	-0.304 (3.04)***	0.099 (1.54)	0.171 (2.15)**
...information missing (0/1)	0.009 (0.18)	0.003 (0.10)	-0.026 (0.63)	-0.091 (0.93)	0.013 (0.32)	0.021 (0.55)
Constant	0.443 (7.96)***	0.306 (6.83)***	0.482 (6.17)***	0.394 (3.48)***	0.294 (5.22)***	0.405 (8.82)***
Observations	202	207	193	198	174	156
R-squared	0.15	0.05	0.03	0.05	0.03	0.1
Mean	0.42	0.30	0.48	0.31	0.33	0.44
10th percentile	0.14	0.09	0.29	0.00	0.17	0.28
90th percentile	0.71	0.55	0.71	1.00	0.50	0.61
<p><i>Note:</i> Robust z statistics in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%. 0/1 indicates a binary variable a/ closure and break-ins index higher is worse case b/ using poverty rate (range 0-71%) for the LLG where the school is located, =1 if poverty rate is greater than 25%, =0 otherwise. c/ using school's remoteness index (range 0.03-0.72), =1 if remoteness index is greater than 0.29, =0 otherwise. <i>Source:</i> PESD 2002.</p>						

3.30 Resource availability on the other hand does make a difference; it significantly contributes to better other infrastructure facilities²³, and reduced closures and break-ins.

²³ Ranging from an administrative block, clear radio reception, school vehicle, sports area/equipment, agricultural area, to specialist classrooms.

We also constructed an overall facility index as a simple average of the indices for the five categories²⁴, thus implicitly averaging over 33 separate school facility measures. The overall facilities index lies between 0 and 1, has a mean of 0.44, a 10th percentile of 0.28 and a 90th percentile of 0.61, thus suggestive of significant shortcomings even at the top end. The results indicate that, other things being equal, better resource availability has a positive influence on the overall provision of school facilities.

²⁴ Prior to averaging, the index for closures and break-ins is recoded to 1 – the original index so as to render it comparable with the other indices where a higher value implies a better outcome.

4. SCHOOL FINANCES - I

4.1 The financial system and processes in the education sector in PNG are complex. In part, this reflects the history of more than 25 years of their evolution during which the size of the sector itself has grown several-fold in terms of both enrolments and budget. But in part, complexity also stems from frequent changes in policy that the sector has been subject to. In the last few years, there have been significant policy changes on an almost annual basis which have contributed to a confounding environment for providers, clients as well as administrators. In this and the following chapter, we review a few areas of concern with regards to school finances in PNG. This Chapter looks at: record-keeping and gaps in school-level financial information, and the level, composition and skewed distribution of school revenues and spending. Issues related to education subsidies, in particular the extent to which they reach down to the school level, are discussed in the following Chapter.

4.2 We begin with a simplified representation of the system of financial flows within the education sector for the year 2001. This is the first complete year before the PESD survey, and most of the financial data collected through the survey relate to this year. Moreover, after a sharp change in policy in 2002 (discussed later), the financial system in 2003 has more or less reverted back to its structure in 2001. A closer look at the system in 2001 is therefore instructive.

FLOW OF FUNDS IN EDUCATION

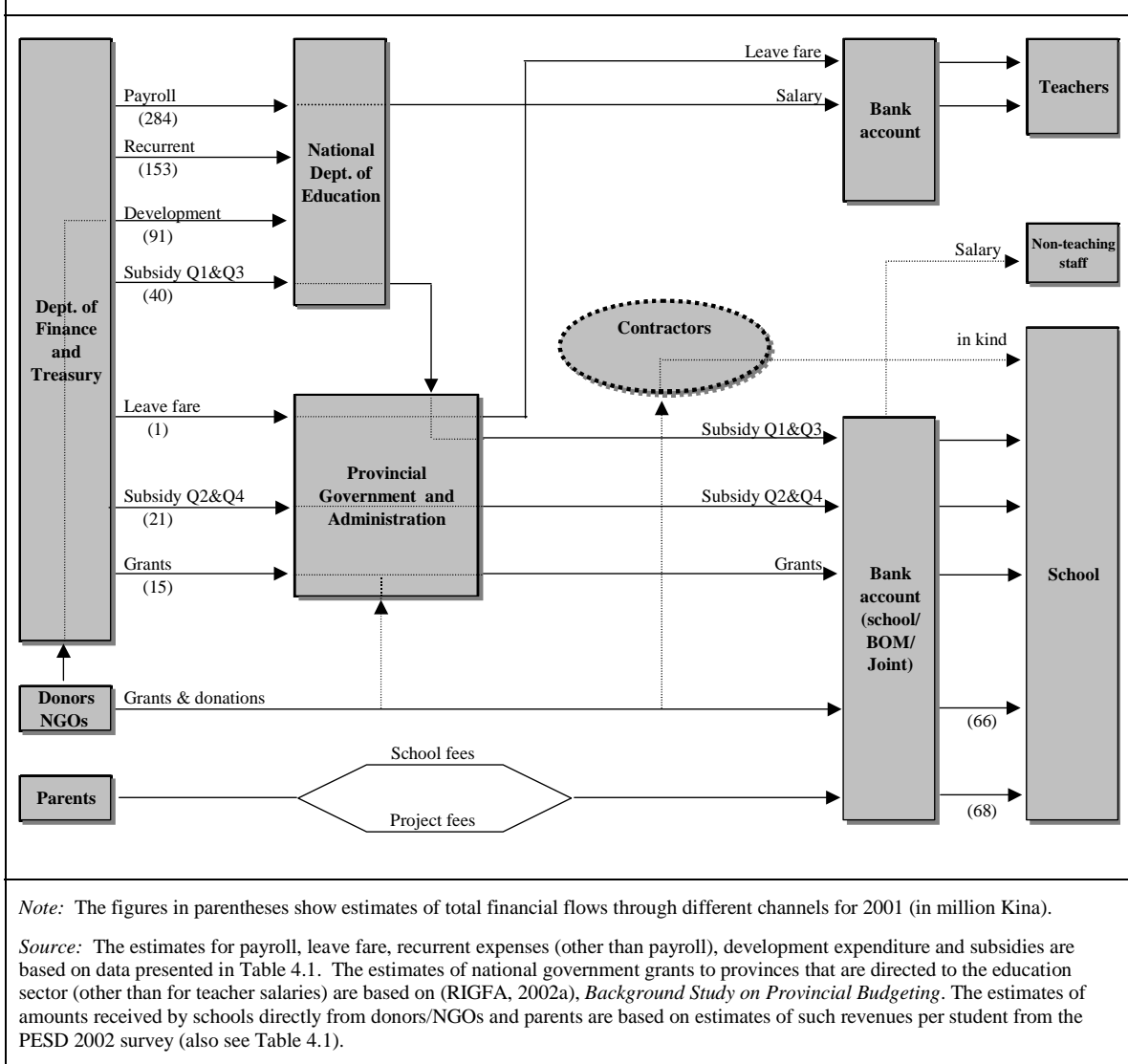
4.3 Figure 4.1 presents a schematic diagram of the flow of funds for PNG's education sector for 2001. At one end are the three main financiers of education: the government (primarily through the Department of Finance and Treasury); the donors and non-governmental organizations; and parents. At the other end are the "final" recipients of funds: schools, teachers and non-teaching staff. The two ends are connected by many different types of financial flows.

4.4 Governmental financing of education takes place through several different channels. First, there is the education payroll for salaries of teachers.²⁵ Teacher salaries do not pass through the school level, but are directly deposited into teachers' bank

²⁵ The payroll also covers public servants in the education sector (only 3% of the staff on the education payroll in 2002); see GoPNG (2002), Department of Education Annual Report 2002.

accounts or sent out as checks that can be collected through district treasuries or Provincial Department of Education (PDOE) offices.²⁶ The PESD data indicate that about four-fifths of teachers are paid by direct deposit and one-fifth by check. There are also leave fares for teachers, which in 2001 were paid through appropriations in provincial budgets. Payments to any non-teaching staff hired at primary/community schools (e.g. a security guard, cleaner or secretary) are the responsibility of the Board of Management (BOM) and are typically financed out of project fees charged to parents.

Figure 4.1: Funds flow chart for the education sector in PNG, 2001 (mK)



4.5 Another important channel of government financing is through the education subsidy that is paid on a quarterly basis in support of operational (non-teaching) expenses

²⁶ For further details on the teacher payroll process, see NRI. 2003a., *Public Expenditure and Service Delivery in Papua New Guinea*.

at the school level. In 2001, quarter 1 and 3 subsidy payments were the responsibility of the National Department of Education (NDOE), while quarter 2 and 4 payments were the responsibility of provincial authorities. In practice, the NDOE passed on the subsidy amounts to provincial authorities who had the option of bulk buying school material and distributing them to schools or distributing full cash grants to individual schools. In the former case, the schools would thus receive subsidies in kind supplied through contractors. The provincial component (for Q2 and Q4) itself could also take a cash or in-kind form.

4.6 Over and above the subsidies, there are also grants from the government. These include a large set of grants from the national government to provincial and local-level governments under the Organic Law of 1995²⁷ (through the recurrent as well as the development budget), e.g. administration grants, staffing grants (other than teacher salary grants), derivation grants, provincial infrastructure grants, local-level government grants, district support grants, and other development grants. These grants are absorbed in the provincial budgets which are further supplemented with provinces' own internal revenues.²⁸ The provincial budgets then allocate varying amounts to different sectors including education. There is no specific guidance to provinces in this regard, although the Medium-Term Development Strategy (MTDS) 2003-2007 identifies basic education as a sectoral expenditure priority (GoPNG, 2003), and the Organic Law requires 50% of the grants to be allocated to social services.²⁹

4.7 Non-governmental financing (other than parental contributions) can take the form of grants and donations from donors, church organizations, NGOs, donor agencies, other private institutions and fundraising activities. These could be directly delivered to the school or could go through government agencies, and could be in cash or kind form.

4.8 Finally, parents contribute directly to the school in the form of school and project fees. Project fees may or may not be imposed depending upon the policy of individual BOMs. Maximum fee limits are set by the National Education Board (NEB).³⁰

4.9 What sort of resources flow through these diverse channels? That is not an easy question to answer. Firstly, because the volume of resource flows varies from one year to the next, reflecting an underlying volatility in public policy (discussed further in Chapter 5). Secondly, for several channels, the associated resources are very hard to estimate from the available administrative/budgetary data; instead, the estimation has to rely on survey-based information that is typically non-existent. In Table 4.1, we put together the overall information for recent years, relying mainly on administrative/budgetary sources but also on the PESD survey data for direct private resource flows from parents, donors, and NGOs.

²⁷ Some of the transfers are not in the form of Organic Law grants (NEFC, 2002a), *Background Study on Provincial Budgeting*.

²⁸ The share of internal revenues in total provincial budgets was about a third in 2001 (NEFC, 2002b), *Analysis of 2001 'Fiscal Envelope'*.

²⁹ It is estimated that 32% of provincial spending was devoted to education in 2001 (NEFC, 2002b), *Analysis of 2001 'Fiscal Envelope'*.

³⁰ Parents occasionally also make contributions to the school in kind.

Table 4.1: Ministry of Education Budget and direct private contributions, 2001-2003

Total education	2001			2002			2003	
	(m K)	(%)	Devp. budget only (m K)	(m K)	(%)	Devp. budget only (m K)	(m K)	(%)
National Department of Education	181.61	30.8	(23.9)	80.55	315.57	45.9	127.54	206.79
Subsidy : total	40.00	6.8	(5.3)	--	135.00	19.6	--	40.00
Subsidy : primary	7.65	1.3	(1.0)	--	53.90	7.8	--	--
Higher Education	102.62	17.4	(13.5)	10.46	88.32	12.8	5.00	--
All provinces teacher salaries	284.10	48.1	(37.3)	--	283.90	41.3	--	315.46
Teacher salaries: primary	205	34.6	(26.9)	--	210	30.55	--	56.4
All provinces teacher leave fares	1.10	0.2	(0.1)	--	0.7	0.0	--	17.34
Teacher leave fares: primary	0.79	0.1	(0.1)	--	0.5	0.0	--	3.1
All provinces education subsidy	21.00	3.6	(2.8)	--	0.0	0.0	--	19.32
Education subsidy: primary	7.65	1.3	(1.0)	--	0.0	0.0	--	3.5
Total Ministry of Education Budget	590.44	100.0	(77.6)		687.79	100.0	132.54	558.91
Additional provincial allocation								100.0
200 series other than salaries, subs.	14.64	2.5	(1.9)					
700 series	22.31	3.8	(2.9)					
Direct private contribution								
Parents	67.75	11.5	(8.9)					
Donors/NGOs	65.67	11.1	(8.6)					
Total education	760.81	128.9	(100.0)					
Enrolment ^{a/}								
Number of students : total	875564	100.0			1014779	100.0		1063082
Number of students: primary	763493	87.2			890680	87.8		939545
Teachers								
Number of teachers : total	30622	100.0			32022	100.0		--
Number of teachers: primary	25728	84.0			26731	83.5		--
Institutions								
Number of schools : total	8075	100.0			8284	100.0		--
Number of schools: primary	7709	95.5			7916	95.6		--
Primary education	2001			2002				
	Per student			Per student				
	(m K)	(K)		(m K)	(K)			
NDOE development expenditure	6.70	9		18.74	21			
NDOE recurrent expenditure	17.02	22		65.09	73			
of which: NDOE subsidy	7.65	10		53.90	61			
All provinces subsidy	7.65	10		0.00	0			
All provinces teacher salaries/leave fare	205.34	269		210.58	236			
Total Ministry of Education budget	236.71	310		294.41	331			
Direct private contribution								
Parents	30.54	40		--	--			
Donors/NGOs	57.26	75		--	--			
Total primary education ^{a/}	324.52	425		--	--			

Note: 2001 enrolment figures from DOE (2001b); 2002 and 2003 enrolments based on total enrolment growth rates of 15.9% for 2002 and 4.76% for 2003 based on data presented in AusAID (2003). Direct private contributions for primary education are estimated as the product of primary enrolment and the relevant contribution per student directly estimated from the PESD survey data. For donor/NGO contribution for *total* education, the per student contribution from the PESD survey is also assumed to apply to post-primary enrolment, whereas for parental contribution for *total* education, it is assumed that parents pay the same proportion of the 2002 NEB-stipulated maximum fees for post-primary students as they do in the case of primary students.

^{a/} not including primary component of additional provincial allocation or NDOE recurrent/development expenditure indirectly benefiting primary education.

Source: DOE (2001a and 2002b), *Annual Report*; DOE (2001b), *Education Statistics of Papua New Guinea*; AusAID (2003), *PNG Education Sector Affordability Studies*.

4.10 Thus, in 2002 a total Ministry of Education budget of 688Km supported an education system of about a million students in about 8,300 schools with about 32,000 teachers. The budget for 2002 was the highest amongst the three years (2001-03) reflecting a large increase in education subsidy in that year that subsequently proved unsustainable (discussed at greater length in Chapter 5). Corresponding to the flow chart in Figure 4.1, a more complete picture is available for 2001. Payroll accounts for nearly half of the total Ministry of Education budget, or a little under two-fifths of the total education budget (of 761Km, about 8% of GDP) if private contributions and additional provincial allocations (other than through teacher salaries, leave fares and subsidies) are also taken into account. Subsidies account for about 8% (of the total education budget). Parental contribution and the direct contribution of donors/NGOs to schools are estimated to account for another 9% each. Additional provincial spending on education – other than teacher salaries, leave fares and subsidies – accounts for a further 6% (2.5% through the 200 series sourced from National Government funds, and 3.8% through the 700 series from internal revenues). The remainder – about 30% – is accounted for by other recurrent and development expenditure of the Department of Education.

4.11 The bottom panel of Table 4.1 shows the budget for the primary education sub-sector which is estimated at about 317Km. However, this does not include the primary education component of the additional provincial expenditures, or the NDOE recurrent/development expenditures (on its programs of Policy & Administration, Education Standards, and Teacher Education) that may indirectly benefit the primary sub-sector. Even assuming that as much as half of these expenditures go towards primary education, this would add another about 80Km to the budget, bringing the total primary education spending to about 400Km,³¹ just over half the total education budget. In contrast, the primary sector accounts for 95% of all educational institutions, 87% of all students, and 84% of all teachers in PNG.

4.12 Against the backdrop of this macro picture, how much do primary and community schools actually receive as revenues from various sources and what do they spend it on? In answering this question, the information collected through the PESD survey is vitally important. Part of the answer on the revenue side is already anticipated in the estimates in Table 4.1 for parental and direct donor/NGO contribution. But the answer is developed more fully in the rest of this Chapter, beginning first with the gaps in financial data at the school-level.

GAPS IN SCHOOL-LEVEL FINANCIAL INFORMATION

4.13 The PESD survey revealed large gaps in the financial data available at schools. This is not for lack of effort on the part of the PESD survey team, but primarily reflects

³¹ This compares with an estimate of K470m for the elementary and primary education sectors out of an aggregate education budget of K794m for 2001 reported in AusAID (2003), *PNG Education Sector Affordabilities Studies*, Paper 4.

the poor maintenance of accounts and record keeping at the school level. For a large number of schools, the available financial information is incomplete (Table 4.2). Thus, for instance, for the year 2001, only 52% of the schools reported valid positive amounts for total spending by the school, while 42% reported valid positive amounts for total revenues (from government and other sources). In the remaining cases, for at least one component of spending or revenues, the survey elicited a “don’t know” response. Thus, a full financial profile could be constructed for only 30% of schools that reported complete information on both the revenue *and* the spending side.

Table 4.2: Gaps in school level financial information, 2001

	Distribution		% reporting		
	# (unweighted)	%	Spending	Revenue	Both
By no./type of account					
Only one account	89	43	71	45	40
More than one account	101	45	46	45	28
At least one joint account	145	70	63	48	38
No joint account	45	18	42	36	19
No information	24	12	6	22	0
By remoteness					
Readily accessible	43	12	54	51	33
Accessible	70	35	53	39	27
Remote	63	32	51	42	32
Extremely remote	38	20	52	42	28
By poverty group					
Well off	51	21	47	30	16
Not poor	45	20	56	36	29
Poor	72	36	62	56	46
Very poor	46	22	38	38	17
By province					
Eastern Highlands	29	17	77	66	53
East New Britain	30	11	47	36	30
Enga	30	11	63	57	43
Gulf	19	8	63	35	25
Morobe	30	23	40	30	20
National Capital District	30	3	50	20	13
Sandaun	30	14	43	43	23
West New Britain	16	12	38	31	19
By agency					
Government	115	52	54	35	26
Church	99	48	50	50	34
By type					
Community	118	64	46	42	29
Primary	96	36	63	43	31
Total	214	100	52	42	30

*Note: Percentage reporting refers to schools accounting for positive amounts in the respective category.
Source: 2002 PESD.*

4.14 Poor record-keeping appears to occur across the board. Schools in more remote or poor areas appear to do no worse than other schools; and primary and community schools, government and church schools – all have comparable levels of financial information. There is some variation across provinces. Eastern Highlands and Enga

schools reported more complete financial information relative to NCD, West New Britain and Morobe where less than one-fifth of schools reported complete data on both revenues and spending. There is a suggestion that schools with a joint bank account or only one account tend to have more complete financial records (see Box 4.1 on the number and types of accounts maintained by schools).

Box 4.1: School accounting practices

Bank accounts maintained by schools constitute another element in understanding school finances. 88% of schools reported complete information on the *number and type of accounts* they operate. Nearly half the schools maintain a single bank account, and another one-third maintain two. One in six schools maintains three accounts, while only one in fifty schools report operating four accounts. On average, a school has 1.7 accounts.

Accounts held by schools by type, 2002

No. of accounts	Schools			Type of account				
	Unweighted	Weighted	%	Total	Joint	School	BOM	Other
One	89	93	49		82	4	7	0
Two	63	62	33	125	60	13	40	12
Three	33	30	16	90	21	22	22	24
Four	5	5	2	18	3	4	7	4
Total	190			326	166	43	76	41
Average number of accounts per school				1.7	0.9	0.2	0.4	0.2
% of schools reporting a particular account					80	22	38	17

Note: Two adjustments to the data were made given that the information on the number of accounts and type of accounts comes from the PESD survey, and the type of account question is a yes-no question which does not provide information on the number of accounts of Thus, first, if the number of different types of accounts for a school exceeded the total number of accounts it reported, we assumed one type and revised the total number of accounts to reflect that. On the other hand, if the number of types of account fell short of the total accounts, we assigned the difference to "Other" accounts. The weights are normalized to add up to sample number of reporting Source: 2002 PESD. All information was drawn from the School Questionnaire (S1) with the exception of whether the school has an managed only by the BOM, which was taken from the BOM Survey

The accounts could be classified according to who manages them, i.e. the school, the Board of Management (BOM), both entities or others. The most common types are the jointly managed by the school and the BOM. About half of all school accounts are joint accounts, while a quarter are BOM accounts. The presence of joint accounts is particularly important among those schools with single accounts. When a school has a single account, there is a 90% probability that it will be a joint account. School or BOM managed accounts are more significant among schools with multiple accounts.

Overall, 80% of all schools report a joint account, 38% report a BOM account and 22% report a school account. Thus, joint accounts seem to be the norm. Even when schools have BOM or school-managed accounts, it is mostly in combination with a joint account. Only 2% of schools have just a single school-managed account and less than 4% of schools have just a single BOM-managed account.

Source: PESD 2002 survey.

4.15 Regression analysis indicates there are few variables that predict better record-keeping. The number of BOM meetings, inspector visits, levels of parental-community participation and school autonomy,³² having an MP from the local area, level of poverty and remoteness – none of these seem to matter (Annex Table A6.1). Two factors that do appear to matter are: the head teacher's tenure at the school and his/her willingness to stay at the school next year. Longer tenure and greater willingness tend to promote better financial record keeping.³³ The schools maintaining at least one joint account also seems to help with better record-keeping.

SCHOOL REVENUES

4.16 What sort of revenues do the schools manage to generate through the various channels described in the financial flow chart of Figure 4.1? Based on data available through the PESD survey, a revenue profile of schools in PNG can be constructed. This is shown in Table 4.3.

Table 4.3: Per student revenues by revenue quantile, 2001

	<i>(Kina per student per year)</i>				<i>(percentage)</i>			
	Schools by quantile of per student revenues			Total	Schools by quantile of per student revenues			Total
	Bottom 40%	Middle 40%	Top 20%		Bottom 40%	Middle 40%	Top 20%	
Schools								
# (unweighted)	36	37	14	87				
%	45	39	16	100				
Revenues								
Fees								
School	8	44	43	29	26	31	8	16
Project	5	18	14	12	15	13	2	7
Total	13	62	56	40	41	43	10	23
Subsidies								
Monetary	12	22	15	16	39	15	3	9
In-kind	1	3	9	4	5	2	2	2
Total	13	25	24	20	43	18	4	11
Fees + subsidies	26	87	80	60	85	61	14	35
Grants^{a/}								
From the Government ^{b/}	0	30	144	39	1	21	26	23
From NGOs ^{c/}	4	25	332	75	14	18	60	43
Total	5	56	477	114	15	39	86	65
Total	31	142	557	174	100	100	100	100

Note: Calculations based on schools with positive revenues. Quintiles based on per student revenues.

^{a/} Grants include cash and in-kind receipts.

^{b/} Includes national, provincial, district and local level governments, and local politicians.

^{c/} Includes church organizations, NGOs, donor agencies, private institutions, funding activities and others.

Source: PESD 2002.

³² See Annex 5 for a description of how these are measured using PESD data.

³³ There is also an indication that schools with female head teachers have less complete financial information (Annex Table A6.1).

4.17 In 2001, the average school reported a total revenue of 174 Kina per student, of which fees accounted for 40 Kina (23%), subsidies accounted for 20 Kina (11%) and grants (from both government and other sources) accounted for 114 Kina (65%). However, the average picture here can be quite misleading because there is a huge dispersion around the average. Schools at the bottom end of the spectrum have much fewer resources at hand. When ranked by revenue per student, the bottom 40% of schools have an average revenue of only 31 Kina per student (or about US \$9 per student per year). Against this, the top 20% have a revenue of 557 Kina per student – almost 18 times higher. Nearly 90% of the difference is on account of grant revenues.

4.18 The large (two-thirds) average contribution of grants – about one-third of which come from government sources – to total school revenues is therefore also quite deceptive. These grants are often sporadic in nature, and their distribution across schools is highly skewed. A very small number of schools account for most of the grants, while the vast majority receive little or nothing. For instance, one-third of the schools received no grants at all (Table 4.4), and bottom 40% of the schools (in terms of total revenue per student) received an average grant of 5 Kina per student in 2001 (Table 4.3). Similarly, while nearly two-thirds of the schools with a grant receipt of less than 50K per student received 5% of the aggregate grants in 2001, the top one-third accounted for 94% (Table 4.4).

Table 4.4: Distribution of grant revenue per student, 2001						
Grant revenue/ student (Kina)	%age of schools	%age of total grants	Mean (Kina)			
0	34	0	0		Government	90
0 - 50	34	6	18		Donors	121
>50	33	94	267		Private business	46
Total	100	100	103		Other non-government	10

Source: PESD 2002.

4.19 For the top third of schools who receive K50/student or more in grants, the average grant amount is sizeable: K267/student. This comprises of K90 in grants from government, and K167 (63%) from donors and private business (for instance, mining companies); donors and private business together account for virtually all grants from non-government sources. However, even amongst the top third of schools that receive non-trivial grant amounts (of more than K50 per student), the distribution across schools is highly unequal; Gini indices of per student grants from government and non-government sources are 0.53 and 0.59 respectively.

4.20 Table 4.5 further suggests that there is no systematic pattern to the distribution of grant revenues from either government or non-government sources. If some schools are more likely to receive grants, they do not necessarily receive larger amounts, and vice versa. Regression analysis confirms this (see Annex Table A6.2). While binary variables

for some provinces (and for primary schools in case of non-government grants) are significant for the probability of a school receiving more than K50 in grants, once the grant amounts are factored in, none of the variables relating to remoteness, poverty, type, agency or location of school are found to be significant in explaining the amount of grants received from either government or non-government sources. Similarly, there is no evidence that the donor component of grants is unequally distributed across schools on account of their being better targeted to schools in poor or remote areas (Table A6.2). This lack of a systematic pattern is reinforced by the fact that these grants often tend to be a one-off event. Thus, for the vast majority of schools, they do not represent a dependable source of finance.

Table 4.5: Distribution of grant revenue per student, 2001

	Total grant		Government grant		Non-government grant	
	% schools receiving >K50	Avg. amount received by them	% schools receiving >K50	Avg. amount received by them	% schools receiving >K50	Avg. amount received by them
By province						
Eastern Highlands	25	270	11	135	18	242
East New Britain	13	173	9	204	0	0
Enga	48	251	41	168	17	304
Gulf	53	228	0	0	32	303
Morobe	41	361	23	126	27	383
National Capital District	41	133	12	207	35	99
Sandaun	32	287	0	0	28	321
West New Britain	20	275	13	306	0	0
By remoteness						
Accessible	36	208	16	126	21	222
Remote	30	395	14	244	16	430
By poverty						
Not poor	30	172	14	208	12	137
Poor	34	337	15	141	22	359
By agency						
Government	36	239	14	208	21	221
Church	30	311	15	126	16	417
By type						
Community	26	220	11	215	10	269
Primary	44	287	21	143	33	290
Total	33	267	15	166	18	286
<i>Source: PESD 2002.</i>						

4.21 Non-grant revenues on the other hand are more evenly distributed across schools, although there are significant differences with regards to these too (Table 4.6). For instance, non-grant revenue per student for the top 20% of schools was about 8 times higher than that for the bottom 40% of schools. Within non-grant revenue, subsidies account for a third, while fees accounts for two-thirds. Subsidies are the most evenly

distributed element of revenues across schools, although even in their case, subsidies per student for the bottom 40% of schools are about two-fifths of those for the top 20% – a difference that is not explained by the composition of students (lower vs. upper primary).

Table 4.6: Non-grant revenues (by quintiles of non-grant revenue per student), 2001

(Kina/student/year)

	Non-grant revenue per student quintiles conditional on revenues>0			Total
	Bottom 40%	Middle 40%	Top 20%	
Total	17	58	160	60
Fees	7	33	132	40
Subsidies	11	25	28	20

Source: PESD 2002.

4.22 An important feature follows from this profile. For the bottom 40% of schools, subsidies account for the largest share of total non-grant revenue, while for the top 20%, fees are the most important source. Thus, at the bottom of the spectrum, there is a group of these poorly-resourced schools that are mostly dependent on subsidies, receive a lower amount of subsidies per capita and are unable to raise any significant revenue by way of fees. Unfortunately, this is not a small group.

4.23 There are also significant variations across provinces and types of schools (Table 4.7). Non-grant revenue per student ranges from 19 and 25 kina in Sandaun and Gulf to 121 and 195 in West New Britain and NCD respectively. There is no significant difference between government and church schools, but non-grant revenues (per student) in primary schools are nearly 2.5 times higher than those in community schools. Of greater concern is the fact that non-grant revenues tend to decline with the degree of remoteness and level of poverty.

Table 4.7: Non-grant revenues per student, 2001 (Kina/student/year)

By province		By poverty	
Eastern Highlands	47	Well off	113
East New Britain	89	Not poor	66
Enga	48	Poor	53
Gulf	25	Extremely poor	20
Morobe	39		
National Capital District	195	By agency	
Sandaun	19	Government	57
West New Britain	121	Church	63
By degree of remoteness		By type	
Readily accessible	108	Community	33
Accessible	54	Primary	79
Remote	31		
Extremely remote	45		

Source: PESD 2002.

4.24 Regression analysis reveals some further noteworthy patterns in schools' revenue-generating abilities (Annex Table A6.3). There are some interesting similarities and contrasts between grant and non-grant revenues. Conditional on other factors, primary schools generate both more non-grant and grant revenue per student than do community schools. And notably, the participation of the BOM (measured somewhat crudely by the number of BOM meeting in the year) is also associated with higher grant and non-grant revenues. But beyond this, there seem to be different factors at work for non-grant and grant revenues.

4.25 In the case of non-grant revenues (subsidies and fees), there is a role for parent and community (P&C) involvement as well as school autonomy. Greater P&C involvement and autonomy, especially the former, both promote greater non-grant resources at schools. There is also an indication in the results that P&C participation and school autonomy can up to a point substitute for each other in terms of their revenue-enhancing effect; the effect of P&C participation tends to compensate for lower levels of school autonomy and vice versa.

4.26 In the case of grant revenues, P&C participation has no effect, and greater school autonomy is associated with lower revenues. Head teacher age seems to have an influence too: schools with relatively young or relatively old and thus more experienced head teachers tend to have higher grant revenues per student, while schools with head teachers in the middle ages tend to do worse.^{34 35} Interestingly, the number of inspector visits during the year has a positive effect on grant revenues.

SCHOOL SPENDING

4.27 How much do the schools spend and what do they spend on? Average cash³⁶ spending per student in 2001 was 72 Kina (Table 4.8). But, there are large disparities across schools. Spending levels range from 11 and 25 per student in the bottom two quintiles to 81 and 207 in the top two quintiles. Thus, average spending in the bottom 40% of schools is less than one-tenth of the spending in the top 20% of schools.

³⁴ The turning point is about 39 years while the median head teacher age is 42 years.

³⁵ There is also a negative effect of the head teacher being absent on the day of the interview. This could reflect under-reporting of grant revenues by other respondents. But this possibility should be tempered by two further considerations: first, that there is no similar head teacher absence effect on non-grant revenues, and second, that reporting of finances was mostly based on school or BOM records. Separately, we also tried to control for any memory bias in these regressions; however, the binary variable for financial reporting based on memory versus school/BOM records turned out to be insignificant suggesting an absence of memory bias.

³⁶ These spending rates relate to *cash* spending by the school, since the data were collated from responses to questions on how much was spent out of each school's bank account(s). Thus, in-kind subsidies and grants are not included in these calculations.

Table 4.8: Level and composition of spending, 2001

	Schools by quintile of per student spending >0					Total
	Q1	Q2	Q3	Q4	Q5	
Total spending (Kina/student)	11	25	41	81	207	72
Composition:						
Maintenance	19	25	22	24	23	23
Infrastructure	9	16	9	22	16	16
Basic Materials & Textbooks	36	24	28	23	21	23
Equipment & Transport	16	11	14	10	9	10
Others ^{a/}	20	23	27	21	31	28
Total	100	100	100	100	100	100
Schools						
# (unweighted)	28	19	24	20	22	113
%	25	19	25	19	12	100

Note: Calculations based on schools with positive spending. Quintiles are based on per student spending, hence each quintile contains 20% of the student population and that is the reason why the number of schools is not the same across quintiles. a/ others includes consumables/expendables items, extra staff and “other” items.

Source: PESD 2002.

4.28 Nearly half of school spending – about a quarter each – is on two items: maintenance, and basic materials and textbooks (Table 4.8). Another quarter is split between infrastructure (16%) and equipment and transport (10%). The remaining quarter is on a residual “others” category which includes consumables, expendable items, extra staff and other expenses. There is not a lot of systematic variation in spending patterns across the spending quintiles.

4.29 Disparities in spending levels are also prominent across provinces and types of school (Table 4.9). Across provinces, per capita spending ranged from 31 and 45 kina in Sandaun and Enga to 93 and 219 in East New Britain and NCD respectively. Levels of spending also decline with increasing levels of remoteness and poverty: per capita spending in the extremely remote and extremely poor schools is just over a quarter of that in readily accessible and well-off schools. Spending rates are very similar across government and church schools, but primary schools tend to spend nearly three times as much as community schools. A comparison with Table 4.6 readily establishes that in large part these disparities in spending mirror the differences in non-grant revenue across these categories of schools.

Table 4.9: School spending profile, 2001

	Distribution		Total spending per student (Kina)	Share of total spending (%)				
	# (un-weighted)	%		Maintenance	Infrastructure	Basic materials & Textbooks	Equipment & Transport	Others b/
By poverty								
Welloff	25	19	125	22	10	22	8	38
Not poor	26	22	67	32	17	15	10	26
Poor	44	43	64	17	19	30	12	22
Extremely poor	18	16	34	26	29	18	11	16
By remoteness								
Readily accessible	24	12	136	16	17	24	7	36
Accessible	37	36	58	27	12	22	14	24
Remote	33	32	47	32	24	18	10	16
Extremely remote	19	20	39	32	15	30	11	11
By province								
Eastern Highlands	22	25	58	14	21	32	15	18
East New Britain	14	10	93	34	29	19	7	11
Enga	19	13	45	19	4	29	13	35
Gulf	12	10	53	24	12	23	21	20
Morobe	12	18	53	44	11	19	9	17
National Capital District	15	3	219	19	14	17	5	45
Sandaun	13	12	31	32	33	18	5	12
West New Britain	6	9	74	27	4	24	12	33
By agency								
Government	62	54	71	23	13	21	11	32
Church	51	46	74	23	22	26	8	21
By type								
Community	55	57	32	30	19	26	12	14
Primary	58	43	95	22	16	22	10	30
Total	113	100	72	23	16	23	10	28

Note: Calculations based on schools with positive spending. Quintiles are based on per student spending, hence each quintile contains 20% of the student population and that is the reason why the number of schools is not the same across quintiles. a/ others includes consumables/expendables items, extra staff and "other" items.

Source: PESD 2002.

THE SCHOOL BUDGET

4.30 We now put the revenue and expenditure sides together to construct the overall financial profile of schools. We also incorporate teacher salaries to give a more complete picture. As discussed above, teacher salaries do not go through the school's budget system and are paid off the top through the education payroll. Thus, in an accounting sense, they could thus be thought of as entering on both the debit and credit side of the school's financial statement. Table 4.10 shows the revenue and expenditure statement of the average school in 2001.³⁷

³⁷ Note that this information is based on a more limited sample of 62 schools for which there is complete information on both the revenue and the spending side. For this reason the numbers in this and other Tables in this section differ from those reported earlier.

Table 4.10: Revenue & Expenditure Statement of an average school, 2001*(kina per student per year)*

<u>Revenues</u>		<u>Expenditures</u>	
Fees		Cash Expenditures	
School	24	Maintenance	16
Project	12	Infrastructure	12
Other	1	Basic Material & Textbooks	20
Sub total	37	Equipment & Transport	6
		Others a/	13
		Sub total	67
Subsidies		Subsidies	
Monetary	17		
In-kind	4	In-kind	4
Sub total	21		
Total	58	Total	70
Teacher salaries b/	299	Teacher salaries b/	299
Total including teacher salaries	357	Total including teacher salaries	370
(Grants - median	25)		
Revenue deficit (+) / surplus (-)	-12		
Grand total	345	Grand total	370

Note: Calculations based on schools with positive spending and revenues (62 schools)

a/ Others include consumables/expendables items, extra staff and other b/ Teacher salary figures from PESD survey, using average annual teacher salary 11370 kina and student teacher ratio 38.

Source: PESD 2002

4.31 The typical primary/community school received 21 kina per student in subsidies during 2001. It raised 37 kina per student through school and project fees, thus making a total of 58 kina per student in annual non-grant revenues. Against this, its total spending (including subsidies in kind) was 70 Kina. Thus, schools on average tend to spend more or less in line with their non-grant revenues. As discussed above, grant revenues are not a dependable source of finance for the vast majority of schools. For completeness, we also report the median grant revenue of 25 Kina in the above financial statement.³⁸ If grant revenues are counted in, the average school budget has a surplus of 12 Kina/student in 2001; if they are excluded, it has a deficit of 12 Kina/student.

4.32 A special mention needs to be made of teacher salaries which account for about 300 kina per year on a per student basis, and are by far the largest single item on the school financial statement – about 80% of the school budget. It is important to note that this is the real subsidy in the education sector, and the so-called “education subsidy” of 21 Kina per student is less than one-tenth (7%) of the subsidy by way of teacher salaries.³⁹

³⁸ The mean is sensitive to extreme values, and in the case of grant revenues, a misleading measure of the average in view of their highly skewed distribution as discussed above.

³⁹ For further discussion of teacher salaries, see Chapter 6.

4.33 How different are the budgets of schools with different levels of non-grant resources? There is an indication that poorly-resourced schools spend above their non-grant revenues, while well-resourced schools spend below their non-grant revenues (Table 4.11).⁴⁰ This probably reflects some smoothing of spending across years. It also reflects the fact that schools with low non-grant revenues dip into their grant revenues, however limited and uncertain they may be, to support their spending levels, which nonetheless remain relatively low. It remains a matter of some concern that per student spending (excluding teacher salaries) in the bottom 40% schools is only about a quarter of that in the top 20%.

Table 4.11: Revenue & Expenditure Statements of schools, by level of non-grant revenues, 2001

(kina per student per year)						
	<u>Revenues</u>			<u>Expenditures</u>		
	<u>Quantiles by non-grant rev./student</u>			<u>Quantiles by non-grant rev./student</u>		
	Bottom 40%	Middle 40%	Top 20%	Bottom 40%	Middle 40%	Top 20%
Fees				Cash Expenditures		
School	4	18	82	Maintenance	12	9
Project	0	0	0	Infrastructure	3	22
Sub total	7	30	115	Basic Material & Textb	8	26
				Equipment & Transport	6	4
				Others ^{a/}	6	9
				Sub total	34	71
Subsidies				Subsidies		
Monetray	9	22	26	In-kind	2	2
In-kind	2	2	9			
Sub total	12	24	35			
Total	19	54	150	Total	37	74
Teacher salaries^{b/}	246	302	412	Teacher salaries	246	302
Total incl. teacher salaries	265	356	562	Total incl. teacher salaries	283	375
Revenue deficit(+)/surplus(-)	18	19	-13	Grand total	283	375
Grand total	283	375	549			

Note: Calculations based on schools with positive spending and revenues (62 schools)
a/ Others include consumables/expendables items, extra staff and other
b/ Teacher salary figures from PESD survey, using average annual teacher salaries of 11901, 11191, 10603 kina and student-teacher ratios of 49, 38, 25 respectively for the bottom, middle and top schools.
Source: 2002 PESD

4.34 In terms of total spending, teacher salaries are in general an equalizing force across schools. However, as Table 4.11 shows, there are limits to such equalization due to differences in student-teacher ratios across schools. Teacher salaries *per student* still tend to be much lower (about 40% lower) for the poorly-resourced schools than for those at the top end. This mainly reflects the significantly higher student-teacher ratios in the poorer schools. Even including teacher salaries, the bottom 40% of schools spend only about half as much as what the top 20% of schools spend for every student enrolled.

⁴⁰ Across provinces, the ratio of non-grant revenue to spending ranged from 50 to about 140 percent.

5. SCHOOL FINANCES – II

5.1 This Chapter deals with education subsidies. In the PNG context, education subsidies refer to public transfers to schools (in cash or kind) that finance the non-salary component of school operational costs. Teacher salaries, as mentioned earlier, are directly paid by the National Government, and effectively are the biggest component of the overall “subsidy” to the education sector. Nonetheless, education subsidies in the narrow sense in which they are referred to in PNG are still an important part of GoPNG’s total social spending, and a significant component of the overall resource envelop at the school level. As a source of finance for inputs that are highly complementary to teaching, education subsidies have a potentially important role in influencing the quality of education services generated at schools.

5.2 The other important angle to the question of education subsidy in PNG – the one that also makes it highly politically-charged – is that while public financing of all teacher salaries is practically taken as axiomatic by everyone, the amount of the education subsidy is directly, and inversely, linked to parental contribution to education, in both perception and practice. The greater the volume of subsidy, the closer the system moves to a “free education” policy.⁴¹ Thus, over the last decade or so, education subsidy has been a veritable political battleground for settling the shares of public and parental contribution to the financing of education in PNG.

5.3 However, notwithstanding its functional and political importance, there have been continuing concerns about how effectively the subsidies earmarked for schools (and public resources more generally) have been reaching their intended destination (see Box 5.1). Several questions have been raised in this regard. Do community and primary schools actually receive the subsidies they are supposed to get? What is the extent of leakage of education subsidy (subsidy entitlement versus subsidy actually received by the school), and does such leakage vary by characteristics of the school or over years of changes in policy? While uncertainty in the timing and amount of education subsidy received by schools is detrimental to their planning process, what can be said about the variability of the receipt of subsidies and the delays involved? This Chapter attempts to answer these questions using PESD data, and thereby tries to highlight some important problems with this component of education finances in PNG. We begin by presenting the policy and administrative setting for education subsidies in PNG.

⁴¹ This is also linked to the goal of universal primary education (UPE). For instance, the Education Planners’ Workshop in Lae in October 2001 took the view that UPE will not be achievable in the absence of compulsory primary education, and compulsory education in turn will need to be either free or heavily subsidized (NDOE, 2002a. *The State of Education in Papua New Guinea*).

Box 5.1: K6 million missing

A report bearing the above title appeared in the *Post-Courier* of November 14, 2003, and read as follows:

“Education minister Michael Laimo yesterday promised to look into a missing K6 million from the Eastern Highlands provincial education board (PEB). EHP Governor Malcom Smith said the finding was detected after the EHP audit team found K6 million missing from the PEB’s accounts books between the years 1990 and 2000, which was not accounted for. He generalized the issue by asking parliament as to whether each government department had audit teams to ensure accountability.”

POLICY ENVIRONMENT AND ADMINISTRATIVE PRACTICE

5.4 The history of government policy relating to education subsidies in PNG can be characterized by volatility in terms of the level of subsidy allocated in given years, the announced purpose of the subsidy, and the administrative arrangements for its disbursement. This volatility has left in its wake a highly confused environment for all stakeholders, from policymakers, to providers down to clients, with much obfuscation of expectations and responsibilities.

Recent history of school fee subsidy program: 1993-2003

5.5 The following brief account of the checkered history of education subsidies based on the NDOE (2002a) *State of Education* report is illustrative and speaks for itself.

In **1993** the Wingti Government announced a free education policy that largely seen as being a ploy to win the 1992 general election. Parents were told that they were not going to be required to pay any fees at all... Many problems arose including a large rise in enrolment ... Numbers in Grade 1 in 1993 rose by some 12% against the average rise of 4%, the figure that was used for all future planning and teacher projections. This very high enrolment worked its way through the system and is still causing problems today. In the end, it became clear that ‘free’ education was not sustainable and schools started to charge fees again – indeed many schools charged project fees even in 1993.

The School Fee Subsidy was reintroduced, following the failure of the Wingti initiative, in **1996** with K32m provided to the Department. Financial support to schools from the National Government continued in **1997**, **1998** and **1999** in various forms. The amounts of money allocated each year varied as did the method of distributing the money. Lessons had clearly been learnt. The term ‘free’ was never used. The idea of a subsidy was used in all rhetoric and it was portrayed as being to take some of the burden away from parents whilst still emphasizing the need for partnership. Indeed, the Departmental theme for 1998 was ‘Partnership in Education’.

5.6 Several problems arose from the policies and administration of the school fees subsidy up until 2000. One was that small (and in particular, remote) schools were often

unable to spend the funds in an effective manner. The problems faced by some schools included: having to incur large costs traveling to towns where the subsidy funds could be spent on materials; absence of bank accounts for depositing the subsidy cheques; changes in head teacher or chairman of the BOM resulting in schools not being able to access bank accounts. There were also problems with the acquittal process. Schools had to acquit their first quarter subsidy before they could receive the third quarter allocation, and this caused delays in many areas. The NDOE (2002a) *State of Education* report notes further:

It was because of the problems relating to subsidies for basic education that there was a change in strategy for the **2000** subsidy scheme. It was decided that the Department would bulk purchase, and then distribute, basic school materials for the elementary and primary schools. Eight tenders were let – four for the procurement of materials (one for each region) and four for the distribution of the materials to each individual school. The lead time was such that no materials arrived in any schools until early 2001. This was only in the southern region. The Department is still involved in court action regarding the materials for the other three regions.

5.7 There was a further change in policy in **2001**.

[In **2001**] ... the Government Assistance to Quality Education Program (GAQEP) was adapted slightly to take account of lessons learned from previous years... The comparative failure of centralized purchase of materials in 2000 meant a rethink of this [elementary and primary education] component. Cheques were sent to provinces [by the Department for its component of the subsidy] for the elementary and primary schools based upon projected enrolments by school. The Department was again responsible for the 1st and 3rd quarters, with the Provinces taking on the 2nd and 4th. Provinces were given the option of either sending the money out directly to the schools, or to purchase materials themselves and distribute them to the schools... Provinces were required to send in acquittals and enrolment returns from the 2nd quarter in order to qualify for the 3rd quarter subsidy. Many of these were late in arriving which resulted in the 3rd quarter grants being delayed.

5.8 Late in 2001, the Government decided to significantly increase (by nearly 2.5 times) the budget allocation to the school fee subsidy program for **2002**. The NDOE 2002 *Annual Report* gave the following account of the new policy.

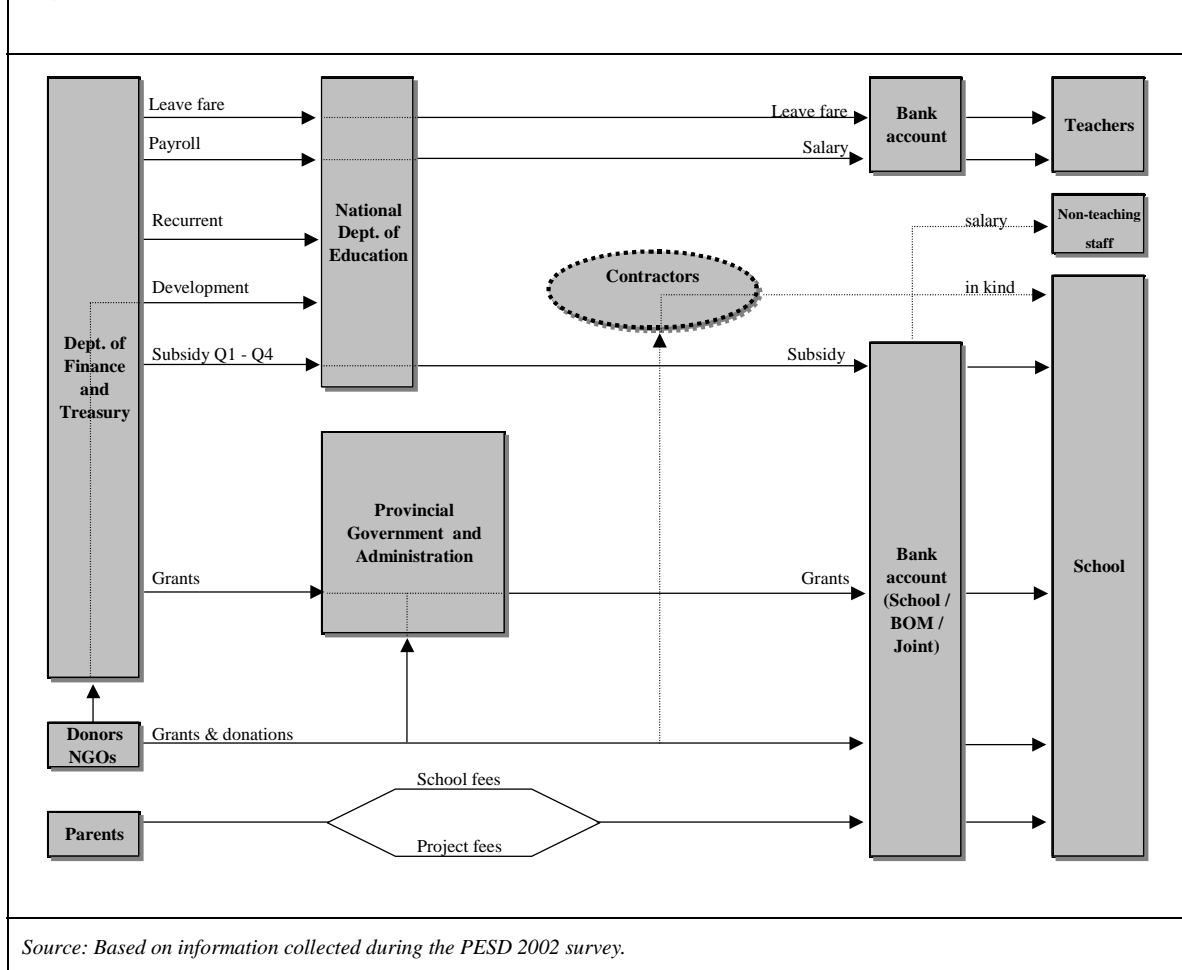
In the **2002** budget estimates K135 million was allocated in the Department's recurrent budget to fund the National Government contribution to school fee subsidies. This was for payments in each of the four quarters. No appropriation for education subsidy was included in Provincial Government budgets.

The NEC decision was that the National Government would fully subsidise the amount of the NEB maximum fee limits for children from Elementary to Grade 12.

All schools were to receive cash grants at the beginning of each quarter... Distribution strategies were specifically aimed at ensuring timely delivery of the subsidy cheques to the schools at the district level... A one day orientation session was held in each province at the beginning of each quarterly distribution, for the policy to be explained and the distribution to be coordinated. Only heads of schools, or chairpersons of school boards who were verified by the distribution team members, were authorized to collect the cheques.

5.9 In practice, especially for the first two quarters, subsidy cheques were often hand-delivered by prominent government representatives (including the Prime Minister, the Deputy Prime Minister, the Minister of Education and others) at public ceremonies. In any event, a distinguishing feature of the subsidy program in 2002 was the bypassing of the provincial budgetary channel. The system of flow of funds for 2002 is shown in Figure 5.1, which can be compared with corresponding chart for 2001 (Figure 4.1 in the previous chapter).

Figure 5.1: Funds flow chart for the education sector in PNG, 2002



5.10 There were claims that the “free education” policy had been resurrected especially in the context of the upcoming national elections of July 2002. There was tremendous confusion over whether parents were required to pay any fees at all, and this was not helped by often conflicting statements from ministers, national bureaucracy, and provincial administration (see Chapter 7). In the end, as documented later in the chapter, a significant proportion of schools did try to raise resources from the parents.

5.11 The substantially enhanced subsidy program of 2002 lasted just a year. The new incoming government lost little time in scaling back the program which appeared to be financially unsustainable. Thus, the subsidy system in **2003** more or less reverted back to how it was in 2001.

The 2002 total figure of K150m⁴² has been reduced to K60m. As in 2001, K40m has been included in the Department of Education budget with the remaining K20m in the 20 provincial budgets. The K20m included in the provincial budgets is, supposedly, on the basis of enrolment in each of the provinces... The K40m in the Department of Education budget will be allocated based upon the enrolment of the institutions... As in previous years allocations for the Department will be made in quarters 1 and 3.

5.12 In 2003 there were also changes in the purpose of the subsidy. In a reversal of previous policy, “the subsidy money [was] *only* to be spent on infrastructure and maintenance” (DOE 2003, *The State of Education in Papua New Guinea*).

Subsidy disbursements over time and across sectors

5.13 School fee subsidies have continued to be politically popular, and this in part helps explain the volatility in the amounts of subsidy over the years. As indicated in Table 5.1, the portion of school fee subsidies allocated to basic (elementary and primary) education more than doubled from K15m in 1998 to K40m in 1999, but then dropped back again in 2000 and 2001 before jumping to K54m in 2002. As shown later, this high volatility in the absolute amounts of the school subsidy has led to considerable uncertainty amongst different stakeholders as to what subsidy to expect in any given year, in turn impacting negatively on the planning process.

Table 5.1: Budget subsidy disbursements, 1998 to 2002

		1998	1999	2000	2001	2002
Allocation (Km)	Basic	15	40	14	15	54
	Post primary	23	36	26	36	79
	Total	38	76	40	51	133
Allocation (%)	Basic	39	53	36	30	40
	Post primary	61	47	64	70	60
	Total	100	100	100	100	100
Allocation per student (K)	Basic	24	70	20	20	60
	Post primary	136	146	235	384	795
	Total	48	93	49	60	133
Enrolment (%)	Basic	79	70	87	89	90
	Post primary	21	30	13	11	10
	Total	100	100	100	100	100
Subsidies as % of total education spending		6	11	6	6	16

Note: For 1998-2001 it is assumed that provincial subsidy distributions to basic education match those of NDoE.
Source: PNG Education Sector Affordability Studies, AusAID, 2003

⁴² In addition to the K135m allocated in the Department’s recurrent budget, this also included a further K15m allocated in the development budget under the Commodity Assistance Support Project (CASP) for supplying textbooks to primary schools that introduced grade 7 and 8 classes.

5.14 The figures in Table 5.1 also clearly indicate that only in 1999 were a majority of subsidies allocated to basic education. In 2002, 60% of the total subsidy allocation was directed to post-primary education, despite the fact that this sector only accounted for 10% of total enrolment.⁴³ This situation is problematic since it is generally acknowledged that while the community as a whole benefits from children receiving a basic education, the benefits of post-primary education are more limited to the students themselves. Given limited resources, this has implications for attaining the goal of universal primary education in PNG and also for the design of an effective scholarship program at both basic and post-primary levels for talented but disadvantaged children. These issues are taken up again in Chapter 7 when we discuss the policymaker-client relationship. In the remainder of this Chapter, we focus on subsidies for the basic education sector.

HOW MUCH SHOULD SCHOOLS RECEIVE? SUBSIDY ENTITLEMENTS, DISBURSEMENTS AND EXPECTATIONS

5.15 A good starting point for the analysis of education subsidies is an examination of information on what the schools “should” be receiving in education subsidies. This is not a straightforward question to answer. There are three types of information available on this topic leading to at least three different notions of what the schools should receive: (i) official subsidy entitlement rates, as declared by the government and reported in NDOE documents, (ii) actual budget disbursements for both the NDOE and the provincial components of the subsidy estimated via two approaches, as discussed below, and (iii) subsidy rate expectations held by the school administration, as reported in the PESD survey.

Official subsidy entitlement rates

5.16 The official subsidy entitlement rates are reported in Table 5.2. These figures are the per student subsidy entitlements as announced through Ministerial Policy Statements and/or Secretary’s Circulars. For 2001, the figures first show the entitlement rates to be paid by NDOE in Q1 and Q3. The provinces were responsible for subsidy payments in Q2 and Q4, though no explicit entitlement rates were established for them. The expectation however was that the provinces would match the NDOE amounts, and this is reflected in the “total” rate for 2001 in Table 5.2. In 2002, since there were no provincial contributions, the NDOE entitlement rates for that year reflect the “total” rate. The big spike in the rates for 2002 is obvious. Rates up to grade 6 increased 4-fold, while those for grades 7 and 8 increased more than 6 times. This increase was seen to be financially unsustainable, especially in view of the projected large increases in grades 7 and 8

⁴³ This is similar to the post-primary bias in the overall public spending on education noted above in Chapter 4. One reason for the skewing of subsidies towards post-primary education in 2002 was that the Government agreed to pay boarding as well as tuition fees for a post-primary schools. The NDOE has suggested that boarding fees should perhaps remain the responsibility of parents (DOE, 2003, *State of Education in Papua New Guinea*, p. 56)

enrolments. By 2003, the entitlement rates were pulled back to about the same levels as in 2001.

Table 5.2: Per student official subsidy entitlement rates, 2001-2003

	2001		2002	2003
	NDOE Q1 & Q3	Total ^{a/}	Total	NDOE Q1 & Q3
Prep to Grade 2	5	10	40	5
Grades 3 to 6	10	20	80	15
Grades 7 and 8 - primary	20	40	250	40

^{a/} Total rates for 2001 assume provincial component matches NDOE component.
Source: State of Education in PNG (various years), NDOE.

Budget disbursements

5.17 With regards to budget disbursement data on subsidies, there are several limitations with the data for 2001. First, only aggregate budget data for all schools by province are available. Thus, we do not have direct information on disbursement to the sample of schools included in the PESD survey. (In contrast, for 2002 we do have this information.) Hence, the per student subsidy for 2001 has been estimated using the total primary education subsidy disbursement and the enrolment figures for each province. Second, even this calculation can be readily performed only for the NDOE component (for Q1 and Q3). For the provincial component (paid in Q2 and Q4), we only have information on budget subsidy disbursement for all levels of education; there is no information on how much of that is for primary education.

5.18 **First budget disbursement estimate for 2001 (“Budget I”).** Hence, the provincial component for primary education subsidies has been estimated using two approaches. In the first approach (Budget I), we assumed that provinces allocate the same proportion of their education subsidies budget to primary education as does the National Government (viz., 19 percent). With this approach, the average subsidy allocated per student is 25 kina (Table 5.3). This can be compared with the average official subsidy entitlement rate of 23 kina per student; the latter is calculated using the official entitlement rates in Table 5.2 and actual enrolment data for 2001 for the schools in the PESD survey.

5.19 **Second budget disbursement estimate for 2001 (“Budget II”).** However, since many universities and secondary schools are funded at the national level, there is reason to expect that the share of provincial subsidies directed to primary education will in fact be *higher* than the 19% found for the national government component. For this reason, a second method was used to estimate the primary component of provincial education subsidies, which assumes that the provincial primary subsidy disbursement exactly

matches that of the NDOE.⁴⁴ This method is equivalent to the provinces allocating an average of 33% of total subsidies to primary education, and it implies an average total subsidy per student of 29 kina.

Table 5.3: Official subsidy entitlements and budget disbursements, 2001						
	Official Entitlement Rate ^{a/}	Budget I ^{b/}			Budget II ^{c/}	
		NDOE (Q1 & Q3)	Provincial (Q2 & Q4)	Total	Provincial (Q2 & Q4)	Total
By province						
Eastern Highlands	21	14	15	29	14	28
East New Britain	25	14	11	26	14	29
Enga	24	13	7	20	13	26
Gulf	21	24	9	33	24	47
Morobe	23	12	5	18	12	25
National Capital District	29	26	10	35	26	51
Sandaun	18	8	6	14	8	16
West New Britain	24	14	13	27	14	29
By remoteness						
Easily accessible	27	17	10	28	17	35
Accessible	22	13	11	24	13	27
Remote	21	15	10	25	15	29
Extremely remote	22	13	7	20	13	26
By poverty group						
Well off	24	20	10	30	20	39
Not poor	25	14	10	24	14	27
Poor	23	15	11	26	15	29
Very poor	19	9	6	15	9	18
By agency						
Government	24	16	11	27	16	32
Church	22	13	9	22	13	27
By type						
Community	18	13	10	23	13	26
Primary	26	16	10	26	16	32
Total	23	15	10	25	15	29
<i>Note:</i> Totals may not add up due to rounding. 2001 data constructed for a weighted sample of 112 schools for which there exists complete data on both subsidies received and enrolments (the unweighted sample consisted of 117 schools). ^{a/} Assumes provincial official entitlement matches NDOE entitlement. ^{b/} Provinces and NDOE allocate same proportion of education subsidies budget to primary education. ^{c/} Provincial primary subsidy disbursement exactly matches that of NDOE <i>Source:</i> NDOE and PESD 2002 Survey.						

5.20 The official entitlement rates are relatively flat across the provinces. This is unsurprising since, by construction, the variation across provinces only reflects the differences in provincial enrolment patterns (*i.e.* the shares of students in grades 1-2, 3-6 and 7-8⁴⁵). The budget subsidy disbursements in comparison are significantly more variable. For example, while the official entitlement rates range from K18 (Sandaun) to K29 (NCD) per student, budget I disbursements range from K14 (Sandaun) to K35

⁴⁴ As noted above, the 2001 figures in Table 5.1 are also constructed under this assumption.

⁴⁵ If all provinces had the same shares of students across these grade ranges, the official entitlement rates would be identical across provinces.

(NCD) and budget II disbursements range from K16 (Sandaun) to K51 (NCD). The implication is that if NCD students are being allocated an average subsidy that is 2.5 to 3.3 times higher than the students in Sandaun, this is not just the product of differences in enrolment patterns. Going by the enrolment patterns alone, the allocation should have been no more than 1.6 times higher. A similar comment applies to the budget disbursements across the poverty groups. This issue is further considered below in the analysis of subsidies actually received by schools in the PESD.

5.21 Budget disbursements for 2002 (Q1 and Q2). The situation was simpler in 2002 as there were no provincial education subsidies during that year. Table 5.4 presents the official entitlement rates and budget disbursements for the first two quarters of 2002. We do not present data for the entire year because the PESD survey only covered Q1 and Q2. However, in contrast with 2001, for 2002 we have information on the subsidies directly allocated to individual schools, so that for this year the budget disbursements relate specifically to the schools in the PESD survey.

Table 5.4: Official subsidy entitlements and budget disbursements, 2002 (Q1 and Q2)

(Kina per student)

	Official entitlement rate ^{a/}	Actual budget		Official entitlement rate ^{a/}	Actual budget
By province			By poverty group		
Eastern Highlands	54	37	Well off	68	49
East New Britain	68	52	Not poor	59	46
Enga	61	46	Poor	60	45
Gulf	64	43	Very poor	54	40
Morobe	54	44			
National Capital District	77	60	By agency		
Sandaun	51	36	Government	62	45
West New Britain	63	49	Church	58	45
By remoteness			By type		
Easily accessible	71	53	Community	43	32
Accessible	58	45	Primary	73	54
Remote	55	36			
Extremely remote	56	47			
Total	60	45			

Note: 2002 data constructed for a weighted sample of 181 schools for which there exists complete data on both subsidies received and enrolments (the unweighted sample consisted of 186 schools).
^{a/} Annual entitlement has been halved.
Source: NDOE and PESD 2002 Survey.

5.22 Table 5.4 shows that budget disbursements in 2002 fell short of the official entitlement rates. This is consistent with the discrepancy between anticipated and actual budget disbursements for the elementary and lower primary grades noted in the NDOE *Annual Report* for 2002. Instead of the anticipated K40 and K80 per student for the four quarters (see Table 5.2), the actual disbursements that could be made with the funds released by the Department of Treasury were K33 and K65 respectively (DOE, 2002b, p.41). It is also notable that there is more limited variation across provinces in budget

disbursements or entitlements. The former range from K36 (Sandaun) to K60 (NCD) and the latter range from K51 (Sandaun) to K77 (NCD). The similar range indicates that for 2002 (in distinct contrast to 2001) most of the variation in per student subsidy disbursements is on account of the variation in enrolment patterns.

Subsidy rate expectations of school administration

5.23 In general, there is a great deal of confusion on behalf of school administrations regarding education subsidy entitlements and payments. This confusion reflects frequent changes in Government policy that are poorly communicated downstream, *ad hoc* processes for subsidy payments routed through Provincial Governments (as in case of Q2 and Q4 payments), and periodic adjustments of even the direct subsidy payments by NDOE when they are faced with a tight budget constraint. This environment has led to considerable uncertainty at the school level with regards to whether in any quarter they would receive the subsidy or not, and if they would, how much would be received.

5.24 This confusing environment is captured by the PESD survey, which records information on the subsidy rate *expected* by the head teachers, Provincial Education Advisors (PEA) and District Education Advisors (DEA) for their schools (Table 5.5).⁴⁶ The DEAs and PEAs appeared to have quite unrealistic expectations regarding subsidies in 2001 – their average expected subsidy rate of K85 per student is over twice the entitlement expected by the head teachers. Further, it is much higher than the official 2001 subsidy entitlement rates and estimated budget disbursements shown in Table 5.3 that are in the range of K23-K29 per student. Another interesting observation is that in 2001 poorer and more remote schools had lower expectations regarding subsidy entitlements than schools that were located in wealthier and more accessible areas. These “scaled down” expectations regarding subsidy receipt largely correspond with the reality of budget disbursements for 2001, as revealed in Table 5.3.

5.25 However, the degree of confusion appears to have abated in 2002, arguably related to shift to the direct (and in-cash) distribution of subsidies to the schools. The DEA and PEA expectations regarding subsidy payments were more in line with the expectations of head teachers. It is also apparent that in 2002, there is not as much variation in subsidy rates expected by the schools, along the dimensions of remoteness, poverty level and also across provinces.

5.26 It is also curious to note that PEA/DEA expectations for 2001 and 2002 subsidies are not very different to each other, despite a significant change in the subsidy regime. This suggests possible confounding of the two years by the PEA/DEAs, but more portently a disconnect between provincial/district administration and the school reality at one level and a disconnect with national education administration at the other end.

⁴⁶ The survey asked about government subsidy per student for lower and upper primary. The responses were averaged for each school using its lower and upper primary enrolment for the year in question.

Table 5.5: Subsidy rate expectations of school administration, 2001 and 2002

	2001			2002		
	Head teacher	PEA	DEA	Head teacher	PEA	DEA
By province						
Eastern Highlands	19	94	44	95	119	87
East New Britain	46	73	66	57	68	84
Enga	47		95	78	126	129
Gulf	27			78	130	
Morobe	18	98	100	80	118	82
National Capital District	68	56		106	155	
Sandaun	26	45		79	114	105
West New Britain	56	136	130	76	135	103
By remoteness						
Easily accessible	54	89	105	102	139	103
Accessible	34	85	83	78	114	92
Remote	29	80	79	71	111	96
Extremely remote	23	83	88	75	113	83
By poverty group						
Well off	53	84	110	98	140	96
Not poor	53	87	94	83	97	87
Poor	24	98	75	74	121	100
Very poor	24	53	60	81	115	85
By agency						
Government	40	81	75	91	122	89
Church	32	91	93	68	114	100
By type						
Community	28	72	59	61	98	76
Primary	43	94	103	96	133	108
Total	37	85	85	82	119	93

Note: 2001 (2002) data constructed for a weighted sample of 112 (181) schools for which there exists complete data on both subsidies received and enrolments (the unweighted sample consisted of 117 (186) schools).

Source: 2002 PESD Survey.

SUBSIDIES RECEIVED

5.27 Against the perplexing milieu of these officially-announced entitlements, budgetary disbursements and diverse expectations at schools, district and provincial education offices, how much subsidy did the primary and community schools actually receive? The following estimates can be made based on the PESD survey data.

Subsidies in 2001

5.28 In 2001, schools on average received an education subsidy of K21 per student (Table 5.6). On average, 85% (K18) of the subsidy received was in cash, and the rest in kind. Easily accessible schools report significantly higher per student subsidies relative to schools in more remote areas, as do schools in well-off areas relative to those in very poor areas. There is also substantial variation across provinces. Per student subsidies are

highest in NCD at K39 per student, followed by East New Britain at K30. At the bottom end are Sandaun and Gulf with K11 and K10 per student respectively. There was no difference in subsidies received by church and government-run schools.

Table 5.6: Subsidy received per student, 2001

	No. Schools	% Upper Primary ^{a/}	Subsidies received (Kina per student per year)				
			All Schools		Total	Below median	Above median
			Monetary	In-kind		% Upper Primary	% Upper Primary
						Total	Total
By province							
Eastern Highlands	24	20	16	5	21	22	19
East New Britain	11	33	22	8	30	41	28
Enga	18	29	19	0	19	18	20
Gulf	12	19	7	3	10	8	13
Morobe	18	25	10	5	14	11	18
National Capital District	3	46	37	2	39	13 ^{b/}	39
Sandaun	16	12	10	1	11	10	16
West New Britain	9	32	20	1	21	18	22
By remoteness							
Easily accessible	16	39	27	3	30	28	30
Accessible	38	24	15	3	19	15	23
Remote	36	20	14	2	16	16	16
Extremely remote	22	22	14	4	19	18	19
By poverty group							
Well off	19	31	22	1	24	10	32
Not poor	21	32	20	4	23	21	25
Poor	51	25	17	4	21	22	21
Very poor	21	15	9	1	10	9	13
By agency							
Government	55	29	17	4	21	18	23
Church	57	23	19	2	21	17	26
By type							
Community	72	12	14	3	17	17	16
Primary	41	37	20	3	24	19	25
Total	112	27	18	3	21	17	24

Note: Table constructed for a weighted sample of 112 schools for which there exists complete data on both subsidies received and enrolments (the unweighted sample contains 117 schools).

^{a/} Upper primary is defined as Grades 6 - 8.

^{b/} Unreliable estimate - based on one school.

Source: 2002 PESD Survey.

5.29 Some of the variation could be simply on account of differences in student composition, given that the subsidy rates differ across grades. This is most evident for primary and community schools; the higher per capita subsidies for primary schools are almost entirely explained by their much higher proportion of upper grade students. But this could also be relevant for other variations. For example, while on average 27% of students in PESD schools are in upper-primary grades (grades 6 to 8), the proportion in NCD schools is 46% while that in Sandaun is only 12%. Similarly, schools in easily accessible or well-off areas have a higher percentage of upper primary students relative to schools in extremely remote or very poor areas.

5.30 Hence, the last two columns of Table 5.6 control for student composition by calculating average subsidies for two subgroups of schools: those below or above the median value of 24% upper primary students across all schools. The results indicate that

in many instances similar patterns of variations persist across the two subsets of schools. Thus, the low subsidies received by schools in Sandaun and Gulf are not just a product of differences in the composition of students. Similarly, even amongst schools that have relatively high (above-median) proportions of upper primary students, schools in easily accessible (very poor) locations receive higher (lower) than average subsidies. Student composition does not adequately explain the variation in per student subsidies.

5.31 Quarterly distribution of the 2001 subsidy indicates that subsidy payments are front-loaded; two-thirds of the annual subsidy payments are reportedly received in the first two quarters (Table 5.7). This phenomenon is not confined to a particular category of schools, but appears to happen across the board. It possibly reflects the realities of budget execution processes in PNG where budgetary resources become increasingly hard to find as the fiscal year progresses.

Table 5.7: Subsidy received per student by quarter, 2001

	Q1	Q2	Q3	Q4	Total
By province					
Eastern Highlands	7	7	3	3	21
East New Britain	12	8	6	4	30
Enga	8	7	3	1	19
Gulf	6	1	0	3	10
Morobe	6	3	2	4	14
National Capital District	11	14	9	4	39
Sandaun	4	3	1	3	11
West New Britain	5	4	3	9	21
By remoteness					
Easily accessible	10	11	4	4	30
Accessible	7	5	3	4	19
Remote	6	5	4	1	16
Extremely remote	7	4	2	4	19
By poverty group					
Well off	8	7	4	4	24
Not poor	9	8	4	3	23
Poor	8	7	3	3	21
Very poor	3	3	1	3	10
By agency					
Government	8	7	4	3	21
Church	7	6	3	4	21
By type					
Community	6	5	3	2	17
Primary	9	7	4	4	24
Total	8	6	3	3	21

Note: Table constructed for a weighted sample of 112 schools for which there exists complete data on both subsidies received and enrolments (the unweighted sample contains 117 schools). Source: 2002 PESD Survey.

Subsidies in 2002

5.32 Per student subsidies were significantly higher in 2002 with the move to the so-called “free” education policy. For the first two quarters of 2002 alone, the reported subsidy per student was 43 Kina – double that for the full year of 2001 (Table 5.8).

Table 5.8: Subsidy received per student by quarter, 2002

	No. Schools	Subsidies received (Kina per student per year)						
		% Upper All Schools				Below median	Above median	
		Primary ^{a/}	Q1	Q2	Total	Total ^{c/}	% Upper Primary	Upper Primary
By province								
Eastern Highlands	30	22	19	19	37	37	30	52
East New Britain	23	35	25	25	50	50	39	56
Enga	21	29	23	23	46	46	29	61
Gulf	15	30	21	19	41	41	26	48
Morobe	36	22	23	14	37	37	28	51
National Capital District	6	44	36	36	72	61	104 ^{b/}	72
Sandaun	29	20	18	2	20	20	17	27
West New Britain	21	32	25	25	49	49	42	57
By remoteness								
Easily accessible	25	38	29	27	55	50	33	64
Accessible	64	27	23	21	44	44	33	57
Remote	50	23	17	15	33	33	23	48
Extremely remote	41	24	23	15	38	38	31	50
By poverty group								
Well off	34	36	28	25	52	46	29	62
Not poor	36	28	23	22	45	45	32	59
Poor	65	28	22	22	44	44	33	58
Very poor	45	22	20	9	28	28	24	39
By agency								
Other	99	30	24	22	45	43	31	58
Church	81	26	22	18	41	41	28	56
By type								
Community	113	12	16	11	27	27	26	50
Primary	68	39	28	27	55	53	43	58
Total		28	23	20	43	42	30	57

Note: Table constructed for a weighted sample of 181 schools for which there exists complete data on both subsidies received and enrolments

a/ Upper primary is defined as Grades 6 - 8.

b/ Unreliable estimate - based on one school.

c/ After removing an outlier school in NCD that received K252/student - over twice the receipt of the next highest school in NCD.

Source: 2002 PSED survey.

5.33 However, it is notable that there are still variations in the amount of subsidies received across regions, poverty level and school type. Subsidies in NCD continue to be significantly above average, but overall, the differences across provinces are less pronounced than in 2001, ranging from K37/student in Eastern Highlands and Morobe to K61 in NCD.⁴⁷ Less accessible and poorer schools also received lower per student subsidies than average, but the differences were less apparent than in 2001. The difference between community and primary schools is more marked in 2002 compared with 2001, with primary schools on average receiving twice as much subsidy per student as community schools. This largely reflects the steeper subsidy scale by grade in 2002

⁴⁷ Sandaun is an exception, but the very low subsidy for Sandaun for Q2 2002 reflects, in part, the delayed second quarter payments to that province that were not adequately captured at the time of the PSED survey.

relative to 2001 (see Table 5.2). As in the case of 2001, several of the differences in subsidy received across schools of different characteristics are maintained even after allowing for variation in student composition. Overall, however, school characteristics mattered less in 2002, and subsidies appeared to have been more evenly distributed than in the previous year.

SUBSIDY LEAKAGE

5.34 We now bring the two sides together and estimate leakage of subsidies. We note at the outset that in estimating leakage, we do not follow the approach of tracing the Kina through different layers of government. Such an approach did not appear tractable.⁴⁸ Instead, we rely on data on receipts gathered directly from schools and compare them with what the schools should have received. Put simply, subsidy leakage is the difference between subsidies expected at schools and subsidies received at schools. However, as discussed above there are several different notions of what the schools should be receiving, and corresponding to these alternative estimates of leakage can be made. Table 5.9 presents such estimates.

5.35 **Subsidy leakage in 2001.** Depending upon the measure used, there is a wide range of subsidy amounts that could be considered as “expected” at schools, from K23 to K85 per student, as against an actual reported receipt of K21 per student. Thus, there is also a correspondingly wide range of estimated leakage. Thus, for instance, based on official entitlement rates subsidy leakage is 9%, but the announced entitlement rates for 2001 were rather low, and in practice were exceeded by the actual budget disbursements for Q1 and Q3 for the national component itself. On the other hand, leakage rates are much high if one were to go by the expectations of head teachers (43%), the PEAs or the DEAs (75%), although, as discussed above, PEA/DEA expectations seem to be unrealistically high.

5.36 A plausible set of estimates can be based on a comparison of budget disbursements with actual reported receipts at schools (top panel of Table 5.9). On this basis, the overall subsidy leakage for 2001 is estimated between 16 and 29 percent, depending upon alternative assumptions on how much of the provincial education subsidies are allocated to the primary sector. Overall, the evidence is thus indicative of significant subsidy leakage in 2001.

⁴⁸ See NRI. (2003) for an attempt along these lines for Nuku and Altape/Lumi districts in Sandaun province. However, it proved very difficult to trace the flow of resources through provincial and district-level budgetary records in a sufficiently clear manner to construct estimates of leakages.

Table 5.9: Estimates of subsidy leakage, 2001 and 2002

	2001	2002 ^{a/}
Estimates based on budget disbursement		
What the school should have received (Kina/student):		
Budget disbursement ^{b/}		90
<i>Estimate I</i>	25	
<i>Estimate II</i>	29	
What the school actually received (Kina/student):	21	84
Leakage rate (%), based on:		
Budget disbursement ^{b/}		7
<i>Estimate I</i>	16	
<i>Estimate II</i>	29	
Alternative estimates		
What the school should have received (Kina/student):		
Official entitlement rate	23	121
Expected rates		
<i>Head teacher</i>	37	82
<i>PEA</i>	85	119
<i>DEA</i>	85	93
What the school actually received (Kina/student):	21	84
Leakage rate (%), based on:		
Official entitlement rate	9	30
Expected rates		
<i>Head teacher</i>	43	-3
<i>PEA</i>	75	29
<i>DEA</i>	76	10

Note: Leakage rate is the difference between what the schools should have received and what they actually received as a proportion of the former. ^{a/} Annual equivalent. After removing an outlier school in NCD that received K252/student - over twice the receipt of the next highest school in NCD. ^{b/} Estimates I and II apply only to 2001; for 2002 subsidy disbursements to each school in PESD survey are known.

Source: PESD 2002 Survey.

5.37 Table 5.10 shows leakage estimates for schools with different characteristics. Based on actual budget disbursements using either budget I or II assumptions, schools in remote areas, government or community schools tend to have relatively higher leakage rates. However, schools in poor and non-poor areas have similar leakage rates based on budget II assumptions.

Table 5.10: Subsidy leakage by characteristics of schools, 2001

	Based on official entitlement rate	Based on Budget I	Based on Budget II		Based on official entitlement rate	Based on Budget I	Based on Budget II
By remoteness				By agency			
Accessible	2	9	22	Government	13	22	34
Remote	23	28	41	Church	5	5	21
By poverty group				By type			
Not poor	4	11	28	Community	8	27	36
Poor	14	19	30	Primary	10	8	25
Total	9	16	29				

Note: 2001 data constructed for a weighted sample of 112 schools for which there exists complete data on both subsidies received and enrolments (the unweighted sample consisted of 117).

Source: PESD 2002 Survey.

5.38 **Subsidy leakage in 2002.** The leakage rate is substantially lower for 2002. Subsidies reportedly received at schools fell short of actual budget disbursements by about 7%. And this too is likely to be an overestimate since there were some schools that had not yet received their subsidy payments at the time of the survey.

5.39 The official entitlement rates however suggest a higher leakage rate of 30%. But as discussed above, this mainly reflects the fact that the actual funds released by the Department of Treasury in 2002 fell (about 20%) short of what would have been needed to fully finance the official entitlements (see discussion related to Table 5.4 above). The leakage rate is also comparably high going by the expectations of the PEAs, suggesting that PEA expectations could have been based on the official entitlement rates. On the other hand, head teacher expectations appear to be much more aligned with the actual budget disbursement, and suggest virtually no leakage.

5.40 Table 5.11 presents subsidy leakage rates for individual provinces based on actual budget disbursement. The high estimate (of 61% leakage) for Sandaun reflects a delayed second quarter payment, as discussed above. Further, while NCD appears to have a high rate of *negative* leakage, this is almost entirely due to an outlier school that reported a very high subsidy receipt. Once this school is omitted, the leakage rate drops to a negligible level much like the other provinces. The only exception is Morobe which too may have an element of delayed payment. Overall, the evidence thus points to subsidy leakage ceasing to be a significant problem in 2002, and this finding provides a clear endorsement of the direct payment approach employed during that year.

Table 5.11: Subsidy leakage by province, 2002					
Province	Based on official entitlement rate	Based on Budget	Province	Based on official entitlement rate	Based on Budget
Eastern Highlands	32	-1	National Capital District	7 (21)	-20 (-1)
East New Britain	27	4	Sandaun	61	44
Enga	24	0	West New Britain	23	0
Gulf	36	4			
Morobe	32	16	Total	28 (30)	3 (7)
<p><i>Note:</i> 2002 data constructed for a weighted sample of 181 schools for which there exists complete data on both subsidies received and enrolments (the unweighted sample consisted of 186 schools). Numbers in brackets show leakage rates after removing an outlier school in NCD that received K252/student – over twice the receipt of the next highest school in NCD.</p> <p><i>Source:</i> PESD 2002 Survey.</p>					

SUBSIDY DELAY

5.41 Delays in the receipt of subsidies at schools are as, if not more, serious a problem as leakages. Delays go hand in hand with uncertainty about the timing of subsidy

receipts (in cash or in kind). This plays havoc with operational planning and management at the school level, often leaving the schools facing a severe liquidity constraint such that they are unable to meet their needs for basic supplies or school maintenance. In the extreme case, cash-strapped schools have been forced down the path of school closure for a period of time. Using the PESD Survey, we are able to calculate the total delay in the “use” of subsidies which comprises of two parts: (i) weeks of delay in the actual receipt of subsidies at the school in each quarter,⁴⁹ and (ii) the number of weeks before the school was able to actually spend the subsidy received.⁵⁰ Note that the second only applies to subsidies in cash, while the former applies to both cash and in-kind subsidies.

5.42 Subsidy delay in 2001. Information presented in Table 5.12 indicates huge delays in receipt of subsidy for 2001. Average delay was 9 weeks in Q1, 14 weeks each in Q2 and Q3, and 15 weeks in Q4. Throughout 2001 the average delay in the school being able to spend subsidies received was constant at around 4 weeks while the average delay in the receipt of subsidy rose from 4 weeks to 11-12 weeks. Thus, combined with the data on subsidy amounts by quarter, which suggested that subsidies are front-loaded, it seems that as year wears on, the amounts received by schools shrink and lags with which they are received expand. For quarters 2, 3 and 4, the average delay is more than a quarter. If it were a predictable delay of a quarter, it would be less difficult to manage. The problem is that there is a lot of variation around the average, both across schools for any given quarter and across quarters for any given school, thus leading to an environment where at any given point in the year the schools are left unsure if they would receive any subsidy at all, if they do how much would they receive, and when that would be received.

5.43 There was substantial variation in average delay across provinces. Only two provinces (Morobe and West New Britain) recorded below-average delay for all four quarters. Sandaun recorded the highest average delay of 43 weeks in Q2. Surprisingly, there appears to be no clear connection between subsidy delay and remoteness, nor with the agency of the school. However there is evidence that at least in the last three quarters of 2001, poorer schools experienced higher than average delays in receipt of subsidy, as also did community schools in the first three quarters. What was the source of subsidy delay in 2001? Administrative inefficiencies at the school and more importantly at the provincial as well as the national level are potential sources. For example, provinces were required to send in acquittals and enrolment returns for Q2 so as to qualify for the Q3 subsidy. Some provinces were very late in returning this information to NDOE, resulting in Q3 grants being delayed.

⁴⁹ For each quarter, head teachers were asked which month was the subsidy money transferred or supplies received at the school. If that month happened to be later than the middle month of the quarter it was counted as delay. For instance, if for the second quarter a school received payment in the month of May, it was not counted as delay, but if it received payment in June it was counted as a delay of 4.3 weeks (one month).

⁵⁰ There was a direct question for cash subsidies in each quarter along those lines.

Table 5.12: Delays in being able to use subsidies, 2001

	Quarter 1		Quarter 2		Quarter 3		Quarter 4	
	Schools receiving positive subsidies (%)	Total delay (weeks)	Schools receiving positive subsidies (%)	Total delay (weeks)	Schools receiving positive subsidies (%)	Total delay (weeks)	Schools receiving positive subsidies (%)	Total delay (weeks)
By province								
Eastern Highlands	74	12	74	7	42	26	31	34
East New Britain	100	4	50	13	79	7	37	20
Enga	96	8	70	14	30	16	9	3
Gulf	70	12	7	17	0		30	12
Morobe	64	8	45	14	36	2	45	2
National Capital District	100	3	100	11	73	10	53	20
Sandaun	81	11	69	43	25	25	63	16
West New Britain	100	4	66	6	34	1	50	2
By remoteness								
Easily accessible	90	5	64	10	31	23	40	21
Accessible	81	12	65	14	41	11	48	16
Remote	76	7	52	16	29	19	16	16
Extremely remote	87	8	54	18	43	9	50	8
By poverty group								
Well off	92	5	38	8	28	10	30	6
Not poor	83	10	57	11	47	5	31	11
Poor	81	9	66	11	41	18	36	17
Very poor	74	10	61	35	23	25	52	19
By agency								
Government	82	10	54	10	31	14	32	23
Church	82	7	63	18	41	13	42	8
By type								
Community	79	9	62	17	38	15	34	13
Primary	86	7	52	9	33	11	43	17
Total	82	9	58	14	36	14	37	15

Note: Table constructed for a weighted sample of 112 schools for which there exists complete data on both subsidies received and enrolments (the unweighted sample contains 117 schools).
Source: PESD 2002 Survey.

5.44 Subsidy delay in 2002. During 2002, all subsidies were in cash and were channeled directly to schools. The evidence for the first two quarters indicates that there was a drastic reduction in delays, the average delay going down to 5 weeks for the first quarter and 3 weeks for the second (Table 5.13). There also does not appear to be a systematic relation between the amount of delay and school characteristics. This again is an endorsement of the direct payment mechanism used in that year.

Table 5.13: Delays in being able to use subsidies, 2002

	Quarter 1		Quarter 2			Quarter 1		Quarter 2	
	Schools receiving positive subsidies (%)	Total delay (weeks)	Schools receiving positive subsidies (%)	Total delay (weeks)		Schools receiving positive subsidies (%)	Total delay (weeks)	Schools receiving positive subsidies (%)	Total delay (weeks)
By province					By poverty group				
Eastern Highlands	100	8	100	7	Well off	99	3	80	2
East New Britain	100	5	97	4	Not poor	100	6	95	5
Enga	100	4	89	4	Poor	96	5	85	4
Gulf	82	5	70	4	Very poor	96	5	35	2
Morobe	95	4	59	2					
NCD	96	2	96	1	By agency				
Sandaun	100	6	11	2	Government	98	5	82	3
West New Britain	100	5	100	1	Church	97	5	63	3
By remoteness					By type				
Easily accessible	93	4	72	3	Community	96	5	64	3
Accessible	99	6	83	3	Primary	100	5	90	4
Remote	98	5	72	3					
Extremely remote	98	5	60	4	Total	97	5	73	3

Note: Table constructed for a weighted sample of 181 schools for which there exists complete data on both subsidies received and enrolments (the unweighted sample contains 186 schools).

Source: PESD 2002 Survey.

CORRELATES OF SUBSIDY LEAKAGE AND DELAY

5.45 We use regression analysis to explore the correlates of subsidy leakage and delay for 2001. Table 5.14 reports the key results which show some interesting similarities and differences compared with the foregoing discussion of variation by individual school characteristics. The first column reports the regression for the logarithm of subsidy received per student. The second and third columns report regressions for two measures of leakage: (logarithm of) the ratio of subsidy budgeted to subsidy received, and the ratio of subsidy expected by the head teacher to subsidy received. The final column gives the regression for total delay in the receipt of subsidy (for any quarter). Potential correlates include variables measuring: remoteness, poverty, agency (church/non-church), type (community/primary), parental and community participation, school autonomy, characteristics of the head teacher, total enrolment (to allow for an overall size effect), and the number of school inspector visits and board of management meetings.

Table 5.14: Correlates of actual subsidy, leakage and delays, 2001

	Log of subsidy received per student	Log difference between subsidy budgeted and received ^{a/}	Log difference between subsidy expected and received ^{b/}	Total delay in subsidy receipt ^{c/} (weeks)
Remoteness index (0 to 1)	-1.142 (1.04)	1.385 (1.28)	0.101 (0.07)	4.930 (0.41)
Poverty rate (0 to 1)	0.077 (0.15)	-0.978 (2.25)**	-1.039 (1.37)	23.438 (4.13)***
Primary school (0/1)	-0.052 (0.20)	0.239 (0.78)	0.203 (0.67)	-6.829 (2.46)**
Church operated school (0/1)	0.302 (1.15)	-0.358 (1.41)	-0.139 (0.60)	-4.333 (3.01)***
National Capital District (0/1)	0.655 (2.16)**	-0.073 (0.24)	-0.579 (1.86)*	-0.408 (0.12)
Parents & Community involvement	2.508 (2.55)**	-2.503 (2.51)**	-2.674 (3.73)***	9.936 (1.00)
School autonomy	1.232 (2.72)**	-1.265 (2.81)***	-1.298 (3.89)***	7.691 (1.25)
School autonomy*Parents/Community	-0.480 (2.60)**	0.482 (2.67)**	0.517 (3.91)***	-2.121 (1.19)
Head teacher absent	-5.330 (1.72)	5.781 (1.81)*	5.238 (1.91)*	-33.398 (1.15)
Male head teacher	-0.412 (1.16)	0.410 (1.12)	1.143 (4.08)***	-4.970 (1.33)
< 2 yrs head teacher at school	-0.038 (0.15)	-0.025 (0.09)	0.321 (1.25)	-1.958 (1.13)
Head teacher age	-0.225 (1.60)	0.242 (1.69)	0.179 (1.33)	-1.653 (1.25)
Head teacher age squared	0.002 (1.34)	-0.002 (1.45)	-0.002 (1.03)	0.024 (1.48)
Local MP (0/1)	0.037 (0.14)	-0.057 (0.22)	0.065 (0.23)	0.462 (0.22)
Log of total enrolment 2001	0.328 (1.39)	-0.418 (1.60)	-0.321 (1.12)	4.065 (1.66)
# of inspector visit	-0.086 (1.04)	-0.325 (0.67)	0.14 (1.54)	-1.034 (0.95)
# of BOM meetings	0.137 (2.07)*	-0.149 (2.16)**	-0.141 (1.98)*	0.524 (0.83)
Quarter1 (0/1)				-5.258 (1.66)
Quarter2 (0/1)				-0.529 (0.09)
Quarter3 (0/1)				-0.625 (0.17)
Observations	117	117	117	234
R-squared	0.31	0.31	0.31	0.22

Note: All subsidy amounts are in Kina/student. Robust t statistics in parentheses. The regression also includes dummy variables to control for missing data on autonomy, inspector visits and BOM meetings. For regression results asterisks indicate significance of test coefficient equal to zero. * - significant at 10% level. ** - significant at 5% level. *** - significant at 1% level. ^{a/} Budgeted subsidy based on Budget II disbursements (see text for details). ^{b/} Expected subsidy is from head teacher responses. ^{c/} Monetary subsidy delay and in-kind subsidy delay. (0/1) indicates binary variable.

Source: PESD 2002 Survey.

5.46 Firstly, leakage regressions tend to be mirror images of the actual subsidy regression; whatever contributes to an increase in subsidies received also contributes to a decline in leakage (and vice versa) despite variation in budget disbursements or subsidy expectations. Focusing on leakage, the regression results suggest only a few significant correlates. Schools in poorer areas have lower leakage relative to budget disbursements, but this is not because of more subsidies received per student, but because of lower disbursements made to them. Schools in poor areas also face significantly higher delays. On the other hand, NCD schools tend to receive higher subsidies per capita, controlling for other factors, but still do not have lower leakage rates because the per capita budget disbursements are also higher. However, the expectations of the head teachers in NDC are even higher; thus, leakage rates measured in terms of those expectations are significantly higher. But, again controlling for other factors, being located in NCD does not imply that subsidies get to the schools significantly quicker. Notably, remoteness has no significant effect on either leakage or delays.

5.47 Similarly, church or government agency does not matter to the amount of subsidy or leakage. Nor do primary schools do any better or worse than community schools in this regard. However, primary type or church agency does contribute to shorter delays in subsidy receipts. Head teacher characteristics do not appear to matter in general, with the exception that female head teachers tend to have subsidy expectations that are more consistent with actual receipts, thus contributing to lower leakages.⁵¹

5.48 Variables related to parental/community participation and school autonomy both tend to exert a significant negative influence on leakage, but there is some nonlinearity in the relationship which seems to be picked up by a positive (and significant) interaction effect. We find that parental participation and autonomy have a leakage-reducing effect for only about half of the sample schools; for the rest, the effect is positive.⁵² At face value, these results indicate that autonomy and parental participation have positive effects on this aspect of school finances only up to a point. On the other hand, these variables appear to have no significant effect on the extent of subsidy delays.

5.49 There is also no evidence of a size effect on leakage or delays. The number of inspector visits does not seem to matter, nor does having a Member of Parliament from the local area. But the results suggest that more frequent BOM meetings do significantly contribute to higher subsidies received and lower leakages.

THE MIXED EXPERIENCE OF THE “FREE” EDUCATION EXPERIMENT

5.50 The PESD Survey asked the schools about fee setting in 2001 and 2002. For each year, the head teachers were asked: “How much do parents have to pay for the school fee

⁵¹ The other exception is the head teacher’s absence on the day of the interview which has a negative effect on subsidies received. As noted in Chapter 4’s discussion of the correlates of grant and non-grant revenues, since there is no separate evidence of a memory bias, this is less likely to reflect an underreporting of subsidies by other respondents when the head teacher is absent.

⁵² A similar result holds if augment the model to also include quadratic terms in these variables.

(per student per year)?”, and an analogous question for project fees. These questions were asked separately for lower and upper primary grades. Based on their responses, Table 5.15 presents a picture that epitomizes the whole mixed experience of the short-lived “free” education experiment.

5.51 The above discussion suggests that the experiment of “free education” was a positive one in many ways. The amount of subsidies received at primary/community schools increased nearly four-fold, leakage virtually ceased to be a problem on account of the direct payment system, and delays in the receipt and use of subsidy at schools were drastically reduced. There was even an attendant increase in the share of basic education in the aggregate subsidy budget which should have rendered it more pro-poor.

5.52 “Free” education also apparently spurred a substantial increase in enrolments – another positive outcome from the perspective of universal primary education. Although this also contributed to an important problem with the “free” education policy, namely, its financial unsustainability at least under the prevailing budget framework. To make it financially sustainable, resources would have to be found either from the substantially higher levels of per student subsidy at the secondary or tertiary levels, or from other sources. However, a larger set of underlying problems (with not just the “free” education policy but the financing and management of the sector as a whole) are illustrated by how the schools, sometimes but not always supported by provincial administration, responded to “free” education in terms of their fee setting policy.

5.53 In 2001, the average fee set by schools (including schools that charged no fees) was K84 per student (Table 5.15).⁵³ In 2002, in response to the free education policy, this declined not to zero but to K46 – about half the level in 2001. The average school fee charged declined from K49 to K19, the average project fee declined from K37 to K27. Thus, most (three-fourths) of the decline was on account of the lower school fees charged.

⁵³ Note this is the average fee *set* by schools. The average fee they reported as having actually received in 2001 was only K40 (see Table 4.3).

Table 5.15: School fees set by schools in 2001 and 2002 (Kina/student)

	2001		2002	
	Mean	(SE)	Mean	(SE)
School fees				
Lower primary				
% of students charged	75	5.4	39	5.3
Amount charged	42	5.2	34	3.9
Amount charged (incl. Zeros)	31	5.2	13	1.7
Upper primary				
% of students charged	67	7.6	31	5.1
Amount charged	138	8.1	106	12.2
Amount charged (incl. Zeros)	92	14.3	33	7.3
Total school fee (incl. Zeros)	49	8.2	19	3.4
Project fees				
Lower primary				
% of students charged	68	7.6	61	8.2
Amount charged	44	6.3	32	3.5
Amount charged (incl. Zeros)	30	5.1	20	2.4
Upper primary				
% of students charged	48	8.1	45	7.0
Amount charged	100	12.2	97	14.7
Amount charged (incl. Zeros)	47	10.1	44	10.0
Total project fee (incl. Zeros)	35	5.7	27	4.5
Total fees	84	10.3	46	7.1

Note: Table constructed for a sample of 143 schools in 2001 and for 155 schools in 2002 for which there exists complete data.
Source: PESD 2002 Survey.

5.54 Decomposing it further, most of the relatively modest decline in the average project fees is at the lower primary level, and that is less due to fewer schools charging project fees, but more due to a decline in the amount of fee charged by schools that chose to set such fees. In contrast, average school fees declined by about the same proportion for both lower and upper primary. And most of the decline was because fewer schools (about half the proportion in 2001) charged such fee, although when they did charge them the amounts were not much lower than in 2001.

5.55 Thus, in the year of “free” education, the schools did not give up on raising resources from parents – for a number of reasons. First, there was uncertainty – validated by hindsight – about how long the policy would last. Many of those associated with the running of schools at the local level had an intuitive grasp of the potential unsustainability of the policy. Thus, many schools were reluctant to give up on an existing – and perhaps the only – source of revenue over which they could hope to exercise a modicum of control.

5.56 Second, the delay though reduced was nevertheless excessive for some schools given their virtual lack of working capital in relation to their immediate operational needs. Related to the delay (as discussed above), the uncertainty about when and exactly

how much the schools would receive was certainly the legacy from which schools viewed the new policy and were understandably circumspect.

5.57 Third, the increase in enrolments (including that due to the return of earlier drop-outs) enhanced the schools' needs, while the subsidy payments were based on previous enrolment levels. This was sought to be corrected later in the year, but the initial lag created serious operational difficulties for many schools.

5.58 Fourth, there was a lot of confusion about what the national policy really was, and politicians and bureaucrats played their role in leaving behind a trail of conflicting messages. The tension between different layers of government also played out in the relay of conflicting messages. Provincial administrations on occasion appealed to decentralization under the Organic Law to defend their right to raise parental contributions. The fee setting policy adopted by the schools is symptomatic of this problematic environment. Chapter 7 will return to several of these issues.

5.59 *A final word on provincial spending.* While this chapter has focused on the leakage of subsidies, the discussion would be incomplete without a mention of the provincial spending over and above what is directly financed through education-related transfers from the national government, viz. grants for teacher salaries and leave fare, and education subsidies. Table 5.16 presents the consolidated picture for all provinces in 2001.

Table 5.16: Consolidated provincial revenue and expenditures, 2001			
Receipts	K million	Expenditure	K million
Education transfers from national govt.	306.2	Education	321.3
... TSC grants + leave fare	285.2	... Teacher salaries + leave fare	266.2
... Education subsidy	21.0	... Education subsidies	19.2
		... Grants to public authorities	6.1
All other grants from national govt.	278.5	... Grants to non-profit organizations	9.4
		... Other current expenditure	14.9
Internal revenue	363.4	... Capital expenditure	5.6
Non-education grants + internal revenue	641.9	Non-education expenditure (all other functions)	680.4
Total	948.1	Total	1001.7
<i>Source: NEFC (2002a).</i>			

5.60 The Table shows that total provincial spending on education on education was K321 million. As against this, provinces received K306 million in education related grants from the national government. Thus, the provinces spent an additional K15 million over and above the education-related grants, out of a total of K642 million of combined revenues from non-education grants and internal revenues, *i.e.* just over 2%. There are of course competing claims on non-education national grants, but these data indicate that provinces spend very little over and above what is quarantined for education by the national government.

6. TEACHERS, ADMINISTRATION AND STUDENTS

6.1 This Chapter takes a look at some issues related to the two principal actors who are at the center stage of the education process: those who deliver and receive education – teachers and students. While there are many relevant issues, this discussion focuses on a select few. For teachers, it explores the topics of “ghost” teachers, teacher absence, shortage and turnover, and teacher motivation; for students, the issues of attendance and performance are explored. The discussion on students is preceded by a brief exploration of the role of education administration.

“GHOST” TEACHERS

6.2 The phenomenon of “ghost” employees has been noted to be an important impediment to service delivery in several countries. In PNG, attention has been drawn to this issue also from a public expenditure management perspective.⁵⁴ The issue is of particular relevance to the education sector as teacher salaries form the largest single component of total payroll (which itself is around 30% of all government salaries and wages).

6.3 An attempt is made to look into this issue using PESD data. This is done by comparing the teacher roster in the survey with the list of teachers on the Department of Education’s payroll for the first two quarters of 2002. This is akin to a physical verification or a fieldwork-based headcount exercise that has recently been recommended as part of the efforts to cleanse the payroll (World Bank, 2003c).

6.4 It is estimated that about 15% of teachers – or one in every seven teachers – are on the payroll for our sample schools but are not in the sample schools (Table 6.1). Thus, for the PESD sample, on average there are 7.5 teachers per school on the payroll, but according to the survey listing, there are only 6.4 teachers in the school. And hence, there is on average one extra “ghost” teacher in every school. This is quite a high incidence of the “ghost” teachers phenomenon. Some details of the underlying calculations are pertinent.

⁵⁴ For instance, recently in the World Bank’s (2003c) *Public Expenditure Review and Rationalization* study; see Discussion Paper on Civil Service Size and Payroll, in particular.

6.5 The PESD survey obtained a listing of the teachers at the sample school at the time of the survey. This is a full list of all teachers teaching at the school, *including* those not present on the date of interview. We then try to match this (by teacher name and file number) with the teachers listed on the payroll for the PESD sample schools. The match was not perfect. More significantly, the mismatch revealed a significant excess of teachers on the payroll, which translates into the estimated rate of about 15%.

Table 6.1: “Ghost” teachers in primary/community schools, 2002

	Number of schools (unweighted)	Number of teachers per school in payroll (1)	Number of teachers per school reported (2)	Net "Ghost" teachers per school (1) - (2)	Gross "Ghost" teachers per school	"Ghost" teacher rates			
						Net %	s.e.	Gross %	s.e.
By province									
EHP	29	8.5	7.4	1.1	1.7	13.5	(8.6)	19.5	(7.3)
ENBP	28	8.2	7.4	0.7	1.1	8.8	(0.2)	13.7	(1.1)
Enga	29	9.1	8.6	0.6	1.7	6.1	(8.5)	18.9	(4.9)
Gulf	17	4.0	3.1	0.9	1.0	21.3	(4.8)	25.9	(5.5)
Morobe	27	5.6	3.9	1.7	1.7	30.0	(4.2)	31.3	(3.6)
NCD	30	25.2	22.6	2.6	3.5	10.2	(2.6)	13.9	(2.0)
Sandaun	30	5.1	4.5	0.5	0.9	10.5	(1.9)	17.8	(3.1)
WNB	15	7.8	6.5	1.4	1.4	17.6	(1.4)	17.6	(1.4)
By remoteness									
Easy access	43	14.1	12.2	1.9	2.3	13.5	(2.7)	16.3	(3.0)
Accessible	68	8.4	7.3	1.1	1.5	13.4	(4.5)	18.2	(3.9)
Remote	57	5.7	4.9	0.8	1.2	14.5	(3.1)	21.1	(2.7)
Extreme remote	37	4.4	3.4	1.0	1.3	22.1	(8.3)	30.1	(6.8)
By poverty group									
Welloff	49	8.2	6.8	1.3	1.5	16.5	(3.2)	18.5	(3.3)
Not poor	44	9.1	8.5	0.6	1.3	6.5	(5.2)	14.1	(2.9)
Poor	67	7.6	6.1	1.6	2.0	20.3	(2.7)	25.6	(2.7)
Very poor	45	5.1	4.5	0.7	0.9	12.9	(2.0)	18.1	(2.6)
By type									
Community	109	4.4	3.6	0.7	0.9	16.8	(4.1)	21.3	(3.9)
Primary	96	12.6	10.9	1.7	2.4	13.6	(3.0)	19.0	(2.3)
By agency									
Government	113	8.5	7.3	1.2	1.7	14.5	(2.9)	19.8	(2.6)
Church*	92	6.3	5.3	1.0	1.3	15.2	(3.1)	20.0	(2.5)
Total	205	7.5	6.4	1.1	1.5	14.7	(2.3)	19.9	(1.9)

Note: * "Church" category includes three schools classified as "other private school".

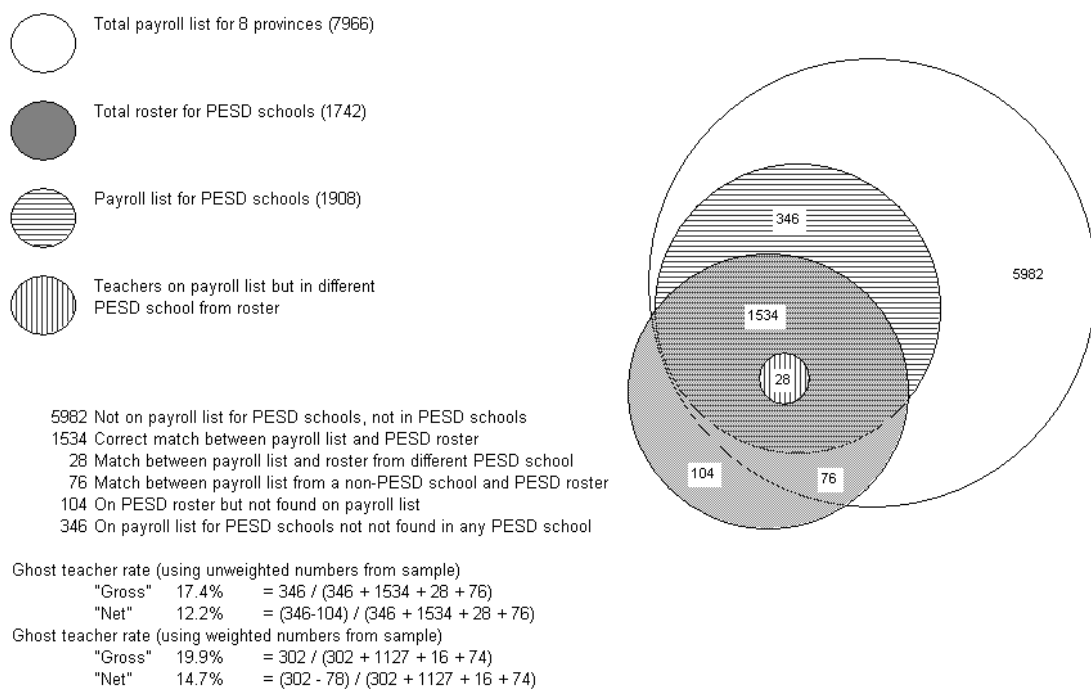
Source: PESD 2002 and NDOE payroll data.

6.6 It could be argued that the mismatch between the payroll and PESD teacher listing could arise because they relate to different time periods. While this can not be entirely ruled out, it is notable that the survey was conducted during March-July 2002, while the payroll relates to the first two quarters of 2002. The median date of survey interview was May 6, 2002. It is unlikely that our estimates are unduly biased by the possibility that there is a large group of teachers who are not found at the school either because they have transferred to other schools or because their services have been terminated, but their transfer or termination is not yet reflected in the payroll.

6.7 Such upward bias is unlikely because the calculated ghost teacher rate of 15% is a “net” rate; it is net of potential transferees or others whose services have been terminated.

This can be explained using the Venn Diagram in Figure 6.1. There are 346 teachers who are on the payroll for PESD schools but cannot be found in PESD schools. This could be interpreted as the “gross” number of ghost teachers, and could include transferees out of PESD schools or other whose services have been terminated. The PESD Survey also revealed a small group of teachers who were found in schools but did not appear on the payroll. This includes new recruits or transferees *into* the sample schools. We subtracted this from the “gross” estimate of ghost teachers to arrive at a “net” rate. The fact that there are systematically a much larger number of teachers on the payroll who are not in schools *than vice versa* indicates that the observed excess on the payroll is unlikely to be attributable to transfers or terminations.

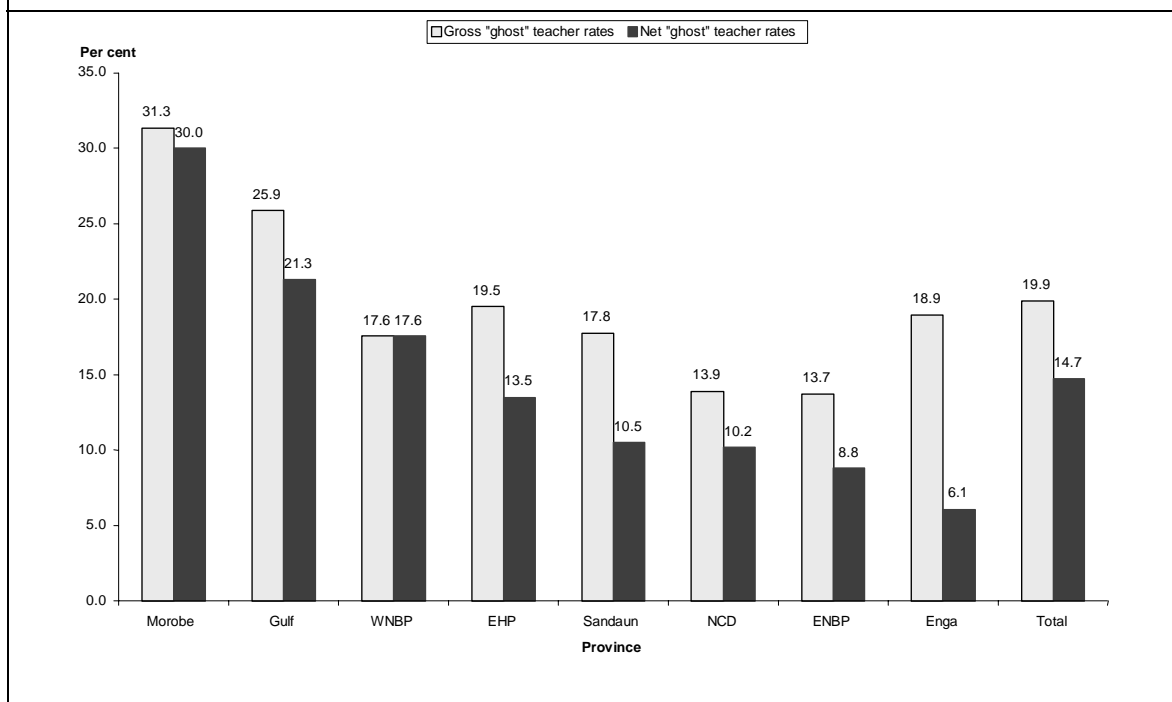
Figure 6.1: “Ghost” teachers in schools, 2002



Source: PESD 2002 and NDOE payroll

6.8 There is a good deal of variation around the average net “ghost” teacher rate of 15%. Across the provinces, for instance, the rate varies from the highest levels of 30% in Morobe and 21% in Gulf to 9% in East New Britain and 6% in Enga (Figure 6.2). It is also useful to compare gross and net rates. For example, while Enga has the lowest net ghost teacher rate, its gross rate is not very different to the overall average, which suggests that most of its high gross rate is on account of transfers or terminations. On the other hand, that does not seem to be a factor in West New Britain which has the same gross and net rates.

Figure 6.2: Percentage of “ghost” teachers by province, 2002 (gross and net)



6.9 There is also variation by level of remoteness and poverty. The ghost teacher rate is significantly lower in the easily accessible and NCD schools relative to schools in extremely remote and poor areas (although very poor areas have relatively low rates). However, there is no significant difference in the ghost teacher rate between community and primary schools, or between government and church schools.

6.10 The potential cost of ghost teachers to the education system is huge. If these estimates are correct, going by the average primary teacher salary of K7,859 for 2002 (Table 4.1), ghost teachers could cost the system as much as K31 million for the primary sector alone.

TEACHER ABSENCE

6.11 An indication of the level of education services that children receive is the degree of teacher absence. Teachers can be absent for many reasons—illness, training, official duties besides teaching, as well as shirking—but from the perspective of student learning the effects are the same. Schools need to find alternative ways of teaching, looking after children, or sending them home.

Snapshot of teacher absence

6.12 The PESD survey assessed the extent of teacher absence regardless of cause by taking a roster of all teachers who work at the school and noting which were not at school on the day of the visit by the interviewer. Table 6.2 summarizes the percentage of teachers absent among the 1742 teachers on the roster.

Table 6.2: Percent of teachers absent on the day of the school visit

	All teachers on roster			Non-head teachers on roster			All teachers on roster	
	Community	Primary	All	Community	Primary	All	Male teachers	Female teachers
Province								
EHP	18.1	11.9	14.3	19.0	12.1	14.5	17.1	9.7
ENBP	19.2	9.6	11.9	17.5	10.6	12.0	7.7	15.4
Enga	32.1	20.0	23.8	36.9	21.3	25.9	24.0	23.1
Gulf	22.6	22.0	22.2	28.9	16.8	19.1	20.7	28.7
Morobe	10.7	20.0	13.3	13.0	25.0	16.7	11.6	16.7
NCD	.	16.9	16.9	.	17.1	17.1	18.4	16.1
Sandaun	14.7	9.8	12.5	18.9	7.5	13.2	16.0	4.8
WNB	15.1	6.8	9.0	11.4	5.9	7.1	11.7	7.1
Remoteness								
Easy access	23.2	11.9	13.4	22.4	11.6	12.8	17.5	10.2
Accessible	13.4	12.5	12.8	13.0	12.7	12.7	13.3	12.0
Remote	20.8	19.1	19.9	23.8	19.5	21.4	21.5	16.8
Extremely remote	16.6	18.8	17.1	22.8	24.8	23.3	13.9	25.6
Poverty								
Well off	10.3	13.6	12.5	8.2	13.9	12.4	12.4	12.6
NotPoor	20.4	16.8	18.0	22.4	17.9	19.2	19.0	16.4
Poor	20.2	9.5	13.1	23.3	8.7	12.7	14.6	10.8
VeryPoor	16.6	18.8	17.7	21.2	19.4	20.2	19.1	14.9
Agency								
Government	20.1	13.2	15.4	21.9	13.0	15.4	17.7	12.5
Church	14.3	14.8	14.6	16.8	15.8	16.1	14.4	14.9
Total	17.4	13.8	15.1	19.5	13.9	15.6	16.3	13.3

Source: PESD 2002.

6.13 The overall absence rate of 15% is consistent with earlier estimates of teacher absenteeism in PNG.⁵⁵ It compares relatively well to similar surveys from other countries: it is neither the lowest nor the highest rate observed.⁵⁶ For example in Ecuador and Peru 11 and 14% of teachers were absent on the day of a visit. In India and Uganda absence rates were 25 and 27 respectively.⁵⁷

6.14 Teacher absence varies within PNG. It is higher in community schools than in primary schools, 17.4 versus 13.8% but this difference is not statistically significant. Absence rates are similar in government and church schools. There is substantial

⁵⁵ Guy et al. 2001 found a teacher absence rate of 15.6 percent

⁵⁶ The rate is an underestimate of the true rate since schools that were closed “because there weren’t enough teachers” were replaced by schools that were open.

⁵⁷ Chaudhury et al. 2003. *Teacher and Health Care Provider Absenteeism*. Comparable numbers from *World Development Report 2004*: in Ecuador, Peru, India, Uganda and Zambia teacher absence rates were 16, 13, 23, 17 and 26% respectively.

variability, however, across provinces with a range from 9% in West New Britain to 23.8% in Enga. Community schools in Enga stand out with over 30% of teachers absent.

6.15 Excluding head teachers from the analysis, on the grounds that patterns of absence might be different for them as they hold administrative duties, does not change the assessment significantly. The overall absence rate is marginally higher but rates are not consistently higher across the various subgroups.

6.16 Interestingly, teacher absence is not always highest in the poorest areas or in the most remote schools. Among community schools teacher absence is highest in the middle of the poverty distribution—well off and very poor areas have the lowest absence rates (10.3 and 16.6% compared to about 20% in other areas). Among primary schools teacher absence is highest in very poor areas—but lowest in areas categorized as poor. Absence rates increase overall as schools get more remote (reaching almost 20% in remote schools) but the patterns in community and primary schools are reversed. Easily accessible community schools absence have the highest absence rate (23.2%) whereas in easily accessible primary schools the rate is lowest (11.9%).

6.17 Teacher absence was not significantly related to whether or not the school had advance warning of the survey visit. Teachers in schools that had no warning had an average absence of 15.7% whereas those in schools with less than one week notice had an average absence of 14.0 percent. The difference is slightly higher among non-head teachers but it is still less than two percentage points.

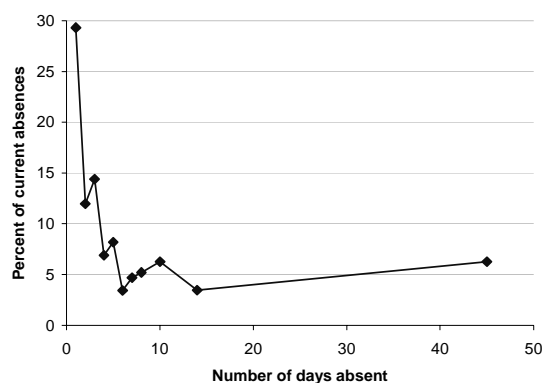
6.18 Why were teachers absent? A subset of up to three teachers per school were selected for in-depth questions. For those that were absent the reason for absence was recorded.⁵⁸ Thirty-six percent of absences were reportedly due to sickness. The remainder were due to staff attending training (4%), official functions (11%), approved paid leave (6%). But the majority lie in a last set of “travel to town” (8%) and other or unknown causes (34%).

Cumulative teacher absence

6.19 Teacher absence on the day of the visit to the school provides a snapshot of the overall level of teacher absence. But service disruptions due to teacher absence can be cumulative: lengthy teacher absences can severely hamper learning. The PESD survey inquired about the duration of current absences. A large fraction (30 percent) were reported as unknown by the respondent (usually the head teacher) suggesting that absences are not closely monitored. Among those where the respondent was able to provide an answer, only 30% had been absent just one day. Over 25% had been absent for at least seven days.

⁵⁸ The three teachers were the head teacher and two randomly selected teachers—one from the upper grades and one from the lower grades. During the survey field workers were more likely to select teachers who were present for the in-depth questions thereby violating the representativeness of the subsample. Indeed, teacher absence is substantially lower in the subsample. Characteristics (such as reason or duration) of the absent teachers in the subsample are less likely to be biased, however.

Figure 6.3: Percent of absence of each duration



Source: PESD 2002.

6.20 One frequently expressed problem in PNG is that some teachers take up their teaching post well into the academic year. According to PESD, the average teacher took up their post 10 days into the school year (Table 6.3). Even in NCD where one could argue that there is little reason to arrive late the average was close to 10 days. In extremely remote areas the average number of days was 17—a number driven by community schools where teachers started an average of over 21 days late. If head teachers are not counted the average reaches an astonishing 27 days. On average, almost a month's worth of instruction is lost in these schools due to late arrivals of teachers.

Table 6.3: Average number of days after start of school year that teacher arrived at post

Province	All teachers in 3-teacher survey			Non head teachers in 3-teacher survey		
	Community	Primary	All	Community	Primary	All
EHP	5.7	3.4	4.8	7.8	4.2	6.2
ENBP	5.4	7.1	6.4	8.5	8.1	8.3
Enga	4.9	6.7	5.9	3.9	9.1	6.9
Gulf	17.2	7.9	11.2	12.0	9.2	9.8
Morobe	19.8	3.8	15.9	21.0	2.7	16.0
NCD	.	9.6	9.6	.	8.2	8.2
Sandaun	13.3	2.6	9.7	15.8	3.1	10.4
WNB	15.0	10.0	12.7	15.6	12.2	14.0
Remoteness						
Easy access	8.7	9.7	9.4	2.6	10.1	7.9
Accessible	11.1	6.3	8.7	14.8	8.2	11.2
Remote	8.3	5.3	7.1	6.0	4.6	5.3
Extremely remote	21.9	2.7	17.3	27.0	3.8	20.9
Poverty						
Better off	9.6	7.2	8.6	10.7	5.2	8.4
NotPoor	10.2	7.5	8.7	9.1	9.2	9.1
Poor	17.9	4.2	11.5	22.0	5.2	13.3
VeryPoor	11.8	7.7	10.2	11.8	10.4	11.2
Agency						
Government	12.6	6.0	9.5	14.5	6.4	10.3
Church	13.3	6.8	10.5	13.9	8.4	11.3
Total	13.0	6.3	10.0	14.2	7.2	10.8

Source: PESD 2002.

6.21 The PESD survey was fielded primarily in April and May of 2002 (with some follow up in June and July). By combining late-starting with cumulative absences one can estimate the percentage of the school year up to the survey date that the average teacher had missed. The overall average was about 13 percent, but again the average masks large differences (Table 6.4). The rate in community schools is substantially higher than in primary schools: over 15 versus 9 percent. In extremely remote community schools the average teacher (non-head teacher) had missed almost a third of the school year up to the survey date. But remoteness isn't the only story. Among primary schools it is the easily accessible ones where the typical non-head teacher has missed the most (13 percent).

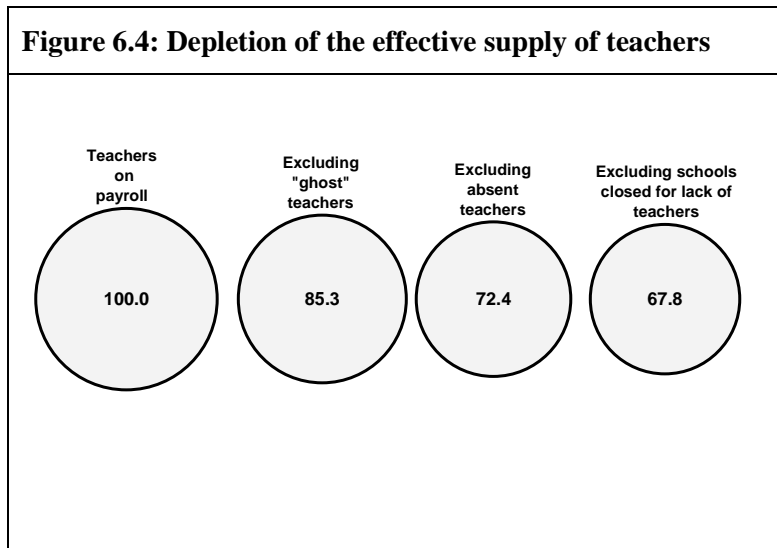
Table 6.4: Percent of school days that had been missed by teachers by the survey date

	All teachers in 3-teacher survey			Non head teachers in 3-teacher survey		
	Community	Primary	All	Community	Primary	All
Province						
EHP	8.0	6.3	7.3	10.8	8.1	9.6
ENBP	6.3	9.9	8.4	9.7	11.9	11.1
Enga	5.1	7.0	6.2	4.6	9.6	7.5
Gulf	17.6	13.9	15.2	16.0	15.4	15.6
Morobe	21.8	7.9	18.3	25.3	6.0	19.7
NCD	.	9.7	9.7	.	9.4	9.4
Sandaun	19.8	6.5	15.2	19.1	6.6	13.7
WNBP	16.6	13.7	15.2	17.5	15.6	16.5
Remoteness						
Easy access	5.9	11.8	10.3	3.4	13.3	10.5
Accessible	14.5	9.0	11.7	17.0	11.1	13.8
Remote	10.6	8.6	9.7	9.5	8.3	9.0
Extremely remote	23.9	6.1	19.7	30.6	6.3	23.8
Poverty						
Better off	11.6	9.6	10.8	13.0	8.6	11.1
NotPoor	10.6	8.9	9.7	10.0	11.4	10.8
Poor	19.0	7.7	13.7	23.3	8.7	15.6
VeryPoor	17.5	11.6	15.1	19.2	13.5	16.5
Agency						
Government	14.9	9.1	12.2	18.2	10.0	14.0
Church	15.6	9.3	12.9	15.6	10.7	13.3
Total	15.3	9.2	12.5	17.0	10.3	13.7

Source: PESD 2002.

6.22 The snapshot estimate of 15% teacher absence is also an underestimate in two other respects. First, if the notion of teacher absence were to be broadened to include “ghost teachers”, *i.e.* teachers on the payroll against whom there are no teachers in schools, then the absence rate increases from 15.1% to 27.6%. Second, as mentioned in Chapter 3, about 6% of the schools originally canvassed could not be surveyed for lack of teachers. Factoring this in, teacher absence rate climbs to 32.2%. Put differently, starting with 100 teachers on the payroll, eliminating ghost teachers knocks that back to 85, teacher absence brings it further down to 72 teachers on a typical school day, and finally

factoring in school closures due to lack of teachers implies an effective supply of 68 teachers (Figure 6.4).



Exploring determinants of teacher absence

6.23 What might determine teacher absence? Clearly there are a variety of factors: among others, teachers' intrinsic motivation, alternative uses of time, external motivating factors such as regularity of pay, the difficulty of the posting, and so on. A multivariate analysis that incorporates two measures collected as a part of the PESD questionnaire, the degree of school autonomy and the extend of parent and community involvement in the school, suggest interesting additional hypotheses. Table 6.5 reports selected results from Probit regressions of models that relate whether or not a teacher was absent to teacher characteristics, school characteristics, dummy variables for province, as well as measures of the degree of school autonomy and of parent involvement and community partnership.

6.24 Model (I) reported in first column is the most simple and includes only basic attributes of the teacher and the school. After controlling for these basic characteristics, teachers are significantly more likely to be absent in schools in poorer areas. Going from the richest to the poorest observed poverty rate is associated with a 15 percentage point reduction in likelihood that a teacher is absent. Teachers are less likely to be absent in primary schools (as compared to community schools) with a predicted differential of about 6 percentage points. Teacher absence rates vary across the different provinces—but the main distinction is between NCD and the other provinces. Absence rates are on the order of 10 percentage points lower in all of the sample provinces outside of NCD.⁵⁹

⁵⁹ The models include a set of variables capturing whether and when the school had advance notice of when the survey was going to be fielded (the omitted dummy variable is "No advance notice"). The fear is that some schools may have had advance notice of visit and that this might have resulted in less teacher absence than usual on the day of the survey. However, these variables are invariably statistically insignificant.

Table 6.5: Probit Regressions: Marginal Effects (z-stats in parenthesis) of variables on Teacher Absence

	(I)	(II)	(III)	(IV)
Female (0/1)	-0.018 (0.86)	-0.010 (0.49)	-0.015 (0.75)	-0.010 (0.53)
Age: 31-40yrs	0.007 (0.22)	0.002 (0.06)	0.005 (0.18)	0.001 (0.04)
Age: 41-50yrs	-0.027 (0.90)	-0.030 (1.00)	-0.033 (1.13)	-0.034 (1.16)
Age > 50yrs	0.028 (0.63)	0.022 (0.53)	0.025 (0.58)	0.019 (0.48)
Head teacher (0/1)	-0.052 (1.56)	-0.041 (1.22)	-0.057 (1.71)*	-0.047 (1.40)
Teaching level 3	-0.007 (0.28)	-0.007 (0.27)	-0.009 (0.34)	-0.007 (0.27)
Teaching level 4 & above	0.023 (0.54)	0.016 (0.39)	0.033 (0.79)	0.027 (0.63)
% with school housing	0.082 (1.70)*	0.081 (1.67)*	0.077 (1.62)	0.083 (1.70)*
Poverty rate (0 to 1)	0.212 (2.13)**	0.178 (1.86)*	0.150 (1.59)	0.124 (1.38)
Remoteness index (0 to 1)	0.125 (0.90)	-0.027 (0.18)	0.149 (1.12)	-0.017 (0.12)
Primary school (0/1)	-0.060 (1.94)*	-0.060 (1.86)*	-0.044 (1.42)	-0.053 (1.60)
Church operated school (0/1)	-0.016 (0.64)	-0.015 (0.61)	-0.012 (0.53)	-0.018 (0.75)
EHP	-0.093 (2.53)**	-0.112 (2.80)***	-0.079 (2.04)**	-0.109 (2.62)***
ENBP	-0.118 (3.01)***	-0.121 (2.96)***	-0.104 (2.57)**	-0.119 (2.89)***
Enga	-0.064 (1.48)	-0.088 (2.12)**	-0.048 (1.08)	-0.081 (1.86)*
Gulf	-0.057 (1.10)	-0.061 (1.06)	-0.053 (1.01)	-0.075 (1.37)
Morobe	-0.133 (3.20)***	-0.124 (2.80)***	-0.116 (2.72)***	-0.122 (2.71)***
Sandaun	-0.146 (3.83)***	-0.143 (3.74)***	-0.132 (3.26)***	-0.137 (3.50)***
WNBP	-0.116 (2.93)***	-0.132 (3.50)***	-0.109 (2.56)**	-0.131 (3.11)***
Advance notice of school visit ... one week or less (0/1)	-0.019 (0.77)	-0.009 (0.35)	-0.002 (0.07)	0.002 (0.07)
... more than one week (0/1)	0.011 (0.29)	0.035 (0.88)	0.046 (1.11)	0.071 (1.65)*
Payment delay (days)	0.002 (1.59)	0.001 (0.88)	0.002 (1.87)*	0.002 (1.45)
Enrollment 2002 (/100)		-0.008 (1.28)		-0.009 (1.45)
Pupil-teacher ratio		-0.001 (2.23)**		-0.001 (2.39)**
Per student textbooks		-0.020 (2.84)***		-0.019 (2.64)***
Classroom index (0 to1)		-0.053 (0.96)		-0.051 (0.93)
Other infrastructure index (0 to1)		-0.003 (0.04)		0.022 (0.33)
Electricity, water and sanitation index (0 to1)		-0.070 (1.21)		-0.074 (1.27)
Closure and break-ins index (0 to1)		0.038 (1.07)		0.052 (1.43)
Teaching resources index (0 to1)		-0.098 (1.52)		-0.023 (0.35)
Parents & community involvement			-0.036 (2.34)*	-0.035 (1.96)**
School autonomy			0.007 (0.58)	0.007 (0.51)
Observations	1742	1742	1742	1742

Note: Robust z-statistics in parentheses

*significant at 10% **significant at 5% ***significant at 1%

Autonomy aggregated from Grade5 teacher response

The regressions also includes dummy variables to control for missing data on teachers' age, teaching level, notice of school visit, payment delay, per student textbooks, closure index, electricity index and classroom index.

Source: PESD 2002.

6.25 Some of the variables are not in association with teacher absence, and these are interesting in their own right.⁶⁰ For example the agency type (that is whether or not a school is a church school) is not significantly associated with whether or not a teacher is absent. This suggests that despite the different agencies in charge, teachers in these schools face similar incentives regarding absence as those in government schools. Teacher level also appears to play no role in predicting absence. More senior teachers are not less likely to be absent than more junior ones. Similarly the teacher's age is not associated with the likelihood of absence.⁶¹

6.26 The evidence on the role of teacher motivation and incentives is mixed. There is some evidence that delays in payment of teacher salaries encourage greater absence. However, the percentage of teachers not receiving additional monetary allowances they are eligible for has no significant effect on absence,⁶² while the percentage of teachers with school-provided housing is associated with greater teacher absence. The latter is perhaps surprising as one might have thought that school-provided housing is a form of compensation and that might encourage higher teacher attendance.⁶³ But it seems that is not the case. The results also indicate that inspector visits, both the number as well as whether the visits resulted in a written report, have no significant effect on the extent of teacher absence (These results are not reported in Table 6.5).

6.27 Model (II) adds a set of school input variables to assess whether school attributes, several of which could be thought of as complementary to teaching have an effect on teacher absence, perhaps by influencing teacher motivation. The results suggest that most of these do not; for instance, indices related to classroom facilities, other infrastructure, utilities, closures and break-ins, and teaching resources do not seem to matter.⁶⁴ However, two variables are statistically significant. The number of textbooks per student is associated with lower teacher absence suggesting that the more complementary teaching inputs there are—perhaps creating an easier teaching environment—the less teacher absence there is. The student/teacher ratio, conditional on the total number of students in the school, is associated with less teacher absence. That is, the fewer teachers there are relative to students, the less likely they are to be absent, which suggests that having relatively fewer teachers to go around exerts some pressure on them to report to work.

6.28 There are revealing results in the models that include variables measuring parent and community involvement and those measuring school autonomy. Community and

⁶⁰ Of course interpreting a lack of a statistical association is complicated by the fact it could be caused by lack of power of the test as well as true lack of association.

⁶¹ The age variable is sometimes missing – usually because the teacher was absent and the head teacher did not know their age. This effect is picked up by the significant positive association between “missing age” and teacher absence (not reported in Table 6.5).

⁶² The most common allowances that were reported as not being received included disadvantages school, responsibility, multi-grade, and housing. This variable was later excluded from the regression and is not shown in the reported regression results.

⁶³ This view is also suggested by some of the accounts in the Twelve-School Study which point to the cost/burden of traveling to the schools in instance of limited availability of school-provided teacher housing (NRI, 2003).

⁶⁴ See discussion in Chapter 3 for details on these indices.

parent involvement is measured by an index that is built from 6 variables about parent participation and 8 variables about the relationship between the school and community members.⁶⁵

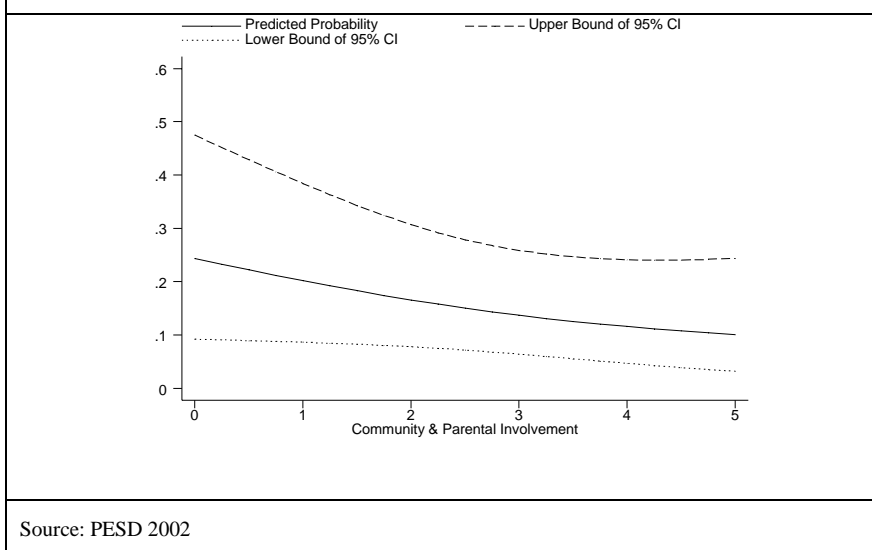
6.29 “Autonomy” is measured as the average of responses to 21 questions asked of the grade 5 teacher in the PESD about “who is responsible” for various education functions (e.g. deciding who can enroll in a school, who set the curriculum, who decides how to use school subsidies).⁶⁶ A positive response is one where respondents report that it is a person at the school level (e.g. head teachers, Board of Management, teachers) who is responsible (as opposed to the Department of Education, or the Inspectorate for example).

6.30 The results indicate that conditional or unconditional on school input variables, greater autonomy has no discernible effect on teacher absence. In contrast, more parent and community involvement is associated with less teacher absence. That is, the more actively parents participate in various school meetings, and the more schools and community are linked—the less teachers are likely to be absent. How strong is the association? Figure 6.5 shows the predicted probability of teacher absence as parent and community involvement change—with all other variables set to their actual values (the figure is derived from the Model III specification in Table 6.5). From about one standard deviation below mean parent participation and community involvement to one standard deviation above parent participation and community involvement (from a value of 2 to 4), predicted teacher absence falls from almost 20% to almost 10%: a substantial decline. This salutary effect of parental involvement and community participation on curtailing teacher absence also holds controlling for a range of school input variables (Model IV in Table 6.5).

⁶⁵ See Annex 5 for more on the definition of these measures.

⁶⁶ We also experimented with the autonomy variable based on responses of the head teacher as well as an average autonomy variable based on the responses of the grade 5 teacher, the head teacher and the BOM chairperson. Alternative autonomy variables made no noticeable difference to the results. Additional data exploration focusing on autonomy with respect to teacher management does not give substantively different results either.

Figure 6.5: Predicted teacher absence at various levels of parental participation and community and involvement



6.31 These results suggest that even after controlling for observed characteristics such as district poverty or the pupil-teacher ratio, the extent to which parents and communities and are engaged in monitoring what goes on in schools matters in getting teachers to report for work. On the other hand, the results are consistent with the view that more decentralized management to the school level does not necessarily improve the ability to get teachers to report for work.

6.32 On the gender dimension, we find that controlling for other factors, female teachers are not significantly less likely to be absent than male teachers (models I-IV). We also experimented with separate models for male and female teacher absence, shown in Annex 7 as the male and female equivalents of Model III. While the hypothesis of identical models is statistically rejected, the differences between male and female models are limited to the significance of a few variables. In particular, the estimates indicate that while salary delay and teacher housing significantly contribute to male teacher absence, they do not have a significant effect on absence of female teachers. Conversely, the negative effect on teacher absence of parent/community involvement, senior teaching levels, primary status and more accessible location of the school is significant for female but not male teachers.

Box 6.1: Absence among health workers

Health facilities near surveyed schools were visited as a part of the PESD exercise. In a similar way to that used in schools, the absence or presence of health workers in these facilities was recorded and absence rates were calculated. Overall health workers were less likely to be present than teachers; 19.1% of health workers were absent when the facility was visited (while 30% of all facilities reported at least one staff absent). Unlike teachers, Enga does not have the highest absence rate: this occurs in Gulf where over 42% of health workers were absent. Absence is lower in poor areas, at about 17%, as against 23% for non-poor areas, but higher in remote (22%) than in accessible areas (15%). Absence in government facilities was quite a bit higher than in religious or other non-government facilities (22 versus 16 percent). Rural health centers have the highest absence rate—close to 30 percent—of all facility types. Absence rate was lowest in hospitals.

Proportion of health workers absent on the day of a visit, patients seen per staff, and fee per visit

	Percentage of staff absent	% of facilities with any staff absent	Patient seen per staff		How much patients pay for per visit? (Kina)
			Usually	Yesterday	
Province					
EHP	4.0	10.6	21	22	0.26
ENB	21.0	50.6	13	5	0.69
Enga	7.7	33.3	11	13	0.15
Gulf	42.7	60.5	12	11	0.26
Morobe	20.8	36.8	13	12	0.91
NCD	18.4	71.4	19	28	0.73
Sandaun	5.6	13.6	31	22	0.15
WNB	9.2	18.1	11	16	0.66
Remoteness					
Remote	22.4	32.1	16	13	0.47
Not remote	15.4	28.8	17	18	0.63
Poverty					
Poor	16.6	27.5	17	15	0.50
Not Poor	23.1	36.3	15	14	0.59
Agency					
Government	22.6	25.6	18	17	0.46
Non-government	16.4	39.7	13	12	0.67
Type of facility					
Hospital	8.5	70.8	23	4	1.54
Urban clinic	18.9	54.9	13	25	0.67
Rural health center	29.2	70.7	7	12	0.40
Sub-health center	11.0	32.9	7	12	0.54
Aid Post	12.4	15.1	22	17	0.51
Total	19.1	30.7	17	15	0.53

Source: PESD 2002.

SHORTAGE OF TEACHERS AND TEACHER TURNOVER

6.33 Schools also face the two other related problems of teacher shortage and high teacher turnover. Table 6.6 reports two measures of teacher shortage. The first is the ratio of actual number of teachers to the number of teachers supposed to be posted to schools; the lower this ratio the greater the shortage. The other measure is based on a direct response from the head teacher to the question if the school experienced a shortage of teachers for more than one term. On average, in 2002 the actual number of teachers was about 20% short of the number of posts at schools (14% in 2001), and about 60% of schools reported a teacher shortage for at least one term (56% in 2001). It is notable that some excess of sanctioned posts over actual positions is built into the teacher deployment system. For instance, the *2002 DOE Annual Report* notes that the number of teachers on the payroll in 2002 fell 8% short of the teaching positions approved by the Teacher Service Commission (TSC). The Report further notes:

... the Department of Treasury sets the appropriation for teachers' salaries in every province at 10% or more below the amount needed to pay salaries for all TSC approved positions. This policy works well in provinces where it is difficult to fill positions in remote schools (p.27).

6.34 A larger excess of approved over actual positions or larger reported shortage in some schools is indicative of their greater difficulty in recruiting or retaining teachers. These difficulties are more acute in remote/poor areas. Both measures of shortage are higher for schools in relatively remote (or poor) locations. Schools in NCD, on the other hand, have the amongst the lowest reported shortage. These difficulties are also reflected, in part, in higher teacher turnover rates and higher student-teacher ratios; for instance, both of these are relatively high for schools in remote or poor areas.⁶⁷

6.35 While there is a policy in place for Disadvantage School Allowances to encourage deployment in remote areas, as the evidence below (Table 6.7) indicates, a significant fraction of teachers report not receiving this and other allowances despite being eligible for them.

6.36 Table 6.6 also indicates sizeable variation in student-teacher ratios across provinces, poverty levels and remoteness, which suggests a potential for cost-saving by way of increasing these ratios where they are low. However, with an average of 38 students per teacher, there may not much room for cost-cutting through this channel of reorganizing teacher deployment.

⁶⁷ The relatedness of several of the issues discussed above is suggested by the correlation matrix in Table A7.5. Some of the notable significant (positive) correlations include those between the ghost teacher rate and student-teacher ratio, between teacher absence and reported teacher shortage, and finally between teacher shortage and teacher turnover.

Table 6.6: Teacher shortage and new teachers

	2001		2002		Percent of teachers who were new at schools ^{c/}		Student teacher ratio
	Actual-to-supposed number of teachers ratio (%)	Shortage of teachers (% schools) a/	Actual-to-supposed number of teachers ratio (%) b/	Shortage of teachers (% schools) a/	2001	2002	2002
By province							
Eastern Highlands	83	71	75	64	34	43	42
East New Britain	98	27	98	40	42	44	28
Enga	76	69	78	75	24	22	41
Gulf	70	81	70	89	24	39	36
Morobe	90	36	69	48	49	58	43
NCD	98	48	95	40	15	25	35
Sandaun	82	64	77	63	41	50	37
West New Britain	89	57	82	81	23	30	36
By remoteness							
Accessible	93	44	85	54	32	38	35
Remote	76	67	71	71	35	43	42
By poverty							
Not Poor	92	50	88	60	28	37	34
Poor	81	61	73	64	38	42	41
By agency							
Government	87	55	83	62	34	40	37
Church	84	56	75	62	31	39	39
By type							
Community	79	56	73	66	44	52	45
Primary	90	55	84	56	27	33	34
Total	86	56	80	62	33	40	38
New teachers per school					2.2	2.7	
Total number of teachers per school					6.5	6.6	

Note: a/ A school is considered to experience a shortage of teachers if it reports being short of teachers for more than one term during the academic year. b/ For 2002, the actual number of teachers taken from the teachers' roster; for 2001, it is the reported actual number of teachers working at the school. c/ The denominator in these calculations is the actual number of teachers working at the school in each year. If the number of teacher positions is used the percentages of new teachers falls by between 5 and 10 %age points.

Source: PESD 2002.

TEACHER MOTIVATION

6.37 While the foregoing regression analysis provided limited evidence of teacher incentives in explaining teacher absence, teacher performance in general begs the question of teacher motivation. PESD Survey allows us to examine this further by exploring the payment of teacher salaries and allowances and the degree of their involvement in matters related to deployment, career management and school operations.

6.38 The average teacher in a primary/community school gets a salary of K436 per fortnight, or about USD3,400 or AUD4,800 per year – about a tenth of the starting salary of \$46,235 for teachers in Australia.⁶⁸ And teacher salaries have been declining in real

⁶⁸ Sydney Morning Herald, June 10, 2004.

terms in recent years.⁶⁹ About 16% of teachers report delays in receipt of salary payments; the average delay (for those experiencing delays) is about 21 days (Table 6.7). About 44% of the teachers report not receiving the allowances they were eligible for; the most common allowances not received were the responsibility/disadvantaged school/multi-grade allowance (accounting for more than 90% of the cases of allowances not received).⁷⁰ A part of the problem with teacher allowances is their multiplicity; a teacher in rural areas could claim up to 13 different allowances, which have to be separately applied for and approved (VSO, 2002; NRI, 2003a). These conditions are unlikely to generate a high level of teacher motivation.

Table 6.7: Payment of teacher salaries and allowances

Salary	
Average salary (Kina/fortnight)	436
% of teachers paid by cheques	19.4
% of teachers paid by direct deposits	80.6
Average salary payment delay (days, incl. zeros)	3.3
Average salary payment delay (days, for those reporting a delay)	20.9
Average salary access delay period (weeks)	0.9
Allowances	
% of teachers receiving additional monetary allowances	43.7
Average amount of monetary allowances (Kina/year), including zeros	194
Average amount of monetary allowances (Kina/year), excluding zeros	443
% of teachers who did not receive allowances they were eligible for	43.6
Type of allowance not received	
...Responsibility/disadvantaged school/multi-grade/housing	36.9
...Higher duty	4.3
...Mining or leave fare or domestic market	2.3

Source: PESD 2002.

6.39 How involved are teachers and head teachers in deployment and career management? Data from the PESD Survey suggests that in line with national policy, the majority of respondents believe that the province has the most say in appointing teachers to the survey school—with broad agreement across the head teacher, the grade 5 teacher, and the BOM representative (Table 6.8). For teacher assessment and teacher promotions, however the Inspectorate is perceived as the main actor. Head teachers are also perceived to be playing a role in assessment—but not in promotion. When it comes to enforcement—that is disciplinary action or even dismissal—the province is again viewed as important alongside boards of management. In the case of dismissal many see the national level (NDOE) as important. Selecting which teachers are eligible for teacher training is again viewed as a provincial function although head teachers are close behind.

⁶⁹ The average inflation rate over the last 5 years has averaged upwards of 10% (IMF, 2004). Teachers are not alone in experiencing a decline in real wages; such declines are widespread across the entire public payroll.

⁷⁰ For further details on teacher salaries and allowances, see Annex Tables A7.2-A7.4.

Table 6.8: Who has the most say in decisions regarding teacher appointment and career management (percent of responses of head teachers, grade 5 teachers, and BOM representatives)

	Appointing teachers	Policy for assessing teachers	Assessing teachers	Teacher promotion	Disciplinary action against teachers	Dismissing a teacher	Selection for inservice training
National Govt	6.0	21.7	1.9	8.6	8.2	25.2	4.8
Provincial Govt	69.5	16.1	7.0	18.5	28.7	34.2	39.4
District Govt	4.4	1.0	1.0	0.7	1.5	3.3	1.1
Inspectors	2.1	27.8	43.6	47.6	19.0	8.7	22.3
Board Of Managemt	8.9	7.9	7.6	3.7	27.9	20.0	3.3
Head Teacher	2.1	23.1	35.6	18.5	12.4	4.9	25.6
Teachers	0.6	1.4	1.7	1.0	0.8	0.4	2.5
Parents/PNC	1.5	0.1	0.8	0.1	0.3	1.2	0.0
Church Agencies	4.5	0.4	0.5	0.4	0.8	1.6	0.6
Others	0.3	0.5	0.1	0.8	0.5	0.3	0.3

Source: PESD 2002.% of valid responses.

6.40 In all of these aspects of teacher deployment and career management, it is clear that teachers are rarely viewed as having much of a say. When asked directly, the grade 5 teachers in the survey overwhelmingly say they have no or little influence (Table 6.9). The fact that few teachers view themselves as having much of a say in being appointed to a given school, or that the majority feel that they have little say in whether they get in-service training is clearly going to influence how motivated they feel about their jobs.

Table 6.9: Percent of head teachers and grade 5 teachers by how much say they report having in various aspects of teacher appointment and career management

	Appointing teachers	Policy for assessing teachers	Assessing teachers	Teacher promotion	Disciplinary action against teachers	Dismissing a teacher	Selection for inservice training
Grade 5 teachers							
None	54.2	44.9	29.4	48.3	39.8	67.9	41.3
A little	31.8	31.6	38.4	32.5	40.4	19.6	33.5
A lot	14.1	23.5	32.3	19.2	19.8	12.5	25.3
Head teachers							
None	44.0	13.6	7.1	23.3	15.1	37.1	26.9
A little	36.0	32.6	23.6	33.0	49.7	39.6	32.0
A lot	20.0	53.8	69.3	43.7	35.3	23.4	41.1

Source: PESD 2002.% of valid responses.

6.41 The lack of reported involvement in decision-making regarding deployment is well reflected in how head teachers feel about their appointment to this school. Typically only slightly more than half report having requested to be posted at the school they are working in. On the other hand in more attractive places to work (NCD or easily accessible areas) the share rises to 70%. Among those who did not request to work at the particular school most say that the province appointed them because it thought it best, but

around 20% say that the reason they were chosen was that “no one else wanted to come to this school”. It is no surprise then that, in remote areas, about a quarter of all head teachers say that they do not want to stay, or are indifferent, about staying at this school in the following school year.

6.42 In general head teachers report being more involved than teachers: typically quite a few more report having “a lot” of say in the various aspects of teacher deployment and career management. Nevertheless, like teachers, the majority report having no or little say. The exception is assessing teachers where almost 70% report having “a lot” of say suggesting that head teachers are indeed playing their role in quality control of teaching in their school. However only about 44% feel they have “a lot” of say in teacher promotion, and even fewer in taking disciplinary action suggesting that the link between assessment and enforcement is weak.

6.43 How are matters managed within a school? Most respondents feel that the board of management determines which students can enroll in a school (Table 6.10). But head teachers are typically named as the most influential in determining class size. It appears that head teachers have a lot of say in the overall size of the classes and, by implication, the student body. In that sense they determine the student-teacher ratio. On the other hand, the BOM determines which particular students attend—a function one might not think the BOM is particularly suited to.⁷¹

Table 6.10: Who has the most say in decisions regarding student selection, teaching, and student assessment (percent of responses of head teachers, grade 5 teachers, and BOM representatives)

	Which students to enroll	Determining class size	What teaching methods to use	Setting the policy for assessing students	Assessing students
National Govt	2.2	7.9	20.1	7.2	1.7
Provincial Govt	7.7	13.1	8.1	10.6	2.6
District Govt	0.5	1.6	1.7	0.4	0.2
Inspectors	0.9	4.1	14.6	5.8	3.3
Board Of Managemt	47.6	12.3	2.4	9.0	4.3
Head Teacher	31.5	47.9	35.2	47.1	43.6
Teachers	1.7	10.7	14.9	17.0	41.3
Parents/PNC	6.2	0.9	0.9	0.9	0.7
Others	0.7	0.3	0.4	0.6	0.7
Don't Know	1.0	1.2	1.6	1.4	1.6

Source: PESD 2002.% of valid responses.

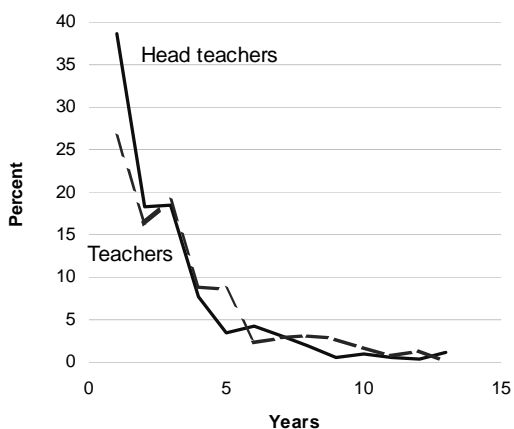
6.44 The respondents have no one view on who determines teaching methods. The most common response is that head teachers have the most influence (35 percent) but many report that the national government (NDOE) determines methods (20 percent) with a sizable minority reporting inspectors and teachers (15 percent). Teachers are slightly more likely to report that they have the most say than either head teachers or the BOM

⁷¹ It is possible that respondents are interpreting the question as “who has the most say in determining the area that will be served by this school” rather than which specific child is going to be admitted.

representative (20% as opposed to an average across all respondents of 15 percent). Nevertheless, teachers on the whole are not perceived as having much say in teaching methods.

6.45 Perhaps both as a cause and as a consequence of the lack of say that teachers feel they have in determining their own careers, there is a very high level of teacher turnover in schools, as noted above (Table 6.6). In 2002 the typical survey school had over two new teachers. This corresponds to almost 40% of teachers being newly appointed to the schools in which they are working. Of the survey provinces Enga and NCD consistently have the most stability with schools there averaging less than 25% of their teachers being new. New appointees are most frequent in less desirable areas: over 50% of teachers in very poor or extremely remote schools are newly appointed. Likewise the rate is substantially higher in community relative to primary schools. The number of years that the average teacher, or head teacher, has been at their current school is therefore quite short (Figure 6.6).

Figure 6.6: Percent of teachers and head teachers by years working at current school



Source: PESD 2002.% of valid responses.

EDUCATION ADMINISTRATION

PEAs and DEAs

6.46 A potentially important layer within the decentralized system of education management in PNG is the provincial and district-level administration, operating in part through the offices of Provincial Education Advisors (PEAs) and District Education Administrators (DEAs). The wide-ranging (financial as well as operational)

responsibilities of provincial and local-level governments within the national education system are spelt out under the *National Charter for Reconstruction and Development 2000-2002*.⁷² However, in practice, these agencies do not appear to function very successfully in ensuring effective delivery of education services. Their relatively ineffectual role can be illustrated with regards to the management of subsidy payments. For instance, information collected through the PESD Survey suggests that PEAs do not seem to keep good records of their accounts. This is reflected by their lack of knowledge of the total amounts of subsidies received by schools in their provinces (Table 6.11). When we compare the budget disbursements reported by the national Government (for Q1 and Q3) and by the Provincial Government (Q2 and Q4) with the PEA figures, we can hardly find any match at all for any province or quarter.

Table 6.11: Budget and Provincial Education Advisor figures for school subsidies, 2001

<i>(Kina)</i>								
Province	Q1		NDoe component a/ Q3		Total		Provincial component b/ Q2 & Q4	
	Budget	PEA	Budget	PEA	Budget	PEA	Budget c/	PEA
Eastern Highlands	290,141	1,200,000	419,088	419,000	709,229	1,619,000	4,044,200	2,100,000
East New Britain	390,449	d.k.	46,561	d.k.	437,010	d.k.	1,814,200	4,000,000
Enga	189,272	d.k.	180,290	d.k.	369,562	d.k.	1,007,300	d.k.
Gulf	92,668	d.k.	119,903	d.k.	212,571	d.k.	422,900	236,400
Morobe	383,866	865,900	371,035	865,900	754,901	1,731,800	1,731,800	2,324,100
NCD	395,477	395,472	310,024	310,340	705,501	705,812	0	d.k.
Sandaun	143,149	300,000	13,119	300,000	156,269	600,000	675,900	1,200,000
West New Britain	297,198	d.k.	63,891	d.k.	361,089	d.k.	1,694,300	1,644,000
Total	2,182,221	2,761,372	1,523,910	1,895,240	3,706,131	4,656,612	11,390,600	11,504,500

a/ Subsidies for primary schools.
b/ Subsidies for all levels of schooling.
c/ Calculated under the "Budget I" assumption.
Source: 2002 and 2003 PNG Budget, 2002 PESD survey.

6.47 The PEAs often claimed to be getting less than what they were expecting, but they did report to generally receive the subsidies during the quarter they were supposed to get them (Table 6.12). Finally, according to the PEAs, transferring money to the schools took on average one or two weeks in the case of National Government payments, and three or four weeks for the provincial subsidies. This appears to be inconsistent with the extent of delay reported at schools (see Chapter 5).

⁷² See DOE (2002) *2002 Annual Report*, for instance.

Table 6.12: Provincial Education Advisor Information on School Fee Subsidies, 2001

Province	Q1			Q2			Q3			Q4		
	Subsidy consistent with your estimation?	Month received	Time before passing it to schools (weeks)	Subsidy consistent with your estimation?	Month received	Time before passing it to schools (weeks)	Subsidy consistent with your estimation?	Month received	Time before passing it to schools (weeks)	Subsidy consistent with your estimation?	Month received	Time before passing it to schools (weeks)
Eastern Highlands	Less	4	1	Yes	7	2	Less	11		Yes	10	2
East New Britain	Less	1	1	Yes	4	>4	Less	6	1	Yes	9	>4
Enga												
Gulf		1	2	Less	5	1		6	2	Less	10	1
Morobe	Yes	2	1	Less		2	Yes	7	1	Less		2
NCD		6	1				Yes	10	1			
Sandaun	Less	4	>4	Less	4	3-4	Less	6	>4	Less	11	3-4
West New Britain			1	Less	6	>4			1	Less	11	>4

Source: 2002 PESD.

6.48 The PESD Survey also collected information on subsidy payments from the DEAs (Table 6.13). As in the case of PEAs, information was incomplete but to a lesser degree. According to DEAs, most schools received their subsidies each quarter although it was often not a full payment. When schools in the area did not receive any subsidy payment at all, DEAs normally sent a written report to the PEA office to file a complaint. However, districts did not try to allocate other resources to the schools when a shortfall happened, only 3 out of the 20 districts did so and the result was, at best, partially successful. A similar situation arose in the case of disadvantaged schools where only four districts reported providing supplementary funding to the schools.

Table 6.13: District Education Administrator information on school subsidy payments, 2001

	Actions if schools did not receive subsidy payments	Does the district allocate other resources to fill any shortfall?	Was it successful?	If a school is disadvantaged, does the district provide supplementary funding?	What were the additional arrangements?
Eastern Highlands					
Kainantu	Report to PDOE	Yes	No	No	n.a.
Obura/Wonenara	None	No	n.a.	No	n.a.
Unggai/Bena	Report to PDOE	Yes	Partially	No	n.a.
East New Britain					
Kokopo	Top up next payment	Yes	Partially	Yes	Basic materials
Pomio	Report to PDOE	No	n.a.	Yes	Covering freight costs
Gazelle	Report to PDOE	No	n.a.	No	n.a.
Enga					
Laigaip/Porgera	n.a.	n.a.	n.a.	Yes	Allowance to teachers
Kandep	Report to PDOE	No	n.a.	No	n.a.
Wabag					
Gulf					
Kikori	Report to PDOE	No	n.a.	No	n.a.
Kerema	d.k.	n.a.	n.a.	No	n.a.
Morobe					
Finschaffon	n.a.	No	n.a.	No	n.a.
Huon	Report to PDOE	No	n.a.	Yes	Additional funds
Tewae/Siassi	Report to PDOE	No	n.a.	No	n.a.
NCD					
NCD	n.a.	No	n.a.	No	n.a.
Sandaun					
Nuku	Report to PDOE	No	n.a.	No	n.a.
Telefomin	Report to PDOE	No	n.a.	No	n.a.
Aitape/Lumi	Report to PDOE	No	n.a.	No	n.a.
West New Britain					
Kandrian/Gloucesterc	Report to PEB	No	n.a.	No	n.a.
Talasea	Report to PDOE	No	n.a.	No	n.a.

Source: 2002 PESD survey.

6.49 The Twelve-School Study gives several examples of the disconnect of the provincial and district-level administration with schools and their local communities.

The government officers at the district level in these communities are very isolated from the people whom they are meant to serve. A common remark that is made by the community is in a question form — “Em husat ol lain ya, mipela i no save long ol”, which, in English means, “Who are these people, (district workers) we do not know them.”

We learn who the DEA is when he is introduced as an invited guest speaker on speech days’... We do not know what his role is in education. (teachers) [NRI. 2003b, p. 85, 133]

Inspectors

6.50 Inspectors are entrusted with the important task of providing advisory services to teachers, schools and provincial administration, inspecting teacher performance and school operations, and recommending teachers for eligibility for promotions. However, for many schools they are nowhere to be found. In 2001 areas over 40% of schools in remote areas had received no visit from an inspector (Table 6.14). But it is not only the extremely remote schools that weren’t visited: in accessible areas the average was just under 30. There are big differences across the survey provinces. In NCD all the schools had been visited by an inspector—most of them 3 or 4 times—whereas in Gulf almost 65 had not been visited. The difference between primary and community schools is

particularly stark: almost half the community schools had not been visited by an inspector while only 20% of primary schools had not.

Table 6.14: Percent of schools that did *not* have a visit by an inspector

			2002 (to date)				2002 (to date)
Province	2000	2001		Poverty	2000	2001	
EHP	60.3	45.2	82.2	Well off	40.1	37.3	51.5
ENBP	29.0	41.6	62.0	Not Poor	22.9	20.1	61.8
Enga	4.3	7.7	65.5	Poor	44.5	43.4	76.4
Gulf	61.8	64.3	82.8	VeryPoor	39.0	35.0	80.1
Morobe	42.1	40.9	69.2	Agency			
NCD	4.5	0.0	10.0		Government	41.1	33.9
Sandaun	28.0	19.2	73.3	Church	35.4	37.7	70.6
WNBP	42.6	38.5	60.4	Type			
Remoteness					Community school	45.7	46.5
	Easy access	30.9	27.9		Primary school	27.5	19.0
	Accessible	29.3	27.7				56.0
	Remote	44.3	44.5				
	Extremely remote	48.1	41.9				
			88.2	Total	38.3	35.7	69.1

Source: PESD 2002.% of valid responses.

6.51 When inspectors visit schools, their visit usually involves only meeting with the head teachers and other teachers. For example, 93% of schools that had a visit in 2001 or 2002 report that the inspector met with the head teacher, 84% report that the visit included a meeting with teachers (Table 6.15). Few visits involve any meetings with the Board of Management, fewer still with the PNC. Given the high importance that all respondents gave to the role of inspectors in assessing teachers, a fairly high share—almost 44 percent (See Table 6.8)—of inspector visits did not include classroom observation.

Table 6.15: Components of the last inspector visit, among schools with at least one visit in 2001 or 2002.

	Poverty Status				Remoteness				Total
	Better off	NotPoor	Poor	VeryPoor	Easily Accessible	Accessible	Remote	Extremely Remote	
Met with head teacher									
Yes	86.8	88.1	97.4	100.0	91.3	92.8	90.8	100.0	93.3
No	13.2	5.3	2.6	0.0	8.7	5.4	6.2	0.0	5.1
Don't know	0.0	6.6	0.0	0.0	0.0	1.8	3.0	0.0	1.6
Met with teachers									
Yes	77.0	67.2	90.4	100.0	92.3	75.7	83.1	96.5	83.9
No	23.0	25.9	9.6	0.0	7.7	22.4	13.9	3.5	14.5
Don't know	0.0	6.9	0.0	0.0	0.0	1.9	3.0	0.0	1.6
Met with BOM									
Yes	19.9	18.5	34.6	52.7	23.9	20.2	43.2	41.2	31.2
No	80.1	74.9	62.0	47.3	76.1	77.9	53.8	52.4	66.1
Don't know	0.0	6.6	3.5	0.0	0.0	1.9	3.0	6.5	2.7
Met with PNC									
Yes	5.9	12.3	28.5	35.8	19.6	16.4	18.3	37.6	21.2
No	94.1	80.8	68.1	64.2	80.4	81.7	78.7	56.0	76.0
Don't know	0.0	6.9	3.5	0.0	0.0	1.9	3.0	6.5	2.8
Observed classes									
Yes	49.2	45.8	64.6	78.2	63.6	49.4	61.4	75.2	59.5
No	50.8	45.2	31.9	21.8	36.5	47.3	35.7	18.3	37.2
Don't know	0.0	9.0	3.5	0.0	0.0	3.4	3.0	6.5	3.3
Checked records									
Yes	53.5	47.8	51.3	78.2	63.4	45.0	48.6	88.7	56.5
No	46.5	43.0	40.3	21.8	36.7	51.5	38.8	11.3	38.5
Don't know	0.0	9.2	8.4	0.0	0.0	3.5	12.6	0.0	5.0

Source: PESD 2002.% of valid responses.

6.52 After visiting a school inspectors are supposed to report back to the head teacher and teachers about their findings. Among the survey schools, 82% say that the inspector reported back to them, 15% responded that no report was given. Interestingly it is not the poorest areas where inspectors do not report back (Table 6.16). In better off and other non-poor areas, only 78% respectively say that the inspector reported back to them. In most cases, however, the feedback is only verbal. In most areas only about half the schools who got a report got one in written form. The exception is the poorest areas who were substantially more likely to get a written report. This is somewhat reassuring as these might be areas where teachers need the most feedback on their jobs. This finding is not mirrored in the remoteness dimension, however. The most extremely remote schools were almost just as likely to get a written report as those in more accessible areas.

Table 6.16: Percent of schools that received a report after the last inspector's visit (among those that were visited), and percent who got a verbal or written report

	Poverty Status				Remoteness				Total
	Better off	NotPoor	Poor	VeryPoor	Easily Accessible	Accessible	Remote	Extremely Remote	
Received a report									
No report	21.8	15.1	15.9	7.1	12.6	15.4	20.8	7.5	15.1
Report	77.5	78.3	80.8	92.9	86.3	82.8	72.0	92.5	82.0
Don't know	0.7	6.6	3.4	0.0	1.1	1.8	7.1	0.0	2.9
Among those who got a report, percent who got at least a verbal report	83.7	88.0	89.2	95.4	77.4	86.8	95.6	95.5	89.2
Among those who got a report, percent who got at least a written report	46.2	41.9	57.9	78.9	61.1	49.6	60.7	63.2	56.7

Source: PESD 2002.% of valid responses.

STUDENTS

6.53 How do student progress through the school system, and how much do they learn? Getting children to complete school, and learn along the way, is of course the ultimate goal of the country's education system. While the PESD survey focused on service delivery aspects of the education system in PNG, a limited set of analyses can be undertaken on the topic of outcomes: namely, student attendance—which can be derived from the PESD survey—and student ability—data on which are collected as a part of the national grade 8 test and can be matched to the PESD data at the school level.

Student attendance

6.54 Students are counted as attendees if they were present on the day the week prior to the day of survey, as recorded in the Roll Book. The attendance rate is the ratio of total attendees to total enrollment in a set of grades. The number of schools for which both numbers can be computed is only 129.⁷³

6.55 Overall, about 85% of students had attended school on the day in question, that is a student absence rate of 15% (Table 6.17). The attendance rate is highest in the higher grades of community schools (88.4%), somewhat lower in primary schools (about 84%), and lowest in the low grades of community schools (79.5%). Boys and girls attend school at similar rates with the exception of grades 1&2 where female attendance rates tend to be higher.

6.56 Schools in extremely remote areas report very high attendance rates with the overall average exceeding 90%.⁷⁴ However, the rate does not uniformly decrease as remoteness decreases: the lowest attendance is found among schools classified as remote where the overall average is less than 80%.

6.57 Students in schools in better-off areas are less likely to have attended school in the prior week, with the rate increasing progressively with the degree of poverty. In well off areas the overall attendance rate is 73% while in extremely poor areas it is 89 percent. This pattern holds for all the subgroups analyzed except for the very young students in grades 1 and 2 in community schools in very poor areas where attendance is low (77 percent). Finally, there is no significant difference in attendance rates across government and church schools.

⁷³ That is, only 60% of Grades 1-8 are covered. Coverage is slightly lower among schools in well off areas (53 percent), and quite a bit lower in remote areas (44 percent). While coverage is high in extremely remote areas (74 percent) this corresponds to only a handful of primary schools. Coverage was exceptionally low in Enga (27 percent) but between 50 and 81% in the other provinces.

⁷⁴ The survey instrument asked about the number of children who attended and the total number of children in different parts of the instrument which resulted in some responses exceeding 100 percent. The overall estimated attendance rate in grades 3 to 6 in extremely remote schools is 101.5 percent.

Table 6.17: Rates of student attendance (%)					
	Community Schools		Primary Schools		All Schools
	Grade 1&2	Grade 3-6	Grade 3-6	Grade7-8	Grade1-8
All students	79.5	88.4	83.8	83.6	85.1
Male students	77.8	88.0	83.0	82.7	84.8
Female students	84.5	89.5	86.0	85.1	85.6
Province					
EHP	81.5	89.9	87.8	88.0	86.5
ENBP	90.2	92.6	82.0	87.0	87.9
Enga	96.1	89.6	71.7	67.0	81.9
Gulf	53.5	87.1	73.0	59.3	80.7
Morobe	80.6	90.6	105.2	95.1	92.1
NCD	.	.	84.1	77.0	85.4
Sandaun	76.9	92.4	86.9	95.1	86.3
WNBP	76.6	72.5	78.9	84.3	74.0
Remoteness					
Easy access	94.1	99.0	80.4	74.8	86.0
Accessible	78.9	93.8	82.3	88.0	85.1
Remote	73.9	79.1	81.5	76.4	78.0
Extremely remote	86.2	90.3	101.5	94.7	91.7
Poverty					
WellOff	67.1	74.0	79.0	71.6	73.0
NotPoor	76.7	85.5	79.9	80.3	82.1
Poor	90.1	92.7	84.7	86.7	89.6
VeryPoor	77.7	93.7	90.7	93.8	89.0
Agency					
Government	78.0	87.6	83.9	84.7	84.5
Church	81.8	89.4	83.8	82.1	85.9
 # of sample schools	 56	 77	 68	 69	 129

Source: PESD 2002.

6.58 The determinants of student attendance are explored in a multivariate framework. Table 6.18 reports the results from OLS regressions where the dependent variable is the school level attendance rate and the independent variables are a host of school characteristics, including basic features such as local poverty, remoteness, agency and type of school, but also characteristics related to teachers and students, physical and financial resources. The association with parent and community involvement and school autonomy is explored as well.

6.59 The results indicate that student attendance is statistically significantly higher in schools in poorer areas—however there appears to be no association with remoteness. The attendance rate is somewhat higher in the National Capital District. On the other hand there is no difference between primary and community schools (recall that this multivariate model controls for other factors), nor between agency type.

Table 6.18: OLS estimates of the correlates of student attendance, 2002

	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)
Poverty rate (0 to 1)	26.099 (1.97)*	23.308 (1.79)*	27.144 (2.08)**	29.563 (2.37)**	21.582 (1.81)*	24.877 (2.00)*	24.942 (1.93)*
Remoteness index (0 to 1)	5.862 (0.49)	6.392 (0.51)	3.234 (0.24)	1.940 (0.16)	6.045 (0.44)	2.275 (0.16)	2.203 (0.15)
Primary school (0/1)	-2.482 (0.65)	-2.517 (0.65)	-0.901 (0.23)	-3.238 (0.84)	0.795 (0.20)	-1.224 (0.30)	-1.032 (0.26)
Church operated school (0/1)	-0.627 (0.21)	1.167 (0.37)	-1.368 (0.54)	-1.621 (0.59)	-0.147 (0.05)	-0.140 (0.05)	0.321 (0.12)
National Capital District (0/1)	6.709 (1.24)	7.745 (1.29)	9.121 (1.75)*	7.490 (1.45)	10.875 (1.78)*	10.603 (2.02)*	10.547 (2.05)*
Proportion of female teacher		3.184 (0.47)			4.552 (0.54)	4.103 (0.63)	2.677 (0.36)
Pupil-teacher ratio		0.132 (3.89)***			0.128 (3.87)***	0.129 (3.63)***	0.122 (3.72)***
Per student textbooks		-0.072 (0.16)			-0.509 (1.42)	-0.178 (0.37)	-0.184 (0.40)
Enrollment 2002 (/100)		-1.076 (1.52)			-1.333 (1.59)	-1.397 (2.29)**	-1.342 (2.10)**
Per student subsidy 2002 (Q1 & Q2)		0.045 (1.01)			0.026 (0.94)	0.001 (0.02)	0.006 (0.14)
Teacher absence rate (0 to 1)		-32.284 (1.78)*			-30.134 (1.72)	-32.431 (1.73)*	-34.367 (1.84)*
Teacher absence rate squared		51.231 (2.01)*			50.602 (1.91)*	54.615 (2.00)*	56.937 (2.10)**
Parents & community involvement			-18.344 (2.93)***	-18.257 (2.29)**	-21.392 (3.50)***	-19.939 (3.01)***	-18.772 (2.72)**
Parents & community involvement squared			3.716 (3.48)***	3.800 (2.78)**	4.145 (3.69)***	4.009 (3.29)***	3.834 (3.00)***
School autonomy			-3.232 (0.36)		-9.788 (0.91)		
School autonomy squared			-0.040 (0.04)		0.511 (0.41)		
Overall school facility index ^{a/} (0 to 1)		25.393 (2.30)**			16.369 (1.45)	18.528 (1.75)*	16.820 (1.68)
Male student (0/1)							-1.411 (1.16)
Constant	76.233 (14.71)**	59.297 (5.39)***	114.835 (6.21)***	96.021 (8.47)***	127.576 (5.76)***	87.882 (7.43)***	88.074 (7.04)**
Observations	129	120	129	129	120	120	239
R-squared	0.07	0.22	0.14	0.11	0.31	0.25	0.22
P-value for joint F-test for autonomy variables			0.196		0.023		

Note: Robust t statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%
a/ Average of indices for classroom facilities, other infrastructure, electricity, water & sanitation, closure & break-ins and teaching resources; see Chapter 3 for details.
Source: PESD 2002.

6.60 Several measures of school environment do not appear to have an effect on student attendance given other factors. For instance, the proportion of female teachers, number of textbooks per student, subsidy received per student in 2002 have no significant effect on attendance. On the other hand, other aspects of the environment do seem to matter.

6.61 Teacher absence has a negative effect on student attendance; the effect is nonlinear but negative for most of the sample. Higher overall enrollment is associated with lower student attendance is—perhaps because it is harder to monitor attendance in larger schools. But conditional on overall enrollment, a higher student/teacher ratio has a significant positive effect on attendance. A higher level of overall school facilities

(encompassing classroom facilities, other infrastructure, electricity, water & sanitation, teaching resources, and greater security at schools) promotes better attendance.

6.62 The multivariate analysis also explores the role of parental/community participation and school autonomy (Models III-VII in Table 6.18). The results suggest that school autonomy does not matter to student attendance, but parental and community involvement does. The latter however has a nonlinear effect, but the effect is positive for most of the sample; greater parental/community participation promotes higher attendance.

6.63 When estimated separately, we did not find male and female attendance models to be statistically significantly different, and using a common model we did not find that male students are significantly less (or more) likely to attend schools than their female counterparts (Model VII).

Student test scores

6.64 Students in grade 8 of primary school take a national exam and PESD primary schools can be matched to the aggregate test scores for that school. Raw test score data from NDOE gives number of students in four different grade groups (very high, high, average and low) for three subjects (general, language and numeracy) for each school. These raw scores were converted to aggregate indices (with 0-100 range) using cut-off guidelines grades for each subject and each year. The overall index is the simple average of these 3 normalized subject scores. Test score data are available for 63 schools in 2001, 65 schools in 2002, and 51 schools in both years. These correspond to 66, 68, and 53% of the primary schools in the sample respectively.⁷⁵ Summary results for the average scores are reported in Table 6.19.

6.65 Cross-province differences in test scores are marked: the average was 28.1 in Gulf in 2001 and 52.9 in EHP. In 2001 and 2002 Gulf, Morobe, and West New Britain are the poorest performers. In both years, average scores for students in remote schools are lower than those for students in easily accessible schools (about 20% lower on the test score index). There is no clear pattern with regards to the poverty rate, and students performance is also similar across government and church schools. There is no significant difference between the test scores for male and female students.

⁷⁵ In 2001 coverage is especially low in EHP (40 percent), Gulf (29 percent) and Sandaun (0 percent) provinces; schools in remote areas (41 percent) and extremely remote areas (33 percent); as well as very poor areas (20 percent). In 2002 coverage is especially low in Enga (0 percent) and in non-poor areas (45 percent).

Table 6.19: Grade 8 Test scores: 2001, 2002 & % change from 2001 to 2002

	Year 2001		Year 2002		Change from '01 to '02 (schools with data in both years)	
	Mean	Std. Error	Mean	Std. Error	Mean	Std. Error
Province						
EHP	52.9	2.7	45.3	2.7	-5.7	1.4
ENBP	44.3	2.6	32.3	2.6	-10.5	1.2
Enga	49.0	3.5				
Gulf	28.1	7.3	13.0	3.6	-8.7	10.6
Morobe	43.0	1.6	25.1	3.6	-17.9	3.4
NCD	51.8	2.2	38.8	1.8	-13.0	1.2
Sandaun			44.0	9.0		
WNB	39.1	2.9	30.0	4.3	-9.9	4.4
Remoteness						
Easy access	51.7	1.7	40.8	2.5	-11.3	1.6
Accessible	44.4	2.1	33.6	2.2	-9.8	2.5
Remote	39.9	3.3	27.3	3.3	-9.2	3.0
Extremely remote	41.4	0.4	36.1	11.5	-18.0	5.0
Poverty						
WellOff	48.8	2.4	30.4	3.8	-13.5	2.2
NotPoor	49.8	2.2	39.0	2.5	-9.2	1.1
Poor	42.1	2.1	32.3	2.6	-11.7	2.4
VeryPoor	38.2	2.5	40.0	5.6	-2.2	4.7
Agency						
Government	45.5	1.4	33.0	1.7	-12.0	1.4
Church	46.2	2.4	37.4	3.4	-8.8	3.2
Total						
All students	45.7	1.2	34.5	1.6	-11.1	1.4
Male students	47.2	1.3	34.5	1.7	-12.5	1.8
Female students	43.5	1.3	33.9	1.6	-10.0	1.4
# of schools	63		65		51	

Source: PESD 2002.

6.66 The third column of Table 6.19 shows the average change in the test score index for schools that have data in both years. One can not strictly compare across the two years since scores are normalized differently across time (all scores fell—but this doesn't mean that performance was worse), but one can compare the difference in changes across groups. Two results stand out. First, extremely remote schools had a larger decline than other schools, suggesting an area of particular concern. Second, schools in very poor areas registered almost no change in test scores. Unfortunately the interpretation of the last result is clouded by the fact that data coverage was very limited (20 percent) in this group. (It is possible that the missing schools are the especially poor ones and that their exclusion gives a falsely optimistic view.)

6.67 We explored these correlates further through a multivariate regression of the test scores for 2002. The results are reported in Table 6.20, although these should be interpreted carefully in view of the relatively small number of schools for which this analysis could be carried out. The data suggest that the models for male and female test scores are

Table 6.20: OLS Regressions – Student Test Scores in 2002, Grade 8

	(I)	(II)	(III)	(IV)	(V)
Student test scores in 2001					0.745 (3.97)***
Poverty rate (0 to 1)	20.555 (1.53)	22.670 (1.73)	20.682 (1.41)	28.464 (2.07)*	-26.232 (2.35)**
Remoteness index (0 to 1)	-44.758 (1.18)	-51.313 (1.54)	-51.038 (1.95)*	-52.563 (2.36)**	17.392 (1.21)
Church operated school (0/1)	3.794 (0.79)	3.596 (0.77)	7.442 (2.20)**	7.855 (2.69)**	1.923 (0.56)
National Capital District (0/1)	3.175 (0.47)	3.022 (0.45)	0.266 (0.05)	1.975 (0.39)	-6.912 (2.9)**
Teacher absence rate (0 to 1)			-19.073 (1.23)	-13.730 (0.97)	-9.061 (0.74)
Student attendance rate			0.137 (1.01)	0.119 (1.07)	0.187 (1.43)
Pupil-teacher ratio, '02			0.026 (0.75)	0.027 (0.85)	-0.282 (3.28)***
Enrollment 2002 (/100)			1.165 (1.52)	1.296 (1.97)*	0.558 (0.9)
Total fees per student set by school in 2002			0.066 (2.88)**	0.062 (3.43)***	0.004 (0.29)
Per student subsidy 2002 (Q1 & Q2)			-0.104 (1.09)	-0.139 (1.42)	0.050 (0.81)
Parents & community involvement		3.028 (0.90)	2.090 (0.70)	1.541 (0.54)	0.209 (0.11)
School autonomy		1.128 (0.36)	5.132 (1.53)	3.940 (1.30)	1.493 (0.97)
Overall school facility index ^{a/} (0 to 1)			27.230 (2.32)**	25.824 (2.38)**	-12.940 (0.8)
Female student (0/1)				-0.026 (0.01)	
Constant	38.205 (3.52)***	24.404 (0.87)	-24.323 (0.87)	-15.422 (0.59)	-8.955 -0.6
Observations	65	65	56	112	45
R-squared	0.13	0.16	0.49	0.45	0.79

Note: Robust t statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%
a/ Average of indices for classroom facilities, other infrastructure, electricity, water & sanitation, closure & break-ins and teaching resources; see Chapter 3 for details.
The regression also includes dummy variables to control for missing data on autonomy, student attendance and overall school facility index.
Source: PESD 2002.

6.68 Variables related to poverty, remoteness and agency of school on their own do not appear to have an effect on test scores (Models I-II), but controlling for other school characteristics (in Model III) they do seem to matter. For instance, remote schools tend to be associated with lower test scores while students in church schools tend to perform better.

6.69 However, several of the school characteristics themselves appear to have no effect on test scores. For instance, pupil-teacher ratio, level of enrolment (except for Model IV), the teacher absence rate or student attendance have no significant effect. There is an indication of positive effect of poverty on test scores (in Model IV). But this seems to reflect at least in part the positive association between poverty and student attendance

noted earlier; upon dropping the poverty variable, student attendance becomes positively significant in Model IV.

6.70 The results also indicate two other variables to be significantly associated with test scores. The overall level of school facilities has a significant positive influence on student performance. Similarly, total fees per student set by the school has a significant positive effect on performance.⁷⁶ This may well be a measure of the parents' ability to pay and hence of their level of living, to the extent that is not reflected in the local poverty rate. In that case, this result could be indicative of a parental income effect on student performance. Alternatively, schools that set higher fees may feel more obliged to deliver better performance, in which case, it is indicative of a market-based accountability mechanism. The result probably has elements of both. On the other hand, parental/community participation itself seem to have no significant effect on test scores, even though it tends to promote better student attendance as noted above. There is also no evidence to support a significant contribution of greater school autonomy to student performance.

6.71 These results apply to both male and female test scores; male and female test score models were not statistically significantly different to each other. Using the same model, nor is there any evidence of a gender bias in performance once other correlates of performance are controlled for (Model IV).

6.72 Motivated in part by the consideration of controlling for potentially omitted variables, we also condition the regression results on test scores in 2001, which ought to be a good predictor of the scores in 2002. The effects of other variables can now be interpreted as additional effects, given past performance. The results are shown in the last column of Table 6.20. As expected, performance in 2001 is a strong predictor of performance in 2002. Few other variables have significant additional effects. Given past performance, higher student-teacher ratio and poverty rate contribute to poorer current performance.⁷⁷ On the other hand, the positive effects of school facilities and the fees set by schools disappear, suggesting that the effects of such variables are absorbed by past student performance.

⁷⁶ Note that that these are the fees *set* not collected by schools; fees actually collected by schools are considerably smaller.

⁷⁷ The results also suggest relative to their past performance and given other factors, students in NCD performed worse in 2002.

7. CITIZENS-PROVIDERS-POLICYMAKERS

7.1 Having reviewed many of the important shortcomings in the delivery of basic education in PNG in the preceding chapters, it is now useful to return to the triadic framework referred to in the opening Chapter, and pose the question: Can the failings and some successes of service delivery be rendered more comprehensible within this framework? This Chapter seeks to apply the framework to the issues highlighted by or implicit in the foregoing discussion. This Chapter reviews the three bands of the relationship in the specific context of basic education services in PNG as sketched in the preceding pages.

CLIENT-PROVIDER RELATIONSHIP

The “market” link

7.2 The direct “market” link of accountability of schools (provider) to parents and students (client) is broken because of the system of subsidized education in PNG. Even setting aside the free education experiment, education in PNG – not unlike many other countries at a comparable stage of development – is heavily subsidized once publicly-paid teacher salaries are taken into account (Chapter 4). The “market” link is further eroded by the absence of a clear policy on school and project fees, and frequent changes in that policy, resulting in an environment where roles, responsibilities and entitlements are often poorly defined and understood (Chapter 5). The lack of a market link robs the parents of the power of the purse to demand better quality education services. The following account from Koki Primary School in the National Capital District illustrates:

The unemployed like the free education policy, but it removes them from having any ownership in the school. They are in a sense dispossessed and so have little interest in what happens at school. They almost feel as though it is none of their business. [NRI, 2003b]

The point applies more generally, not just to the unemployed.

7.3 Is there scope for strengthening the market link subject to equity considerations? There is mixed evidence from the PESD survey on how far parents in PNG are willing to pay for education (Table 7.1). For instance, only about 20% of the parents interviewed said that the government should pay for the cost of education; the rest (80%) thought the parents or parents and government together should bear the cost. The proportions were the same in remote and poor areas. On the other hand, about a third of the parents found

school fees in 2001 to be too high, a quarter found project fees in 2001 too high, and about 40% found school *or* project fees to be too high.

Table 7.1: Parents' perception of fees in 2001

% of parents	All schools	Schools in poor areas	Schools in remote areas
...who think ____ should pay for the cost of education			
...government	21	19	20
...parents	22	22	20
...both	57	59	60
...who found school fees too high	34	40	41
...who found project fees too high	27	30	31
...who found school or project fees too high	41	44	46
...were able to pay the fees set by the school	64	62	56

Source: PESD 2002.% of valid responses.

7.4 In practice the system handles non-payment of fees with considerable flexibility. The consequences of non-payment are not necessarily an expulsion from school or withholding of promotion to the next grade. "Allowed to pay according to ability" is the most common response (Table 7.2). Together with fee exemption, this accounts for three-quarters or more of all schools (according to responses from head/grade-5 teachers). At one level this practice further erodes the market chain of accountability, but at another level it also achieves a degree of needs-based targeting. One should however bear in mind, this does not include parents who either do not take the initial step to enroll their children in school or let them drop out of school because they are discouraged by the prospect of unaffordable fees.

Table 7.2: Consequences of not paying school fees (% of schools)

	Exempted	Allowed to pay according to ability	Must leave school	Not allowed to go to next grade	Other
Head teacher	10	77	5	1	7
G5 teacher	6	67	10	0	18

Source: PESD 2002.% of valid responses.

7.5 Other evidence shows that despite the subsidy, the income effects on primary enrolment are significant and positive (World Bank 2000, Gibson 2000). As also illustrated by the experience of 2002, enrolments did expand elastically to the substantially higher subsidies offered during that year. Thus, while there is considerable willingness to pay for education on the part of parents, reductions in subsidy can be expected to have negative effects on enrolments.

7.6 Another channel that can strengthen accountability is competition amongst schools. However, for one out of every three primary/community schools, there is no

alternative school that the children in the area could go to.⁷⁸ In other words, for a third of schools, good or bad, they are the only choice available to parents and children in the area. In Eastern Highlands and Morobe provinces, for one-half of schools there is no alternative. Only in the NCD area is there an assurance of an alternative school. Amongst the two-thirds of schools for which an alternative exists according to the head teacher, the nearest alternative school is on average more than two hours away (by walking). Thus, for nearly half (47%) the cases where the head teacher reports an alternative school, the parents report that there is no other school their children could go to. Altogether therefore, for nearly two-thirds of all schools there is no effective alternative available. This disempowers parents in being able to demand a better school environment. The “forces of competition” can not be relied upon to ensure better service delivery.

The direct “non-market” links

7.7 There is also a role for more direct (“non-market”) links between clients and providers through the institutions of the schools’ Boards of Management (BOM), which have representation from the community, and Parents and Citizens (PNC) Associations.

7.8 From the PESD data on BOMs, we learn that the average BOM has about 9 members and more than 80% of the time the Chair is the (male) parent of a student at the school. The schooling background of the Chair of the BOM reflect that of the general population: 10% have no schooling, another 46% have up to primary, and the rest (44%) have high school or more (Table 7.3). On average the BOMs held 3.8 meetings in year 2001, though 6% of schools had no BOM meetings in 2001, and another 12% had one or two meetings. The most common items discussed were finance, fees, school budget followed by projects and maintenance. The parents’ satisfaction level with the BOM in general seems to be high; three-fourths believe the BOM does a good job.⁷⁹

Table 7.3: Boards of Management			
Average number of meetings in 2001	3.8	Average number of members	8.7
Number of meeting in 2001 (% of schools)		Chair of BOM is the parent of a student (% of schools)	84
...none	6	Chair of BOM's level of schooling (% of schools)	
...1-2	12	...none	10
...3-4	60	...primary	46
...more than 4	22	...high school or above	44
Most common agenda item (% of responses)			
...finance issues, fees, school budget	56	% of parents who think BOM does a good job	77
...projects, maintenance	19		

Source: PESD 2002.% of valid responses.

7.9 How active and involved are parents in school affairs? Whether going by the head teacher reports or parent perceptions, there seems to be a fair amount of partnership between communities and schools (Table 7.4). Virtually all schools have a PNC (Table

⁷⁸ This and the following calculations are based on the PESD 2002 Survey.

⁷⁹ There is little difference in these features by poverty, remoteness, agency and type of school.

7.4). The number of times the PNC met in 2001—an indicator of how active it is—is typically between 3 and 4. The majority of parents attend these meetings. Over 60% of head teachers say that community members help develop school programs or activities or that the school is used for community meetings. Slightly fewer say that teachers organize activities for community members and that the school uses village land for agricultural classes. Over 70% say that the school is used for community sports events. In a majority of the schools parents collect student assessment reports.

Table 7.4: Parent and community participation			
Head teacher report		Parents' perception	
Parent Participation		How often do you visit the school	
Percent of schools with a PNC	95	Often	55
Average number of times PNC met in 2001	3	Sometimes	40
Percent of schools where parents collect assessment reports	57	Hardly ever/never	5
Percent of parents in those schools who collect reports	65		
Percent of parents who attend school meetings when called	57		
Community Partnership		How often does the head teacher visit the community/mix with parents	
Percent of schools where ...			
... children go out to learn in community	35	Often	46
... community members help develop school programs/activities	60	Sometimes	27
... teachers organise activities for community members	50	Hardly ever/never	27
... community members teach cultural activities	27		
... school uses village land for agricultural classes	45	How often do teachers visit the community/mix with parents	
... school is used for community meetings	63	Often	41
... school is used for adult classes	17	Sometimes	32
... school use for community sports events	71	Hardly ever/never	27

Source: PESD 2002.% of valid responses.

7.10 95% of the parents interviewed say they visit the school often or at least sometimes. Their perceptions of the engagement of head teachers and teachers with the community are broadly consistent with the information from head teachers; only in about a quarter of the cases, they say that head teachers and teachers hardly ever, or never, visit the local community or mix with parents (Table 7.4).

7.11 The above presents a generally positive picture of parent and community involvement in schools, but some of the insights from the Twelve-School (qualitative) Study are relevant here. The study found a more mixed picture on the performance of BOMs and community participation (which often goes hand in hand with BOM performance) across the 12 schools, with an equal split of 6 whose performance could be described as “good” and the remaining 6 as “poor”. It is notable that three amongst the good performers collected very high fees per student relative to the average (2.4-5.8 times as high). There seems to be a role here of high contribution by parents in eliciting better performance. The other three good performers – while they collected low fees per student in 2001 – were recipients of large grants from non-governmental sources, which put them in the top quintile of schools in terms of per student grant revenue. On the other hand amongst the poor performers, only one collected relatively high level of fees and one received high levels of non-government grants, two had low levels of such grants and fees, and for the remaining two financial data were missing.

7.12 Overall, it is difficult to generalize from this information. There are two notable exceptions: we have one study school which suggests that high financial contribution by parents does not always translate into better performance, and we also have the example of another school where high non-governmental grants have been accompanied by lack of trust between BOM, teachers and the community. It could then be argued that non-governmental grants do not empower the parents in demanding accountability in the same way as the act of paying fees does. Thus, while the exceptions are important, there does seem to be a role for the “market” link in extracting better performance through institutions like the BOM.

7.13 The overall positive picture emerging from Tables 7.3 and 7.4 also needs to be viewed against evidence which suggests a limited role of parents in management of school finances and projects. This evidence focuses on who is perceived to have the most say in raising and using fees, and in initiating projects such as school maintenance, based on responses of head teachers, grade 5 teachers and BOM representatives.

7.14 Over 85% of respondents report that spending of school subsidy is mainly determined by head teachers or BOM (Table 7.5). No other actors appear to play much of a role. In particular, practically none of the respondents thought that parents or the PNC had much of a say in spending the school subsidy. For the other elements of financial and project management the boards of management are identified as having the most say (except for project fees which are set by the Province in some cases and community to primary upgrading which is officially determined by the Province). Parents are almost never identified as having much of a say.

Table 7.5: Who has the most say in decisions regarding financial and project management (percent of responses of head teachers, grade 5 teachers, and BOM representatives)

	Spending school subsidy	Setting project fees	Spending project fees	Determining maintenance work	Building a new classroom in this school	Upgrading a community school to a primary school
National Govt	0.9	2.8	0.3	1.8	0.9	8.0
Provincial Govt	3.4	21.1	1.6	0.0	2.0	44.5
District Govt	0.2	0.4	0.0	1.3	4.1	3.4
Inspectors	0.7	0.4	0.5	0.2	0.2	4.2
Board Of Managemt	40.9	65.0	80.5	76.3	73.4	21.4
Head Teacher	44.3	6.0	13.7	15.6	14.6	9.5
Teachers	7.8	0.3	1.4	1.3	1.3	0.7
Parents/PNC	0.5	2.8	1.0	2.1	1.4	5.0
Others	0.4	0.3	0.1	0.3	1.1	1.3
Don't Know	1.0	1.0	1.0	1.0	1.0	2.1

Source: PESD 2002.% of valid responses.

7.15 When parents are asked directly how much involvement they felt they had in setting project fees in 2001, only about half felt they did. About two-thirds of those who responded that they were not involved in setting fees, further said that they should have been involved.

7.16 While the BOMs should be a channel for parents and community members to influence decision making at schools, some of the evidence from the PESD Survey suggests this may not be the case. Even when it comes to activities that one would think parents, the PNC, or the community more broadly would have a big say in they are not in the picture. For example almost 60% of respondents say that it is the BOM that has the most say in organizing PNC activities (Table 7.6). Only 16% identify parents or the PNC itself as having the most say—fewer than those who identify head teachers (20 percent). Similarly, organizing community or fundraising activities are typically viewed as BOM or head-teacher led activities with few identifying parents as playing much of a role.

Table 7.6: Who has the most say in decisions regarding parent and community relations (percent of responses of head teachers, grade 5 teachers, and BOM representatives)

	Organizing PNC activities	Organizing activities with the community	Deciding to have a fete or fundraising
Board Of Managemt	57.0	47.0	67.0
Head Teacher	20.2	29.5	16.1
Teachers	3.8	10.7	6.0
Parents/PNC	16.3	7.1	8.1
Others	1.7	4.1	1.7
Don't Know	1.0	1.5	1.1

Source: PESD 2002.% of valid responses.

7.17 Thus, to summarize, there does seem to be scope for a market-based link for ensuring greater accountability. Currently, this link (operating either directly or indirectly through the institutions of BOMs or PNCs) is suppressed by, first, a heavily subsidized system and, second, the absence of a clear policy on school/project fees. While the subsidy element at least for basic education would need to be maintained in the interests of ensuring wider access to education by PNG's population, the policy on user fees could be liberalized, not so much as an instrument for cost-recovery but primarily as an accountability device. The liberalization could take the form of letting the schools (rather than the PEBs or the national government) decide through the institutions of BOMs and PNCs how much fees to charge. There is evidence of the parents' willingness to pay for education which the schools and the local community are best positioned to harness.

7.18 The fostering of market-based links is all the more important in an environment where the "long arm of accountability" works highly imperfectly (see below). However, the trade-off between "market-based" accountability and equitable access to basic education by all would have to be faced head on in a setting where it seems unlikely that income transfers to the poor could be targeted successfully. Conditional transfer programs, like the Progresá in Mexico, are likely to defy successful implementation in such a setting where delivering subsidies to schools itself has proven to be extremely challenging. Could the schools then be expected to set and collect fees in accordance with the parents' ability to pay? Some regulation in terms of maximum chargeable fees

will perhaps be necessary, the enforcement of which itself would be a challenge. However, the evidence on the tolerance of non-payment of fees suggests that there do exist some local limits on the exercise of monopoly power by schools, and the de facto trade-off between accountability and equity need not be as sharp as it seems. Overall, therefore, there is a case for experimentation with school-based liberalization of fee setting, while maintaining a high aggregate level of subsidies together with a mass information campaign on resources available at the school level (as discussed below).

POLICYMAKER-PROVIDER RELATIONSHIP

7.19 The policymaker-provider relationship operates through two broad channels: first, through the system of financial flows, and second through the apparatus of education administration and management at different levels of government.

Subsidies

7.20 The three main elements of financial flows – subsidies, grants and teacher salaries – have already been discussed at length above. With regards to subsidies, the problems of leakage, delays and frequent changes in policy were identified (Chapter 5). The first two of these clearly point to problems of financial disbursement within a decentralized system. The structure of checks and balances that needs to be in place for a such system to work does not seem to exist in PNG. On the other hand, there is evidence from the experimental policy of 2002 that a direct cash payment system – from the national Department of Education to the schools – works much better in preventing leakages and equally damaging delays. In 2002, the 3-4 times larger than the usual quantum of subsidy was delivered to schools with minimal leakage and reduced delays. Thus, with regards to subsidies there is a case for direct cash delivery to schools through bank deposits or checks. Other subsidiary reforms, such as subsidy payments on a 6-monthly rather than quarterly basis to reduce transaction costs, and a front-loading of the subsidy payments in view of the larger (and immediate) needs of schools at the beginning of the school year, may also be worth considering in this regard.

7.21 Successful delivery of funds needs to be followed up by responsible utilization of funds at schools. The role of information can be potentially important here, as illustrated by the example of Uganda (Box 7.1). Measures such as a mass information campaign by the central government on the transfer of funds to districts led to a large improvement in the receipt of funds at Ugandan schools. In the PNG context, the policy of direct subsidy payment to schools could be supplemented with an information campaign – through the print, electronic media (radio and TV) and mandated postings at school notice boards – on the amount of subsidy payment per student delivered to individual schools. This information could empower the local community not only in the setting of appropriate school fees (as discussed above) but also in monitoring the utilization of resources at schools.

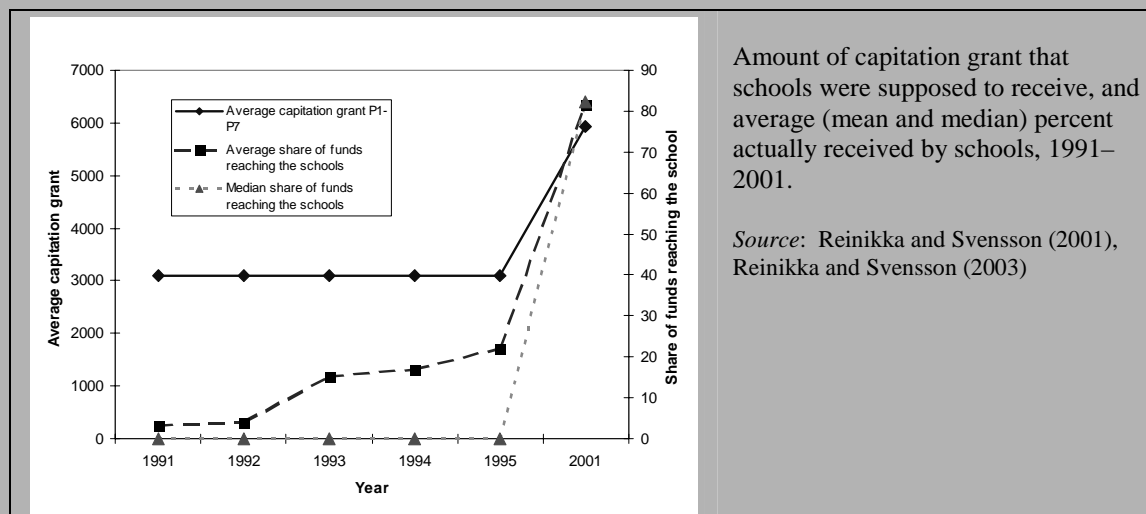
Box 7.1: The power of information in delivering funds for education in Uganda

In 1996 a survey of about 200 primary schools in Uganda revealed that only 13 percent of the per-student capitation grants made it to the schools in 1991-95, with local governments capturing most of the funding. Poor students suffered disproportionately, because schools catering to them received even less than others. Indeed, most poor schools received nothing. Case study evidence and other data showed that the school funds were not going to other sectors either. The disbursements were rarely audited or monitored, and most schools and parents had little or no information about their entitlements to the grants. Most funds went to purposes unrelated to education or for private gain, as indicated by numerous newspaper articles about indictments of district education officers after the survey findings went public.

To respond to the problem, the central government began publishing data on monthly transfers of grants to districts in newspapers and to broadcast them on the radio. It required primary schools and district administrations to post notices on all inflows of funds. This promoted accountability by giving schools and parents access to information needed to understand and monitor the grant program.

An evaluation of the information campaign reveals a large improvement. Schools are still not receiving the entire grant (and there are delays). But the capture by interests along the way has been reduced from 80 percent in 1995 to 20 percent in 2001 (Box Figure). A before-and-after assessment comparing outcomes for the same schools in 1995 and 2001—and taking into account school-specific factors, household income, teachers' education, school size, and supervision—suggests that the information campaign explains two-thirds of the massive improvement.

Schools received what they were due after an intense information campaign



Amount of capitation grant that schools were supposed to receive, and average (mean and median) percent actually received by schools, 1991–2001.

Source: Reinikka and Svensson (2001), Reinikka and Svensson (2003)

In 1995 schools with access to newspapers and those without suffered just as much from the leakages. And from 1995 to 2001 both groups experienced a large drop in leakage. But the reduction in capture was significantly higher for the schools with access to newspapers, which increased their funding by 12 percentage points over schools that lacked newspapers.

With an inexpensive policy action—the provision of mass information—Uganda dramatically reduced the capture of a public program aimed at increasing access to textbooks and other instructional materials. Because poor people were less able than others to claim their entitlement from the district officials before the campaign, they benefited most from it.

Sources: Adapted from World Bank (2003a), based on Reinikka and Svensson (2001), Reinikka and Svensson (2003).

7.22 Education subsidy policy in PNG has traditionally allowed for uniform per student subsidy rates across schools for given grades. The principle of uniformity has an element of built-in progressivity; the uniform amount translates into a higher proportion of per capita incomes in poorer areas. However, there is some scope for introducing greater progressivity by allowing the policy to offer higher per student subsidy rates for schools located in poorer or more remote areas, that may also face higher unit costs for comparable levels of education services.

Grants

7.23 Grants from government and non-government sources were noted to be a relatively small, highly inequitably distributed and ultimately unreliable source of revenue for schools (Chapter 4). As for government grants, there seems to be a case for consolidating them under subsidies rather than operating them as a separate channel of financial transfers to schools. This could contribute to a simpler and more transparent system. At the provincial level in any case the evidence suggests that there is not much additional spending on education beyond the revenues budgeted for teacher salaries and education subsidies.

7.24 Grants from non-government sources are predominantly from donors and private business. These are (at least) as unequally distributed across schools as grants from government sources. The distribution of the donors' component, which accounts for about 70% of all non-government grants, primarily reflects placement decisions related to individual donor-supported projects. There is scope here for better coordination of donor projects with a view to achieving a more equitable distribution.

Teachers

7.25 With regards to teachers, the important problems of ghost teachers, teacher absence, shortage and turnover, and teacher motivation were identified (Chapter 6). The relatedness of these problems was also mentioned. For instance, ghost teachers phenomenon together with teacher absence reduces the effective supply of teachers, imposes an extra financial burden on the system, while poor teacher motivation aggravates the difficulties associated with teacher shortages and high turnover.

7.26 With respect to ghost teachers, there is an effort already underway to cleanse the payroll system (see Box 7.2). However, important as this effort is, the challenge will be that once this cleansing is completed, the problem does not recur.

Box 7.2: “Public Service to be blamed – Elias”

The public Service must accept responsibility for any problems associated with the payroll system, a senior public serve officer said yesterday. Acting Secretary for the Department of Personnel Management Margaret Elias, said there had been a lot of “bad press” recently about the implementation of the new Concept payroll system.

She said the implementation of the system under Project Maoro would improve the Government payroll system by eliminating ghost employees, reducing the number of staff clerks, removing duplicated processing, stopping unauthorized allowances/payments, and ensuring proper recording and payments of leave.

The PNG Government is the single largest user of the system in the Southern Hemisphere. The Personnel Management and the Finance departments are leading the implementation of the system.

Source: Post-Courier, Weekend edition, 11-14th June 2004.

Education administration

7.27 With regards to teacher absence and teacher performance more generally, first of all, payment of teacher salaries by the national government subverts accountability at the school level. There is little local authority (with the head teacher/BOM) to take disciplinary action against teachers (or against head teachers). On the other hand, the paymasters in Waigani and even the Provincial Finance Offices (whose role in the teacher payroll process is more limited⁸⁰) are far removed from the head teacher and teachers in 8,000 individual schools. The inspection system attempts to bridge the distance, but as discussed in Chapter 6, it works imperfectly and stops well short of what would be required for effective monitoring and evaluation of teacher performance. Teachers themselves at times express dissatisfaction with the inspection system:

“...Normally it should be the inspectors who are our only messengers to pass on the problems but he [sic.] comes only once a year even though he is meant to come three times, and even when he does come, it is just for a couple of hours to cover all three areas of work – advisories and inspections for eligibility, which affects promotions.” [Teacher, secondary school, PNG; VSO (2002)]

7.28 While there is room for improving the inspection system, in part by resourcing it better, it is unlikely to adequately bridge the informational and managerial distance between the payment source (at the treasury) and the performance location (at the school). Yet, given the problems associated with decentralized delivery of financial resources (illustrated plainly in the case of education subsidies), there may be no viable alternative to a centralized payment mechanism. There may be a need thus to look elsewhere for avenues to improve teacher performance. Based on the results of our analysis of teacher absence, a more promising approach may have to rely on improving teacher motivation and promoting stronger parental and community involvement. The former points to measures such as better provision of textbooks and teaching materials for students, reducing salary payment delays, fuller payment of allowances (and perhaps their consolidation under salaries as a means of ensuring fuller and more timely

⁸⁰ See NRI (2003a) for details on the teacher payroll process.

payment). The latter takes us back to some of the issues discussed in the preceding section on strengthening the provider-client relationship.

7.29 With regards to the other channel of the policymaker-provider relationship operating through the apparatus of education administration and management, the relatively ineffectual role of PEAs, DEAs and inspectors has already been discussed at length above. The limited effectiveness is only partly a matter of poor resourcing of these functions.⁸¹

CITIZEN-POLICYMAKER RELATIONSHIP

7.30 The preceding section has suggested several problems with the policymaker-provider relationship, and the section prior to that noted ways in which the short route of accountabilities is thwarted. What about the longer route of parents and citizens trying to ensure accountability by influencing the policymakers who in turn could influence providers? A first impediment to this is already obvious, namely, the impaired link between policymakers and providers as documented above. But there are also serious problems in citizen-policymaker relationship.

7.31 A full discussion of these problems raises larger issues of governance and the political system in PNG that are beyond the scope of this report, though still very important. Without attempting to be comprehensive, the nature of the problems involved can perhaps be illustrated by following the course of events, and public statements by politicians, bureaucrats and others, since the announcement of the free education policy in late 2001, a little over six months ahead of parliamentary elections (see Chapter 5). Using newspaper reports, this course is charted out in Box 7.3.

Box 7.3: Litany of free education in an election year, based on newspaper reports	
<p>Dec 17, 2001</p> <p>Contributions to still apply</p>	<p>Prime Minister, Sir Mekere Morauta [said] “Free education does not mean that communities stop looking after and supporting their schools. It does not also mean that provincial and local-level governments stop fulfilling their legal obligations, or parents stop buying books or paying for extra-curricular activities.” What it did mean, he said, was that parents would have more money to feed and clothe their children, plus buy them books and all the other things that enhance the education provided to their children.</p>
<p>Jan 8, 2002</p> <p>Morobe sets fees for 2002 school year</p>	<p>Provincial education advisor [for Morobe] Mathew Bihoro [said] “The government’s free education policy does not mean educating a child this year is totally free. It only means parents will not have to pay the cost of tuition; this will be met by the government. Parents do, of course, have to meet operational costs involved in running a school”. He also said students who failed to pay up their full component would not be allowed to attend classes in term three.</p>

⁸¹ See NRI (2003a) for details on staffing and resources available to PEA/DEA offices covered by the PESD study.

Jan 17, 2002 Official: No free education in ENB	There will be no school fee increase in East New Britain this year, according to Education Advisor, Boa Koro. He said that the K100 million earmarked for free education throughout the country would only go towards tuition fees, that is, to pay for school material. According to Mr Koro the free education funding was not adequate to cover all operation costs, including maintenance and school projects. He said for those who encounter financial difficulties, they can pay half of the fees first.
Jan 18, 2002 No acquittals or subsidy, warns department	National co-ordinator for the distribution of free education monies Dr Pala Wari ...cited Morobe Province as overcharging parents unnecessarily when it announced that parents were still to pay 60 per cent of the fees. He said the allocations are based on the National Education Board's (NEB) calculations and they were satisfied that no parent was to pay any more fees.
Jan 22, 2002 NCD schools told not to charge any fees	NCD Education Board chairman Henao Nauna ...said this means no school is to charge parents any extra fees when school starts next week. A senior advisor said: "It is all free this year. The word is free. No parents in the city is to be charged any fee at all, not one black toea." He said the government's free education policy covers project fees as well and school boards must not charge any extra fees. "Project fees should not be charged separately as these are inclusive of fees paid by the government."
Jan 23, 2002 Schools in NCD stop parents from paying	Schools in the National Capital District will not be charging parents any fees. Parents who have already paid fees would be refunded their money, said the acting assistant secretary for NCD education services Tau Nana.
Jan 23, 2002 Parents to share school costs	Parents have an obligation to their children, including paying for their education. That is the official stance of the East New Britain Provincial Government, which has been translated into a policy that requires all parents to share the cost of educating their children, according to the Provincial Education Advisor Boas Koro. He [Mr Koro] said the purported free education subsidy was still not adequate to cover operations costs, and would only go towards purchases of school material and supply. "Schools need money for maintenance and projects and therefore parents must share the costs," Mr Koro said.
Jan 23, 2002 Subsidies given	[Morobe] Provincial education officials ...gave no indication that the Provincial Education Board, headed by Administrator Manasupe Zurenuoc, will change their decision to charge parents the majority of the school fees this year. The provincial board has set fee levels in which parents are expected to pay 60 per cent while the government subsidy covers 40 per cent of total fees. The board also made a decision to allow schools to charge project fees.
Jan 24, 2002 Don't pay for education	Don't pay those school fees – that's the word from a top education officer in the National Capital District. The caution came from Ms Kila Avei, executive officer to the District Education Board, after days of confusion for parents. "If any parents were made to pay school fees by school officials, they will get a refund," she said. She said the statement made by board chairman Henao Taunauna early this week that parents should not have to pay at all was correct.
Jan 24, 2002 Morobe children's school fees to be refunded	"Once we receive our fourth quarter allocations, parents will be reimbursed their monies," said provincial education minister Basuk Erewiong. "The decision by the Provincial Education Board in getting parents to pay 60 per cent of the total fees is so that schools in the province continued to operate until the school year ended. He also said with the Government paying all school fees this year, this did not mean everything would be smooth sailing with schools. "We can't deny that fact that problems will surface, that some schools will be given less than what they have budgeted for and others given more." [He] said education was a decentralized function and administrative decisions made at the provincial level could not be overruled by officers at Waigani."

Jan 24, 2002 Schools to receive K150m subsidy	Education Secretary Peter Baki said the government would pay an amount equivalent to the maximum fees recommended by the National Education Board (NEB) for each student. Mr Baki said any fee above the maximum set by the board is the responsibility of those who required it, but extra fees should not cause students to be kept out of schools. Parents are encouraged to continue their contribution towards their children's education in many ways either cash or kind.
Jan 25, 2002 Free policy deemed an investment	Education Minister Muki Taranupi said no child in member schools of the national education system would be required to pay fees set down by the National Education Board (NEB), as the fees would be paid by the government.
Jan 25, 2002 Education funds distributed by Sir Mekere	Prime Minister Sir Mekere Morauta yesterday distributed cheques to the schools in the National Capital District saying he was proving his critics wrong. During the presentation, he also said the People's Democratic Movement regarded education as a right and the party's policy was that no child should be refused an education "because their families cannot afford to pay school fees". [But] this did not stop parents from playing their roles in the education of their children. "Free education does not mean that the communities stop playing their part in the running of the schools."
Jan 30, 2002 Kabwum MP hands subsidies	[The] subsidy for the Wasu High School totaling K122,475 arrived too late to stop school authorities from suspending classes for a further two weeks to allow for major maintenance work to be carried out on school facilities. [School board chairman Zure Tudi] said due to the deteriorating conditions of the facilities, the students were told to stay at home for another two weeks and return to school on February 11. The subsidy payment was a major relief, the chairman said.
Jan 30, 2002 Parents, schools still confused over fees	Some schools in the National Capital District are in a dilemma whether they should charge parents school fees. Gerehu High School principal Martin Kenehe ...said the first term was a "buying term" because this was when the schools bought their school materials and paid for other essential services. He said for this reason he had encouraged parents to pay some of the school fees set by the school and have their money refunded when the rest of the subsidy money came. "I need more than what the Government has given to run the school for term one..." He said the school also had 60 more students this year who had not been covered by the allocation of the first quarter subsidies which had been calculated on last year's enrolment figures. Jubilee Catholic Secondary School Principal Bernadette Ove ...said, she would not be refunding the school fees paid already by some parents until the school received the rest of the school subsidies from the Government. She also said the school enrolled extra students this year who were not covered in the first quarter allocation of the school subsidies, but they should be covered in the second quarter allocation.
Feb 1, 2002 Education policy a 'nightmare' in WHP	Overcrowding, threats of physical assaults and budgetary shortfalls were some of the common problems they [headmasters from high schools in the Western Highlands Province] faced. ...they discovered that students who had left school some years ago were returning to re-enroll. Others who live near schools and used to be day students demanded to live on campus and attend classes and this was causing overcrowding. ...they [the returning students] claimed the Government had already paid for their fees and they had every right to be in school. Kitip High School claims that the figures the authorities used to calculate its subsidy were wrong.
Feb 1, 2002 School not free in Tabubil	[Letter from Concerned Parents, Tabubil, Western Province] ...The Tabubil Community School is also charging K200 for grade 1 to 6 and K400 for Grade 7 and 8.
Source: Post Courier, various issues	

7.32 The Box, though rather long, illustrates several points about the political context of policymaking in PNG, and speaks largely for itself. It points to the populist nature of this important policy experiment rather than its being a response to demand from below. There was considerable confusion about what the policy really meant in terms of parental contribution by way of school and project fees, and differing statements from politicians and bureaucrats did not help. The issue of the financial sustainability of the policy was never addressed, and arguably would not have been addressed within the populist framework within which the policy was conceived.

7.33 This created some real problems down the implementation chain. In a real sense, the schools still faced a great deal of uncertainty about how long the policy would continue, and therefore how much and for how long they would receive the subsidy resources from the government. It was unclear whether the government itself would survive the elections. The schools were therefore reluctant to completely give up on their existing practices with regards to school and project fees. Some of the provincial administrations also saw the issue along similar lines, and backed the schools in their provinces. A clear demonstration of the lack of confidence in the sustainability of the policy was the statement by the Morobe PEA that parents would be reimbursed their monies once they received their fourth quarter subsidy allocations. The PEAs even invoked the Organic Law to defend their right to determine the level of parental contributions.

7.34 Meanwhile the spike in enrolments indicated a latent demand for education that is clearly price-responsive. But, this in turn strained facilities and resources at schools, while subsidy allocations continued to be based on previous enrolment levels. The lack of a clear policy on fees also at times placed schools in an antagonistic position vis-à-vis the parents who wondered why they should pay any fees if their fees had already been paid by the government. An unstable policy environment – itself the product of an unstable political environment – can thus have a corrosive effect on the short chain of accountability too.

7.35 The government of Sir Mekere did not survive the general elections of 2002, and the “free” education policy did not survive long after that. But the experience does highlight that there are also some serious difficulties with the long route to accountability.

7.36 There could be a role for institutions such as the church in strengthening the client-policymaker link. The analysis in this report however is indicative of the relative absence of striking differences between church-operated and government schools for a range of indicators. Only in a few cases does the “altruistic” motivation seem to deliver better outcomes. The reason is not hard to guess. Church schools are operating in an overall financial and administrative environment that is fundamentally no different to that faced by the other schools.

7.37 To sum up, there are some serious constraints to the long chain of accountability that are embedded in the political reality of unstable governments in PNG that are propped up by a complex system patronage of heterogeneous (mostly clan-based) interest groups. While there is an electoral reform process underway, including the introduction

of a system of proportional representation, this reality is unlikely to change appreciably in the near future. This further strengthens the case for exploring some form of market link and measures to strengthen the hand of the client.

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