



TARGETING STRATEGIES FOR THE POOR:

EMPIRICAL STUDIES ON FUNDING FORMULA, SCHOOL UNIFORM AND KINDERGARTEN FREE MEAL PROGRAM IN MONGOLIA

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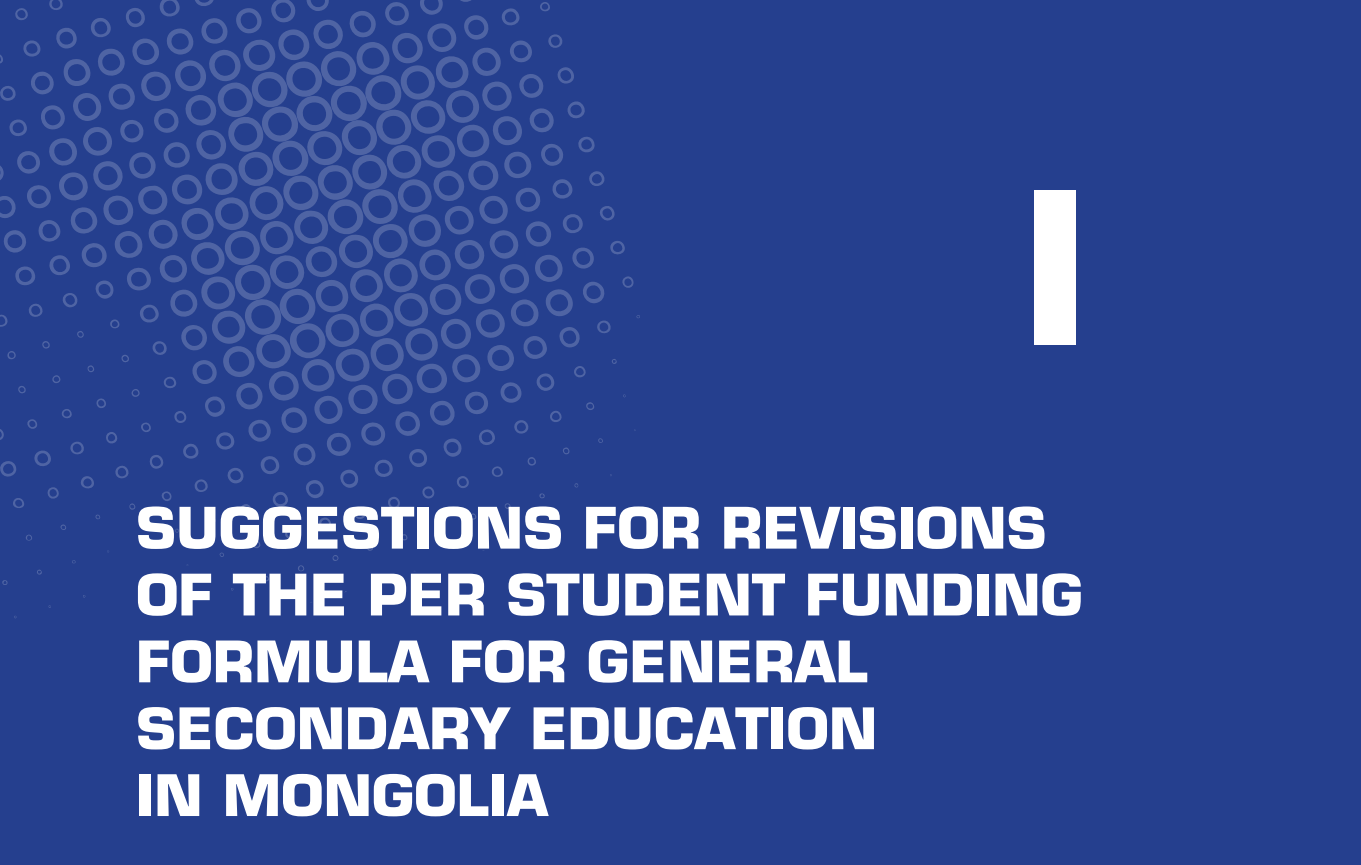
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SUGGESTIONS FOR REVISIONS OF THE PER STUDENT FUNDING FORMULA FOR GENERAL SECONDARY EDUCATION IN MONGOLIA

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Abbreviations

ADB	Asian Development Bank
BDB	(Mongolian abbreviation for EMIS data on GSE)
CIE	Cambridge International Education
ECD	Education and Culture Department (representing MECS in every aimag)
EMIS	Education management information system
ESRP	Education Sector Reform Project (MECS project co-financed by ADB)
FCs	“Fixed costs” (for schools these include heat, electricity, water and sewage, and transportation)
FID	Finance and Investment Department of MECS
FY	Fiscal year (January–December in Mongolia)
GoM	Government of Mongolia
GSE	General secondary education (grades I–XI or, from 2014, grades I–XII)
ICREST	International Center for the Restructuring of Education, Schools and Teaching (a research unit within TC)
IGCSE	International General Certificate of Secondary Education, offered by CIE
LSMS	Living Standards Measurement Survey
MEA	Mongolian Education Alliance
MECS	Ministry of Education, Culture and Science
MNT	Mongolian Tugrik (approximate 2012 exchange rate, USD 1 ≈ MNT 1,320)
MoF	Ministry of Finance
MOU	Memorandum of understanding
NSO	National Statistical Office
OVCs	“Other variable costs” (one of two input categories, the other being teachers’ salaries, for which schools receive funding under the current per capita funding formula)
PIU	Project implementation unit
PSED	Primary and Secondary Education Department of MECS
SY	School year (September–June in Mongolia)
TC	Teachers College (an autonomous graduate school of education linked to Columbia University in New York City)
UB	Ulaanbaatar
USD	United States dollar
WB	World Bank

I. Introduction

1. Mongolia can take pride in having been a pioneer in an international movement to replace traditional incremental budgeting in education by a system of per student financing under which “money follows students.” Per student financing is intended to achieve a more efficient and equitable allocation of spending across schools and students. It was introduced in Mongolia in 1998. The per–student amounts have been revised every year since the formula’s introduction to reflect annual price changes. Beyond that, however, the weights have been revised periodically in an effort to reflect more closely the relative costs of providing acceptable–quality education under circumstances that differ in many important ways across schools in Mongolia.

2. In all versions of the formula since 1998, schools have been allocated funds according to *how many students are enrolled at different levels of education*, with higher allocations given for students in upper secondary grades than for students in lower secondary grades, and higher allocations for lower secondary than for primary,¹ and the highest allocations of all for children in pre–school classes.² The relative amounts allocated to different levels of education have differed in successive versions of the formula as a way of trying to capture accurately the (changing) relative costs across levels.

3. In all versions of the formula, in addition to enrollments by level of education, a school’s allocation has always depended on the *school’s location*. The locational categories have changed over time, however, in ways that are important. In the original (1998) version of the funding formula, all of Mongolia’s 21 aimags and Ulaanbaatar (UB) were assigned different per–student allocations (referred to as “normative means”). This allowed the Ministry of Education, Culture and Science (MECS) and the Ministry of Finance (MoF) to capture observed differences in the average prices faced by each of the 22 locations (21 aimags and UB). Potentially, it also allowed for differences in “educational need” (as measured, for example, by a location’s average wealth or socio–economic status) to be reflected in the allocation amounts, but it is unclear to what extent socio–economic status has, in fact, ever been considered in setting the normative means in Mongolia up to now.³

¹ Under the system of formula funding, schools also receive allocations that reflect: (a) the number of children living in school dormitories; (b) the number of students with handicaps or other special needs; and (c) the numbers of students enrolled in equivalency programs, in part-time education programs and in evening classes. Schools also receive allocations to pay for: (d) the School Tea Program, also known as the School Snack Program. Under the Tea Program, schools are supposed to get MNT 400 per day for every primary school student in attendance on any given school day. The Tea Program is not targeted but applies equally to all primary school students in Mongolia. Allocations for dormitories often amount to quite large sums for schools that have dormitories, and the Tea Program has also grown into quite a large program, accounting for 2 percent of recurrent expenditure on GSE in 2010. In most schools, on the other hand, the allocations to finance “other programs” (equivalency, part-time, and evening classes) are very small as compared with the allocations for programs catering to students enrolled in regular classes (Grades I–XI) and will not be considered in the recommendations given in this review, the focus of which will be on allocations for regular students but with consideration also given to the number of dormitory students accommodated by schools and to the number of handicapped students enrolled.

² The current study focuses on “general secondary” (primary and secondary) education and looks at pre-schools only in passing. A separate study of pre-school financing has been conducted in parallel under another ADB-financed project. The economist looking at pre-school financing was N. Amarbayasgalan, who also headed the PIU for the Pre-School Project.

³ Consideration of “socio-economic status” (to be measured by the poverty count of the administrative entity (rural soum or city district) in which a school is located) will be included in the recommendations for revisions in the

4. While 22 “sets” of normative means (with a different amount for each level of education within each of the 22 locations) allowed for a great deal of variation in per student funding *across locations*, it did not take into account either differences in prices or differences in need that exist *within each of the 22 locations*. To allow for within-aimag and within-city differences to be reflected as well, the 1999 version of the formula introduced “coefficients” based on the distance of each school from its soum center and the distance from its aimag center, on the argument that remote schools face greater hardships than centrally located schools. This highly disaggregated formula provided an opportunity for a high degree of “fairness” to be reflected in the allocations that schools got. It was, however, a cumbersome system and one not easily understood (i.e., not very “transparent”).

5. In an effort to address this complaint, the funding formula was simplified in 2003. From that year, schools were no longer differentiated by aimag. In the 2003 version of the formula, schools were sorted into just four locational categories corresponding to four “regions” of the country – Western, Central (including UB and the Gobi aimags), Eastern and Khangai. Quickly, however, this solution was found to be an “over-simplification” of economic and socio-economic reality. In 2004 the Western Region was split into two parts (Bayan-Ulgii and the region’s other three aimags), on the argument that the educational needs of Bayan-Ulgii’s Kazakh-speaking population required a higher level of funding. In 2006, the “Central” region was also divided into two parts – the four Gobi aimags and the rest of the Central region (Selenge, Tuv, Darkhan-Uul and Ulaanbaatar – Mongolia’s most urbanized areas). In other words, between 2003 and 2006, the formula was being “re-disaggregated” gradually, but not all the way back to the original model of 21 aimags plus UB.

6. In 2007, however, the trend was reversed, and the system was simplified once again, according to groupings that continue to the present day. *Schools are now classified according to just four “locations” (bagh, soum-center, aimag-center, and “city” schools, the last referring to UB only)⁴ and three “school types” – primary only, basic only (primary plus lower secondary), and “full secondary” (all grades from primary through upper secondary). While simpler, the author concludes that these categories are too “gross” and that they have contributed to inefficiency and unfairness in the way that government schools are currently funded. To take one example, it does not make much sense to treat two bagh schools (or two soum-center or two aimag-center schools) in Tuv Aimag (right next door to UB), in Dornod Aimag (400 kms northeast of UB) and in Uvs Aimag (1,400 kms west of UB) as if the costs they face were all the*

formula presented here.

⁴ For administrative purposes, Mongolia is divided into Ulaanbaatar (UB), the capital city, and 21 “aimags” (which, elsewhere, might be referred to as “provinces”). The aimags are divided into more than 330 “soums” (or “districts”) nationwide, and these in turn are divided into more than 1,600 “baghs” (or “villages”). UB is divided into nine city districts, which are divided into more than 130 “khoroots” (or “city wards”). The exact numbers of soums, baghs and khoroots have undergone recent changes.

same. For many reasons (including the transportation costs of goods as well as the preferences of teachers, who often resist working in remote rural areas), the cost of education tends to be higher, the further a school's location from the capital city and the more difficult it is for the school and for school staff to access centrally provided services (utilities, public transportation and other public services and social amenities).

7. The author's recommendations for changes to enhance both the efficiency and the equity of public education expenditure in Mongolia will be presented in detail below, but first it may be useful to review some statistics related to the population of Mongolian schools to help us to understand why the creation of a funding formula that addresses adequately all of the differences between schools has been and remains a difficult challenge.

II. Characteristics of Mongolia's general secondary education (GSE) system relevant for formula funding

8. Mongolia, with a land area of 1,564,110 square kilometers, ranks just ahead of Peru and behind Iran as the 19th largest country in the world. It is three times bigger than Alaska and six times bigger than Texas, the two biggest states in the United States of America, the world's 4th largest country. The distance from Choibalsan in the far east of Mongolia to Ulgii in the far west spans two time zones and is about 2,400 kilometers by road (or overland tracks in those areas where permanent roads do not yet exist). While very big in terms of land area, Mongolia, with fewer than 3 million people, on the other hand, ranks 138th in the world in terms of population.

9. These facts (large area and small population) combine to make Mongolia the least densely populated country in the world, with only about 1.8 people per square kilometer. Moreover, four out of ten Mongolians now live in UB (whose population grew at an annual rate of 3.7 percent between 2006 and 2009, as compared with 1.8 percent for the country as a whole and 0.2 percent for areas classified as "rural" by Mongolia's National Statistical Office, NSO), with the result that population density outside of UB is only about one person per square kilometer – well below the national average.

10. The implications for the system of general secondary education of these interesting geographic and demographic features and resultant low population density are as follows: *many small schools which are, on average, separated by large distances* – from each other, from their respective aimag centers, and from the nation's capital city of UB. As shown in *figure 1*, during the 2009/2010 school year (SY09/10), over 70 percent of Mongolia's 599 public GSE schools enrolled fewer than 1,000 students. Only 170 schools enrolled more than 1,000 students, and 48 more than 2,000 students. One school in the entire country (the Ireedui School in UB) was larger than 10,000 students. The median public school in SY09/10 enrolled 575 students, and the average size of the 599 public schools was 823.⁵

11. Not surprisingly, Mongolia's smallest schools tend to be found in the countryside. Small, rural schools are more likely than larger schools in urbanized areas to be primary-only or basic-only schools. As shown in *table 1*, all schools enrolling more than 1,000 students in SY09/10 were complete secondary schools, offering all 11 GSE

⁵ Although school enrollments, which have been (depending on education level) stagnant or declining over recent years, are projected to begin growing again in the near future, owing to a mild resurgence in birth rates (following extremely low birth rates in the depressed, early years of the economic transition), the total number of students in Mongolia's schools was actually lower in SY10/11 than in SY09/10, a continuation of the recent downward trend. Mongolia's private schools (151 of them in 2009/10) tend to be even smaller than the public schools. The average private school enrollment in SY09/10 was 185 students, as compared with 823 for the average public school.

grades.⁶ Despite this, the breakdown of students between primary, lower secondary and upper secondary levels does not differ significantly across school groups differing by size. Only the smallest schools (those with 500 or fewer students, which include most of Mongolia's bagh schools) enrolled more primary students (57 percent) and fewer upper secondary students (7 percent) than the average GSE school, which enrolled 53 percent primary, 34 percent lower secondary and 13 percent upper secondary.

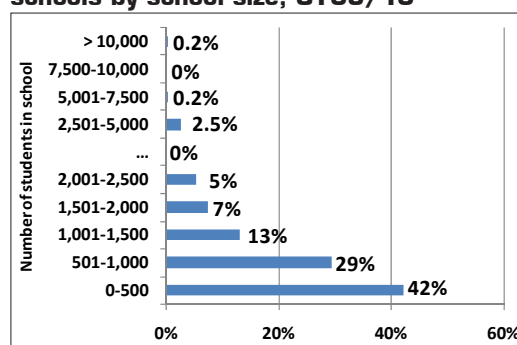
Table 1: Relationships between: (1) size of school and “school type” (levels of education offered) and (2) size of school and students enrolled at three levels of education, SY09/10

School size (total enrollment)	Num. of schools	Breakdown of schools by school type					Breakdown of students by level of education		
		Primary only	Basic only	Full secon.	Secon. Only	Upper Sec.	Primary	LwSec	UpSec
< or = 500	253	18%	51%	24%	4%	3%	57%	36%	7%
501-1,000	176	1%	11%	88%	1%	0%	53%	35%	12%
1,001-1,500	78	0%	0%	100%	0%	0%	53%	33%	14%
1,501-2,000	44	0%	0%	100%	0%	0%	52%	34%	14%
> 2,000	48	0%	0%	100%	0%	0%	52%	34%	14%
All schools	599	8%	25%	64%	2%	1%	53%	34%	13%

Source of data: B. Enkhsaikhan (Education Block Grant Pilot) using MECS EMIS data.

12. Although the current funding formula treats bagh schools as a separate category, giving them their own “normative means,” different than those for soum-center, aimag-center and city schools, bagh schools comprise a tiny category in fact, accounting for only 37 schools (6 percent of all schools) and 2,307 students (0.5 percent of all students) in SY11/12 (see table 2). Soum-center schools made up the largest category, accounting for 57 percent of public schools and 36 percent of GSE students. Aimag-center and city schools together accounted for only 36 percent of schools, but for a full 62 percent of students. According to the current funding formula, peri-urban schools in UB (those in the “outskirts” of the city) are grouped with and given the same normative means as aimag-center schools.

Figure 1: Distribution of GSE public schools by school size, SY09/10



Source of data: B. Enkhsaikhan (Education Block Grant Pilot) using MECS EMIS data.

⁶ In SY19/20, the first cohort of students who entered Grade I in SY08/09, the year when a restructuring was implemented to increase the length of GSE from 11 years to 12 years, will complete their studies in Grade XII. (Students who started school between SY04/05 and SY07/08 will also finish in “Grade XII,” but these cohorts will have skipped Grade VI and been promoted from Grade V directly into Grade VII.)

Table 2: Distribution of schools and students by location, SY11/12

Location	Schools	Students	Average school size
Bagh	37	2,307	62
Soum	346	171,444	496
Aimag	115	134,945	1,173
UB, of which:	104	164,557	1,582
Center	93	151,436	1,628
Outskirts	11	13,121	1,193
Total	602	473,253	786

Location	Schools (%)	Students (%)
Bagh	6%	57%
Soum	57%	36%
Aimag	19%	29%
UB	17%	35%

Source of data: M. Enkhee, Finance and Investment Department (FID), MECS.

13. Schools with dormitories exist in all “locations,” but most such schools are either bagh or soum–center schools. Whereas only 8–9 percent of GSE students nationwide, and fewer than 1 percent of UB students, live in dormitories, over half of (the small number of) students enrolled in bagh schools and nearly 20 percent of students in soum–center schools are accommodated in dormitories (*table 3*). Because dormitories are less common in larger schools, the average number of dormitory students is quite small – 69 students in all schools and 103 in those schools that actually have dormitories (*table 4*).

Table 3: Dormitory students by school location, SY09/10

Location	Number of schools	Average number of students	Average number of dormitory students	Dormitory students as % of total
Bagh	43	102	54	53%
Soum	340	545	101	19%
Aimag	109	1,272	34	2.6%
City	107	1,541	8	0.5%
Mongolia	599	823	69	8.4%

Source of data: B. Enkhsaikhan (Education Block Grant Pilot) using MECS EMIS data.

Table 4: Dormitory students by dormitory size, SY2009/10

Num. of dormitory students per school	Number of schools	Average number of dormitory students
0	198	0
1-50	88	33
51-100	146	74
101-150	100	123
151+	67	227
All schools	599	69
Schools with dormitories	401	103

Source of data: B. Enkhsaikhan (Education Block Grant Pilot) using MECS EMIS data.

III. Normative means used in recent years for current funding formula

14. Each year, the Finance and Investment Department (FID) of MECS reviews the normative means used to allocate government funds to schools and proposes revisions for the coming fiscal year to reflect changing market prices (including any increase in civil service salaries) and what FID expects MECS's budget to look like in the coming year. The proposal goes to the Ministry of Finance (MoF), then to the Cabinet, and finally to Parliament, which announces the revised funding formula in the form of a new government resolution.⁷

15. *Tables 5 and 6* show the normative means for FY2011 and FY2012 as per Government Resolutions #210 of 2010 and #994 of 2012. As discussed in general terms in the *Introduction*, above, it can be seen that the normative means increase as one moves from city schools to bagh schools – with aimag–center and soum–center schools in the middle in that order. One also sees that the means are higher for secondary education students than for primary education students. Interestingly, however, the differences in the normative means between lower secondary and upper secondary are now very small, which probably reflects a reality – that the costs of providing education at the two secondary levels are nearly the same. In the recommendations that follow below, the distinction between lower and upper secondary education will be dropped.

⁷ Ideally, each new resolution should be issued in time for the schools, the local education authorities (i.e., the Education and Culture Departments (ECDs) in the aimags, and the City Education Departments in UB) and the central ministries (i.e., MECS and MoF) to incorporate the revised normative means into their budget planning for the coming year. In some years, however, the resolutions have appeared quite late – as with Resolution #994 of 2012 for FY2012, which was released only on March 28, 2012, four months into the new fiscal year. Parliament had been waiting to agree on the size of a new increase in civil service salaries. Given the time needed for the new budget parameters to be applied from the top level (MECS) down to the local education authorities and then to the schools, school managers would not have known their final budgets until even later in the year, a situation not conducive to careful planning and efficient resource management.

Table 5: Normative means used in FY2011

School location/type		Teachers' salaries (incl'ng insurance paid by Govt) (MNT '000)			Other variable costs (MNT '000)	TOTAL = SALARIES + OTHER VARIABLE COSTS)								
		(MNT '000)				Index(City = 1)			Index (Primary = 1)					
		Primary	LwSec	UpSec		Primary	LwSec	UpSec	Average	Primary	LwSec	UpSec		
Bagh	Primary	397.7			35.0	432.7			2.20			1.00		
	Primary	298.3			28.5	326.8			1.66			1.00		
Soum	Basic	213.0	331.7		17.4	230.4	349.1		1.17	1.25		1.00	1.52	
	Full Sec.	198.8	287.5	302.6	12.2	211.0	299.7	314.8	1.17	1.17	1.17	1.00	1.42	1.49
Aimag and UB outskirts	Primary	196.7			12.9	209.6			1.06			1.00		
	Basic	187.3	270.7		12.9	200.2	283.6		1.02	1.02		1.00	1.42	
	Full Sec.	187.3	270.7	276.1	11.6	198.9	282.3	287.7	1.10	1.10	1.07	1.00	1.42	1.45
City	Primary	185.3			11.6	196.9			1.00			1.00		
	Basic	185.3	267.7		11.6	196.9	279.3		1.00	1.00		1.00	1.42	
	Full Sec.	170.1	244.9	257.6	10.9	181.0	255.8	268.5	1.00	1.00	1.00	1.00	1.41	1.48
						Average:						1.00	1.43	1.47

Source: Government of Mongolia (GoM) Resolution #342 (2010).

Table 6: Normative means used in FY2012

School location/type	Teachers' salaries (incl'ng insurance paid by Govt) (MNT '000)				Other variable costs (MNT '000)				TOTAL = SALARIES + OTHER VARIABLE COSTS									
	Primary	LwSec	UpSec	All levels	Primary	LwSec	UpSec	Primary	Index (City = 1)				Index (Primary = 1)					
									Primary	LwSec	UpSec	Average	Primary	LwSec	UpSec	UpSec		
Bagh	Primary	556.8		41.8	598.6			2.38				2.38	1.00					
	Primary	298.3		20.9	319.2			1.27				1.27	1.00					
Soum	Basic	298.3	464.3	20.9	319.2	485.2		1.27	1.36			1.32	1.00	1.52				
	Full Sec.	278.3	402.5	14.6	292.9	417.1	438.2	1.17	1.17	1.17	1.17	1.17	1.00	1.42	1.50			
Aimag and UB outskirts	Primary	262.2		12.9	275.1			1.10				1.10	1.00					
	Basic	262.2	379.1	12.9	275.1	392.0		1.10	1.10			1.10	1.00	1.42				
	Full Sec.	262.2	379.1	12.9	275.1	392.0	399.4	1.10	1.10	1.07	1.09	1.00	1.00	1.42	1.45			
City	Primary	238.1		13.1	251.2			1.00				1.00	1.00					
	Basic	238.1	342.8	13.1	251.2	355.9		1.00	1.00			1.00	1.00	1.42				
	Full Sec.	238.1	342.8	13.1	251.2	355.9	373.7	1.00	1.00	1.00	1.00	1.00	1.00	1.42	1.49			
								Average:								1.00	1.44	1.48

Source: GoM Resolution #994 (issued on March 28, 2012; delayed pending decision on teachers' salaries).

16. *Table 7* below looks at how the normative means changed between FY2011 and FY2012. In *table 7a*, percentage changes are presented for all of the values included in the government resolutions. Some of the normative means included in the government resolutions are, however, virtually meaningless because they refer to students in schools that do not actually exist (or exist in very small numbers). For example, there are no primary-only schools in Mongolia's aimag centers or in UB, and very few in the soum centers. The empty or near-empty cells in *table 7a* are indicated by shading, and these percentages are excluded from *table 7b*.

17. *Table 7b* shows that the normative means for teachers' salaries increased by 40 percent across the board between FY2011 and FY2012. This rise was fully needed (assuming no changes in the number or average seniority of teachers working in GSE schools) in order to implement a government-wide increase in civil service salaries approved in March of 2012. That salary increase followed a 30 percent increase in October of 2010. This substantial rise in salaries over a short period of time reflects the country's robust economic growth in recent years.⁸

Table 7: Change in normative means between FY2011 and FY2012
Table 7a: Computed from tables 5 and 6

School location/type		Teachers' salaries			Other variable costs
		Primary	LwSec	UpSec	All levels
Bagh	Primary	40%			19%
Soum	Primary	0%			-27%
	Basic	40%	40%		20%
	Full Sec.	40%	40%	40%	20%
Aimag and UB outskirts	Primary	33%			0%
	Basic	40%	40%		0%
	Full Sec.	40%	40%	40%	11%
City	Primary	28%			13%
	Basic	28%	28%		13%
	Full Sec.	40%	40%	40%	20%
Average		33%	38%	40%	9%

⁸ Mongolia's GDP per capita is estimated to have doubled *in nominal terms* (i.e., in current-year prices) between 2007 and 2012 (despite a 1.3 percent contraction in 2009, the worst year of the global economic recession). Between 2012 and 2015, GDP per capita is projected to increase by an astonishing 63 percent *in real terms* (i.e., in constant prices).

Table 7b: Table 7a with (near) empty cells removed

School location/type		Teachers' salaries			Other variable costs
		Primary	LwSec	UpSec	All levels
Bagh	Primary	40%			19%
Soum	Primary				
	Basic	40%	40%		20%
	Full Sec.	40%	40%	40%	20%
Ai mag and UB outskirts	Primary				
	Basic				
	Full Sec.	40%	40%	40%	11%
City	Primary				
	Basic				
	Full Sec.	40%	40%	40%	20%
Average		40%	40%	40%	18%

18. Whereas teachers' (and other civil servants') salaries went up by 40 percent in 2012, the normative means for "other variable costs" (OVCs) for GSE schools rose between 11 and 20 percent only (depending on location and type of school), and they increased by only 18 percent on average across the five location/type categories.⁹ This increase exceeds Mongolia's current inflation rate (estimated at 10.8 percent in January 2012) but not by much. Over the last several years, the normative means for OVCs have changed very little. *Table 8* shows that, on average, they were actually *a bit lower in nominal terms* in FY2012 than they were in FY2008, four years earlier. *In real terms* (i.e., after adjusting for inflation), the allocations for OVCs are very *much lower*.

Table 8: Normative means for other variable costs in FY2008 and FY2012

School location/type		FY2008				FY2012	Increase over four years
		Primary	Lower Sec.	Upper Sec.	Average all levels	All levels	
Bagh	Primary	40.8			40.8	41.8	1.0
Soum	Primary						
	Basic	16.1	23.1		19.6	20.9	1.3
	Full Sec.	13.1	18.5	19.6	17.1	14.6	-2.5
Aimag and UB outskirts	Primary						

⁹ The normative means for other variable costs have not differed in recent years by students' level of education, although they did so in the past.

	Basic						
	Full Sec.	11.4	16.1	17.0	14.8	12.9	-1.9
City	Primary						
	Basic						
	Full Sec.	11.1	14.3	16.1	13.8	13.1	-0.7
Average all locations/ types		18.5	18.0	17.6	21.2	20.7	-0.6

Sources: GoM Resolution #184 (2007) and Resolution #994 (2012).

19. The OVC category includes most teaching and learning materials (paper, chalk, maps, charts, other audio–visual materials, and so on) that complement the input of teachers in producing student learning and are, therefore, critically important in achieving education quality. Interviews with school managers by the author and his team in the course of a small survey of GSE schools in 2010 and 2011 revealed that the shortage of funds for OVCs is seen by many school directors, accountants and instructional managers as a key obstacle to the delivery of education quality.

20. The Block Grant Scheme, a pilot program implemented under the Crisis Response Project, has tried to address this problem. This Scheme supplements the allocation of funds that schools receive under the current funding formula and also gives schools greater discretion in deciding on the use of these funds. In schools that have received Block Grant allocations, the mix between salary and non–salary inputs has moved closer to what would seem, based on international experience, to be the “optimal mix,” and the greater discretion on the part of school managers is consistent with Mongolia’s stated policy of decentralized management. While the Block Grant Scheme almost certainly raises the morale of school managers while, at the same time, enhancing student learning outcomes, this program can be seen as a kind of “band–aid solution.” In the longer run what is needed is a revision of the budgeting process and the per student funding formula for schools in order to address the problem of inadequate funding for OVCs and one that relies on funding from the regular government budget rather than on donor (ADB) project funds.

IV. What should we hope to see in a funding formula for GSE in Mongolia?

21. Mongolia's per student funding formula can be judged successful by the extent to which it allocates funds to schools in a manner that is *efficient* (not wasteful), *equitable* (ensuring equal levels of school inputs for all students) and, ideally as well, *compensatory* (ensuring an equal chance of "success" – i.e., high academic achievement, completion of secondary education, entry to tertiary education and adequate lifetime income – for all students). A good formula needs to take into account how schools differ in at least five important ways:

1. School size

- *Indicator: Enrollment*
- *Rationale: All else equal, smaller schools are more expensive to operate than larger schools (on a per student basis)*

2. Levels of education offered

- *Indicator: The mix between primary and secondary students*
- *Rationale: Secondary education is more expensive than primary because of teacher specialization and smaller classes*

3. Students living in dormitories

- *Rationale*
 - This is *an added cost, unrelated to a school's primary purpose* – student learning
 - Schools in Mongolia differ as to whether or not they include dormitories and, for those that do, how many students are thus accommodated

4. School characteristics that are outside a school's control and that raise unit costs, including:¹⁰

a) Remoteness

- *Indicator: Distance and condition of roads:*

¹⁰ In addition to remoteness and access to utilities, it was suggested (in discussions with Mr. Gerhard van't Land, the international consultant who has worked on the Block Grant Scheme under the Crisis Response Project) that another school characteristic to include in the new funding formula is the **number of shifts** operated by a school during each school day. The case for including this indicator is based on the fact that schools operating two (or three) shifts have fewer classrooms per student enrolled and, therefore (all else equal), lower operational and maintenance costs. Many of Mongolia's multiple-shift schools are located in UB and other urban and densely populated areas, and a reduction in allocations to multiple-shift schools would mainly affect these urban and, on average, wealthier areas of the country. While this is a recommendation that Mongolian policymakers may wish to consider, the author has not incorporated it into the revised formula presented here because he believes that students in multiple-shift schools are disadvantaged already relative to students in single-shift schools (if, for example, the number of instructional hours in each shift of a multiple-shift school is on average lower than the number of hours in single-shift schools).

- Between school and aimag center, and
- Between aimag center and UB
- *Rationale: This affects the prices of inputs faced by a school, including the willingness of teachers and other staff to work there*

b) Access to centrally provided utilities

- Indicator: *Whether or not a school is “on the grid”*
- Rationale: Primarily for consideration in negotiating a school’s “fixed cost” allvocation, but it may also affect *the willingness of teaching and non-teaching staff to work in the school* and also *the performance of students* (if, for example, schools “off the grid” tend to be colder during winter months and have less light at night to enable students to study and do their “homework”)

5. Student characteristics that can raise the cost of teaching students so as to equalize their chances of success, including:

a) Physical and mental handicaps

b) Language spoken at home as a student’s mother tongue

c) Socio-economic status of the community

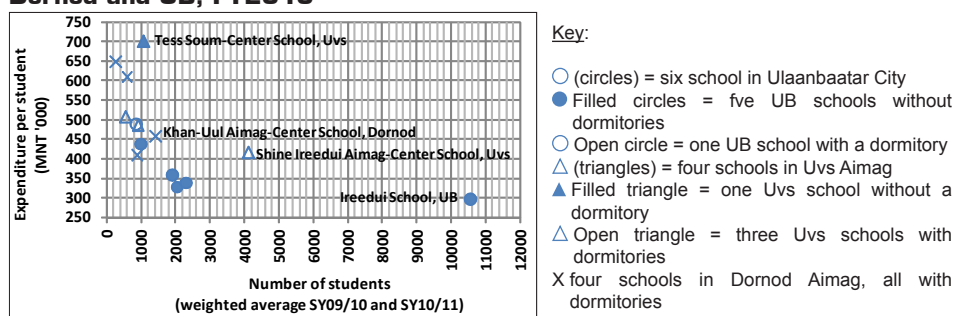
22. The current funding formula takes into account 1, 2, 3 and 5a, but 4a, 4b, 5b and 5c are not explicitly considered. Their incorporation into a new funding formula represents a significant change.

V. The role of school size

23. By definition, per student funding allocates more money to any school which (all other things being the same) enrolls more students than another school. The current funding formula in Mongolia (and in many other countries with per student funding formulae), however, assumes a *linear relationship* between unit costs and school size. In other words, *the additional allocation (for teachers' salaries or for OVCs) is the same for every additional student*. The additional allocation *should, in fact, be more for the first student (or 100 students) and less for each additional student (or 100 students)*, at least up to some point (perhaps 2,000 students in Mongolia), beyond which “economies of scale” are largely exhausted and assuming a linear relationship then becomes reasonable.

24. Below (*figure 2*) is an example of the relationship between “unit cost” (a school's expenditure per student) and enrollment (number of students) based on 14 GSE schools in three locations in Mongolia. While the sample of 14 schools is very small and somewhat biased in favor of larger schools (having an average enrollment of approximately 2,000 students, as compared with an average below 800 for all government GSE schools in the country), the relationship can be seen clearly to be *curvilinear*, with unit costs declining as school size increases, but only up to a point (the “undulation point,” which appears to be about 2,000 in Mongolia) beyond which the relationship between the two variables is essentially linear (constant unit costs as school size increases further). While the undulation point may differ in different contexts, the general relationship seen in *figure 2* has been observed in school systems the world over.

Figure 2: Unit cost and number of students, survey of 14 schools in Uvs, Dornod and UB, FY2010



Source of data: Study of Education Finance and Budgeting, 14-school survey.

25. Of course, there are other factors not “controlled for” in the two-dimensional graph that might affect unit costs, for example, whether or not a school has a dormitory (see the key to the graph in *figure 2*) or the mix between primary and secondary education students. Moreover, the relationship observed in the graph is, to some extent,

influenced by the current funding formula itself – an implicit circularity in using an *observed relationship* (how much schools are now spending) to estimate a *normative relationship* (how much schools could, and should, be spending). Finally and importantly, the *efficiency of different schools* in any sample is sure to differ. Note, for example, the three schools in the graph whose coordinates lie “above the curve” (the Tess and Shine–Ireedui Schools in Uvs and the Khan–Uul School in Dornod), indicating that they are currently spending more per student than predicted by the average relationship.

26. The author has recommended that FID conduct a larger, more representative survey of GSE schools (at least 100 schools, randomly selected in order to ensure the inclusion of the full range of enrollments and other characteristics of schools across Mongolia). Statistical techniques could then be used to control for other factors affecting unit costs so as to yield an estimate of the pure relationship between school size and unit costs. A “frontier curve” could also be estimated so as to eliminate less efficient schools and to see the relationship between school size and unit costs for efficient schools only.

27. Whereas conducting a larger survey and applying appropriate statistical techniques ought to be done in order to refine the recommendations for revising the funding formula, the author has developed a proposal for a new formula based on the small survey already done and on the study team’s visits to the 14 schools and on interviews with the school management teams. The recommendations presented here will need to be vetted with knowledgeable Mongolian experts – in MECS (especially in FID), in MoF, and in the regions. Simulations could then be conducted to see how the proposed new formula would allocate funds and assess whether this allocation makes sense in light of Mongolia’s goals for education. If it does, then the formula could be piloted in a few aimags and city districts before being scaled up nationally.

28. Under the new formula, there will necessarily be “winners” and “losers” – schools whose allocations will be higher and lower than what they were receiving and would have continued to receive under the current system of normative means. To help “losers” to adjust to reduced salary levels that necessitate smaller numbers of teaching and non-teaching staff, it may be necessary for implementation of the new system to be phased in over a few years, during which time the schools can be looking for ways to reduce these numbers (by not refilling positions that become vacant, for example) and while waiting for the overall MECS budget to grow as Mongolia’s economy continues to grow.

VI. How does the budget preparation process work now and how (ideally) would we want it to work in the future?

29. Each year, MECS and all other government ministries prepare their budget proposals over the summer months with inputs from constituent departments, from the regions (aimags, soums and baghs) and from individual “budget entities” (schools in the case of education) and submit these proposals to MoF on about August 15th. After verification by MoF and adjustments based on macroeconomic and demographic indicators, the proposals go first to the Cabinet and then to Parliament for debate and final approval. Ideally, the ministries receive their budget allocations and are able to assign funds to the individual budget entities before January 1st, the start of the new fiscal year. In the case of education, funds pass from MECS to the local education authorities and then from the local authorities to the schools.

30. As their input into the budget preparation process, schools are now asked to complete a long and quite complicated form (consisting currently of 33 separate MS Excel worksheets) and to submit this to the local education authorities (ECDs and City Education Departments) in about June. In interviewing school managers (principals, accountants and instructional managers) as part of the survey of 14 schools, the study team came to the conclusion that managers waste too much time during a busy period (the end of the school year, when examinations are being given and student assessments prepared) to compile information, some of which they do not yet have and must estimate (e.g., enrollments for the coming school year, beginning in September) and little of which would seem, in fact, ever to be used by MECS, MoF and the State Treasury in deciding on the schools’ budget allocations.

31. For deciding on formula-driven allocations (which, under the current system, include teachers’ salaries, OVCs and the Tea Program), the Government must wait for actual enrollment numbers (as reported in the *BDB* forms in September) and attendance numbers (as recorded on a daily basis by schools throughout the year). Also, no final decisions can be made until the next year’s normative means have been decided and a government resolution issued announcing them officially. For “fixed costs,” the information in the proposals on the sources of heat, electricity, water and sanitation used by each school and on projected expenditures for these utilities over the course of the coming year is clearly important. In most cases, however, the sources of these services do not change for any school from one year to the next, and it would seem that, for the most part, the Government projects expenditures on the basis of actual expenditures during the previous year and on projections of changing market prices (obtained not from the schools but derived from regional and national economic indicators). The information on non-teaching staff is important for projecting their salaries and benefits, but the Government *should know* (and, until it becomes formula-driven, *should control*) how many non-teaching staff each school employs.

32. In short, the budget submission process that schools now face seems rather pointless and creates a lot of unnecessary work (and cynicism) on the part of school administrators. From the schools’ perspective, what they see in the budgets they

receive at the beginning of the fiscal year in January (four months after the start of the school year) has little to do with the information they provided in their budget proposals in June, and to a large extent, this perception is correct. The current budget submission process tends, in fact, to be a charade, and it has little to do with how budgets are actually determined. In the author's opinion, the *actual budget process* works as follows.

33. The availability of funds received by MECS (and then by the constituent parts of MECS, including schools) is determined largely by the macro-economic picture and by politics and is, therefore, outside MECS's control. Although MECS submits a budget request each year, the funds it receives (over and above the previous year's budget) depends largely on the growth of the economy and on the political reality that MECS's share of the budget has remained steady in recent years, at 18 percent more or less.¹¹

34. *Table 9* below presents a budget for some upcoming year in the near future (call it "FY201X"). In this year, the total government budget reaches MNT 4 trillion. Based on recent trends, MECS can expect to receive about MNT 720 billion (18 percent of the hypothetical total), of which about MNT 612 (85 percent) is available for recurrent spending. In recent years, education has been allocated about 90 percent of MECS's budget, and GSE, about 50 percent of that. Of course, MECS (FID) could decide in the future to allocate less than 90 percent to education (and more than 10 percent to culture and science) or to allocate less than 50 percent of education's allocation to GSE (and more to other sub-sectors, such as pre-school education, TVET and higher education), but assuming the same proportionate allocations as in recent years, about MNT 275 billion will be available for recurrent spending on GSE.

35. If schools were trusted to exercise full discretion on how the funds allocated to them were spent, there could be a single allocation (an overall block grant) given to each school. While this might be a decentralization goal for GoM to consider down the road, we can assume that, for now, allocations will continue to be given to schools in several *water-tight compartments*, i.e., that schools will continue to receive funding for:

- (1) **"Fixed costs"**: These include heat, electricity, water and sewage, and transportation, for which each school's budgets are negotiated with the local education authorities and tend to be the previous year's levels plus some incremental increase.
- (2) **The Tea Program** (or, perhaps in the future, a national **School Lunch Program**): This is assumed to be a political imperative and, therefore, outside the control of FID and MECS.
- (3) **Other subsidies and transfers**, such as the pensions of retirees: This is an obligation of Government and, as such, also outside the control of FID and MECS.

¹¹ MECS's share of the recurrent budget is a bit more, as high as 22 percent in recent years, whereas its share of the capital or development budget, while it tends to fluctuate from one year to the next, is about 10 percent on average.

(4) **Textbooks:** These are provided to schools in kind and not procured from each school's own budget.

(5) **Several “formula-driven” allocations**¹²: Under the revised formula proposed here, these would include allocations for:

- a. **Salaries** (total salaries – for non-teaching staff as well as for teachers),
- b. **Other variable costs** (OVCs), and
- c. **Dormitories**

Table 9: Hypothetical government budget for FY201X

Budget line	% of previous item	MNT billions	USD millions
Total budget of GoG *	NA	4,000	3,515
Of which, MECS Portfolio:	18%	720	633
Of which, recurrent spending:	85%	612	538
Of which, education sector spending:	90%	551	484
Spending on GSE, of which:	50%	275.400	242.004
(1) “Fixed costs” (FCs)	-14%	38.556	33.880
(2) School Tea Program	-2%	5.508	4.840
(3) Other subsidies and transfers	-7%	19.278	16.940
(4) Textbooks +	-1%	2.754	2.420
(5) Allocated by formulae, of which:	76%	209.304	183.923
(a) Main per student formula, of which: #	72%	150.699	132.424
(i) Salaries and social security @	80%	120.559	105.939
(ii) Other variable costs (OVCs)	20%	30.140	26.485
(b) Dormitory formula **	10%	20.930	18.392
(c) Supplemental formulae	18%	37.675	33.106
(i) School characteristics	50%	18.837	16.553
(ii) Student characteristics	50%	18.837	16.553

See table footnotes on next page

Footnotes for table 9

= Under control of Finance and Investment Department (FID) of MECS.

- * Total government expenditure has amounted to 38 percent of GDP in recent years. A government budget of MNT 4 billion, therefore, suggests that GDP in 200X will be about MNT 10.5 billion. GDP was MNT 7.9 billion in 2010, and it was estimated to have reached MNT 9.2 billion in 2011.
- + Textbooks appear under “other variable costs” in government accounts, but they are procured centrally and are not included in the schools' own budgets.
- # Suggesting here a ratio of OVCs to salaries of 1:4, whereas the current ratio is about 1:8.
- @ The funding formula for salaries will cover all salaries, not just teachers' salaries.
- ** The amount of GSE's budget required to operate dormitories needs to be verified and will need to be adjusted year by year.

¹² The formulae for school characteristics and for student characteristics (5(c)(i) and 5(c)(ii) in table 9) will be explained below. The allocations that a school will receive according to these two formulae will supplement, in the same ratio, those received for salaries and other variable costs according to 5(a)(i) and 5(a)(ii). In addition to the allocations for salaries, other variable costs, and dormitories, allocations for “other education programs” (equivalency, part-time, and evening classes) will continue to be made, just as they are today. Since these account for only a tiny share of GSE expenditures, however, they are not included in the discussion and recommendations presented here.

36. Assuming that the first four budget categories will remain proportionately about what they have been in recent years, and treating them as “off-the-top” allocations, this leaves MNT 209 billion to be allocated by formula funding. Proposals for the new funding formula (in fact, several funding formulae, given that the schools’ discretion to re-allocate funds across budget categories will remain limited) are presented in detail below. These proposals involve several major changes in the way that funds are allocated:

- *A school’s allocation for salaries will cover all salaries and not just teachers’ salaries*
 - This is, in fact, a return to the way in which salaries were allocated in the past; the use of the normative means to cover teachers’ salaries alone was a change introduced in 2007
 - This change will force schools to recognize that there is (or there should be) a trade-off between teaching staff and other kinds of staff (managers, office workers and laborers)
 - Non-teaching staff will no longer be treated in the same way as “fixed costs,” with budget allocations that schools negotiate with the local education authorities and that tend to be “incremental” in nature
- *The allocations for OVCs will be increased in relation to the allocations for salaries*
 - Current ratio: about 1:8
 - Proposed ratio: about 1:4
- *The distinction between lower secondary and upper secondary education will be dropped*
 - This will simplify the formula for salaries and OVCs
 - It is also consistent with the very small differences between these two categories in the normative means used in recent years (see *tables 5 and 6* above)
- *Two additional funds will be established* so as to recognize differences in:
 - (1) school characteristics, and
 - (2) student characteristics

37. As a starting point, the study team recommends the following approximate weights for the five “Budget Funds”:

1. Salaries	58% (80% of 72% in <i>table 9</i>)
2. OVCs	14% (20% of 72% in <i>table 9</i>)
3. Dormitories	10%
4. School characteristics	9% (50% of 18% in <i>table 9</i>)
5. Student characteristics	9% (50% of 18% in <i>table 9</i>)

38. The allocations to schools derived from the fourth and fifth funds (school and student characteristics) will be added to a school's allocations derived from the first and second funds (salaries and OVCs) in the same proportions (58:14, which is about 4:1).

39. It is recommended that schools be given considerable discretion as to how funds are allocated across individual budget lines within the schools' overall allocations for salaries and OVCs. School managers will submit budget proposals that reflect the individual needs of their schools, given that they are the ones who know the schools best – better than the local education authorities, and certainly better than central staff in MECS, who must keep track of 600+ disparate schools across the entire country. The budgets that schools get will reflect closely the proposals they submit. Schools will then be *held accountable* for executing their budgets as proposed and approved. They will need to get permission from the local education authorities (Aimag ECDs and City Education Offices) for virements that exceed certain percentage thresholds. Importantly, once they know their budgets, schools will be expected to *live within their means*. Requests for supplemental allocations will be granted only in exceptional cases where schools can demonstrate *force majeure* circumstances, i.e., events that could not have been reasonably predicted in advance.

VII. Formula used to allocate Budget Funds 1 and 2 (salaries and OVCs)

40. *Table 9* above presented the budget available for Mongolia's GSE system in some hypothetical future year, FY200X. Let us now assume that, in the same year, the GSE system includes 600 government schools and enrolls 500,000 students.¹³ These schools range in size from those with fewer than 500 students (250 in FY200X) to those with 2,000 or more students (50); 300 schools fall in the middle, as shown in *table 10, column (2)*.¹⁴

41. As argued above, the production function for educating students (in Mongolia and elsewhere) is characterized by "economies of scale," meaning that it costs more to produce *the nth student* in a school than it does to produce *the next student* (n+1) – up to some point (assumed to be 2,000 students in Mongolia) where the relationship becomes essentially linear, meaning that each additional student costs the same as the one before it. Although the non-linearity of the production function below the 2,000-student "undulation point" is likely to be continuous, it is assumed here (for reasons of simplicity) to be a "stepped function," with unit cost differences occurring at discrete intervals marked by 500, 1,000, 1,500 and 2,000 students. *Column (5) of table 2* shows the number of GSE students in each of the five school-size groups, and in *columns (6)–(10)* this number is divided into the first 500 students, the second 500, the third 500, the fourth 500 and, then, all remaining students above 2,000.

¹³ These are the numbers for public (government owned and managed) schools only. Since the economic transition, Mongolia has permitted and, in fact, now encourages private schools to operate side-by-side with public schools. The question of government funding for private schools will be considered at a later point in this document.

¹⁴ The number of students recorded for any fiscal year, e.g., FY2010, is a weighted average of enrollments in two different school years – with a weight of 8 for enrollments in SY09/10 (covering school months January-June) and a weight of 4 for enrollments in SY10/11 (September-December, which cannot be observed at the time of budget planning and must be projected). The actual breakdown of GSE schools in SY09/10 was presented in *table 1* above. Looking at the 253 smallest schools (those enrolling 500 or fewer students), 43 of them enrolled 100 or fewer students, 42 between 101 and 200, 70 between 201 and 300, 43 between 301 and 400, and 55 between 401 and 500. The smallest school in SY09/10 (in Bayan Ulgii) had only 14 students enrolled.

Table 10: Formula for allocating salaries and OVC to government schools

(1)	(2)	(3)	(4) (5) (6)			(7)	(8)	(9)	(10)	(11)	(12) (13) (14) (15) (16) (17)						(18) (19)		(20)
			Number of students (head count)								Unweighted number of students in first, second, third and fourth 500 in schools and those above 2,000						Weighted students (> 2,000 students = 1)		
School size	Nun-ber of schools	Pri-mary	Sec-on-dary	Total	0-500	501-1,000	1,001-1,500	1,501-2,000	2,000+	Total	0-500	501-1,000	1,001-1,500	1,501-2,000	2,000+	Total	% pri-mary	% se-con-dary	Weighted students
< 500	250	36,822	27,952	64,774	64,774					64,774	115,668	0	0	0	0	115,668	57%	43%	138,129
501-1,000	175	62,843	56,852	119,695	87,500	32,195				119,695	156,250	45,993	0	0	0	202,243	53%	47%	245,470
1,001-1,500	80	49,498	44,610	94,108	40,000	40,000	14,108			94,108	71,429	57,143	17,131	0	0	145,703	53%	47%	176,783
1,501-2,000	45	44,031	40,895	84,926	22,500	22,500	22,500	17,426		84,926	40,179	32,143	27,321	18,671	0	118,314	52%	48%	143,951
> 2,000	50	70,329	66,168	136,497	25,000	25,000	25,000	25,000	36,497	136,497	44,643	35,714	30,357	26,786	36,497	173,997	52%	48%	211,953
All schools	600	263,524	236,476	500,000	239,774	119,695	61,608	42,426	36,497	500,000	428,168	170,993	74,810	45,456	36,497	755,924	53%	47%	916,286

= label or computed cell

= formula parameter (to be decided by MECS and adjusted periodically based on new surveys of schools and experience with the funding formula over time)

= data for all public schools (to be entered by FID based on BDB data received each September from the schools)

42. Although we know that the first 500 students in any school will tend to *cost more* than the second 500 students (and so on), what we do not know for sure (and this is the reason for the author’s recommendation, in *paragraph 26* above, of a new and much larger survey of Mongolian schools) is *how much more* the first 500 should cost than the second 500 (and so on). For the time being, the author has suggested cost differentials, as shown in *columns (12)–(16)* of *table 10*. These parameters of the funding formula can be changed by policymakers over time to reflect the results of new surveys and the experience gained in implementing the formula.¹⁵

43. The final parameter to be decided in the formula for allocating salaries and OVCs is the cost differential between primary and secondary education students. For the time being, the author has suggested a 45 percent “bonus” for secondary students relative to primary. This approximates the average differential between the two levels in the recent government resolutions announcing the normative means used in the current funding formula in recent years (see *tables 5 and 6*, above).

44. Whereas the actual number (“the head count”) of students in the GSE system in FY201X is 500,000, this number becomes 755,924 when the weights for school size are applied. Applying the weights for secondary–level students increases the number to 916,286. This weighted number can be referred to as the “allocation units” available for allocating budgets to schools. Each school will have its own number of allocation units, which depends on the total number of students and on the mix between primary and secondary level students.

45. Table 11 shows how the weighted enrollments (allocation units) will be determined for a few schools in the system. School #1 is a big school with more than half of its students studying at the secondary level. These characteristics result in a total of 9,057 allocation units, which is 0.99 percent of the 916,286 total available for all schools. Schools #5 and #7 are small, primary–only schools, resulting in totals of just 670 and 79 allocation units, or 0.07 percent and 0.01 percent of the total available.

46. *Table 12* illustrates what these shares mean in MNT terms. The total budgets available in Budget Fund 1 (salaries) and Budget Fund 2 (OVCs) in FY201X are MNT 120.6 billion and MNT 30.1 billion, respectively, as shown in *table 9* above. The allocations for School #1 (which, as mentioned, is a very large school, with more than 6,000 students) are MNT 1,192 million and MNT 298 million, whereas the allocations for School #7 (a very small school, with only 44 students) are just MNT 10.3 million and MNT 2.6 million. As a reflection of the inherent economies of scale in education production, on the other hand, the allocations *per student enrolled* are higher for School #7 (MNT 235.0 thousand and MNT 58.7 thousand) than for School #1 (MNT 181.1 thousand and MNT 45.3 thousand).

¹⁵ Changing these and other parameters of any of the funding formulae will be easy to do given that each formula has been developed in an MS Excel spreadsheet so that all results change automatically when any of parameter is changed.

Table 11: Example of how to enter data to compute salary and OVC allocations for a few individual schools

(1) School name	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	Weighted students (> 2,000 students = 1)							(19)	(20)	(21)	(22)
											Unweighted number of students in first, second, third and fourth 500 in schools and those above 2,000				501-1,000						
Number of students (head count)					0-500	501-1,000	1,001-1,500	1,501-2,000	2,000+	Total	0-500	501-1,000	1,001-1,500	1,501-2,000	2,000+	Total	Prim.	Sec.	Sec. bonus	School's % of total	
School #1	3,135	3,445	6,580	52%	500	500	500	500	4,580	6,580	500	714	607	536	4,580	7,330	3,492	3,838	9,057	0.99%	
School #2	1,216	1,084	2,300	47%	500	500	500	500	300	2,300	500	714	607	536	300	3,050	1,613	1,437	3,697	0.40%	
School #3	975	795	1,770	45%	500	500	500	270	0	1,770	500	714	607	289	0	2,504	1,379	1,124	3,010	0.33%	
School #4	725	625	1,350	46%	500	500	350	0	0	1,350	500	714	425	0	2,032	1,091	941	2,456	0.27%		
School #5	375	0	375	0%	375	0	0	0	0	375	670	0	0	0	670	670	0	670	0.07%		
School #6	240	360	600	60%	500	100	0	0	0	600	893	143	0	0	1,036	414	621	1,315	0.14%		
School #7	44	0	44	0%	44	0	0	0	0	44	79	0	0	0	79	79	0	79	0.01%		
...	
All schools	263,524	236,476	500,000	47%	239,774	119,695	61,608	42,426	36,497	500,000	428,168	170,993	74,810	45,456	36,497	755,924	398,407	357,516	916,286	100%	

= label or computed cell

= formula parameter (as decided by MECS)

= data for individual school (as provided by school in completing BDB forms each September and checked by local education authorities)

Table 12: Budgets for salaries and OVCs for individual schools (MNT millions)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
School name	Percent of total	School budget (MNT millions) for:		Number of students (head count)	Allocation per student for:	
		Salaries (Bdgt Fund 1)	OVCs (Bdgt Fund 2)		Salaries (MNT)	OVCs (MNT)
School #1	0.99%	1,191.656	297.914	6,580	181,103	45,276
School #2	0.40%	486.410	121.603	2,300	211,483	52,871
School #3	0.33%	395.983	98.996	1,770	223,719	55,930
School #4	0.27%	323.080	80.770	1,350	239,319	59,830
School #5	0.07%	88.107	22.027	375	234,953	58,738
School #6	0.14%	173.066	43.267	600	288,444	72,111
School #7	0.01%	10.338	2.584	44	234,953	58,738
...
All schools (as per table 9)	100%	120,559	30,140	500,000	241,118	60,280

VIII. Formula used to allocate Budget Fund 3 (dormitories)

47. The formula for allocating Budget Fund 3 to schools that operate dormitories (*figure 13 below*) is similar to the one used for Budget Funds 1 and 2. As with the production of teaching services, we would expect to observe “economies of scale” in the production of dormitory services. Just as even the smallest school usually has on staff a full-time principal, an accountant and an instructional manager, even a dormitory for very few children is likely to need a cook and a cleaner and to keep at least one guard on duty round the clock. As with the earlier formula, the appropriate weights to use to reflect diminishing unit costs is not obvious, and these will need to be adjusted over time by MECS policymakers through a process of trial and error. For the time being, however, the author has suggested weights that range from 1.0 to 1.6, as shown in columns (9)–(12) of the table.

48. *Table 14* illustrates, for the same seven schools as in *table 11* above, how the formula for dormitories works. Since School #1 does not have a dormitory, it receives no allocation from Budget Fund 3. The remaining six schools, on the other hand, all have dormitories and receive allocations that vary, depending on how many students are accommodated, from 0.03 percent to 0.48 percent of the total budget available for dormitories (MNT 20.930 billion in FY201X, as shown in *table 9* above). School #2, for example, receives 0.07 percent of the total, or MNT 14.651 million, which works out to be MNT 586,040 for each of its 25 dormitory students.

Table 13: Formula for allocating dormitory costs to government schools

(1)	(2)	(3)	(4)			(5)			(7)	(8)	(9)	(10)			(11)	(12)	(13)
			1-50	51-100	101-150	151+	Total	1-50				51-100	101-150	151+			
		Number of dormitory students (head count)	Unweighted number of dormitory students in first, second and third 50 in dormitories and those above 150														
0	185	0	0	0	0	0	0	0	Total	0	0	0	0	0	0	0	0
1-50	90	3,150	3,150	0	0	0	0	0	3,150	5,040	0	0	0	0	0	0	5,040
51-100	150	11,250	7,500	3,750	0	0	0	0	11,250	12,000	5,063	0	0	0	0	0	17,063
101-150	105	13,125	5,250	5,250	2,625	0	0	0	13,125	8,400	7,088	3,019	0	0	0	0	18,506
151+	70	16,100	3,500	3,500	3,500	5,600	5,600	5,600	16,100	5,600	4,725	4,025	5,600	5,600	5,600	0	19,950
All schools	600	43,625	19,400	12,500	6,125	5,600	5,600	5,600	43,625	31,040	16,875	7,044	5,600	5,600	5,600	0	60,559

☐ = label or computed cell

■ = formula parameter (to be decided by MECS and adjusted periodically based on new surveys of schools and experience with the funding formula over time)

■ = data for all public schools (to be entered by FID based on BDB data received each September from the schools)

Table 14: Examples of how to enter data to compute dormitory allocations for a few individual schools

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
School name	Dorm students	Unweighted dormitory students					Weighted dormitory students					Percent of total: 60,559
		1-50	51-100	101-150	151+	Total	1-50	51-100	101-150	151+	Total	
School #1	0	0	0	0	0	0	0	0	0	0	0	0.00%
School #2	25	25	0	0	0	25	40	0	0	0	40	0.07%
School #3	80	50	30	0	0	80	80	41	0	0	121	0.20%
School #4	125	50	50	25	0	125	80	68	29	0	176	0.29%
School #5	140	50	50	40	0	140	80	68	46	0	194	0.32%
School #6	225	50	50	125	0	225	80	68	144	0	291	0.48%
School #7	12	12	0	0	0	12	19	0	0	0	19	0.03%
...
All schools	43,625	19,400	12,500	6,125	5,600	43,625	31,040	16,875	7,044	5,600	60,559	100%

= label or computed cell

= formula parameter (as decided by MECS)

= data for individual school (as provided by school in completing BDB forms each September and checked by local education authorities)

IX. Formula used to allocate Budget Fund 4 (school characteristics)

49. Budget Fund 4 provides *supplemental budgets* to schools for salaries and OVCs to compensate them for *school characteristics* that are outside their control and that are assumed to increase unit costs – what will be called here, “negative school characteristics.” The author is suggesting two indicators and five sub-indicators of negative school characteristics:

1. Remoteness (distance and condition of the roads)

- a. Distance between the school and the aimag center (or, for city schools, between the school and the center of UB)
 - Indicated by *the time it takes to drive* in good weather, not counting stops
 - Time measured in hours (fraction of hours)
- b. *Distance between the aimag center and UB*
 - Measured by *the time it takes to drive* in good weather, not counting stops
 - Time measured in hours (fraction of hours)
 - Assumed to be 0 for all UB schools

2. Access to centrally provided utilities (whether or not the school is “on the grid”)

- a. *Heat*: value of 4 if not on the grid
- b. *Electricity*: value of 4 if not on the grid
- c. *Water and sewage*: value of 4 if not on the grid; value of 2 if one on the grid but not both

50. We cannot know the average values for each of the five indicators until we observe the actual values for all schools in the system. We will assume for illustrative purposes that the minimum, maximum and average values are as shown in the *table 15*.¹⁶ For the 600 schools in the system, these averages result in a total of 4.935 million “allocation units.”

¹⁶ The minimum and maximum values are not needed for the formula, but reasonable guesses are shown in the table as a basis for our guess as to what the average values might look like.

Table 15: Formula for allocating Budget Fund 4 to government schools (supplemental funds to compensate schools for negative school characteristics)

(1)	(2)	(3)	(4)	(5)	(6)
Indicator	Total number of government GSE schools:				600
	Total number of students:				500,000
	Measure	Tentatively assumed values: to be observed and computed from all schools (see next table)			
		Minimum *	Maximum *	Average * (Index of school characteristics)	Total for all students: 500,000
Distance between school and aimag center	Hours	0	6	1.80	900,000
Distance between aimag center and UB	Hours	0	30	5.25	2,625,000
Access to central heat (0 if yes, 4 if no)	Dichotomy	0	4	1.48	740,000
Access to central electricity (0 if yes, 4 if no)	Dichotomy	0	4	0.09	45,000
Access to central water & sewage (0 if yes, 4 if no, 2 if one but not both)	Trichotomy	0	4	1.25	625,000
Total *				9.87	4,935,000

* To be computed based on data from all public GSE schools; see next table.

= label or computed cell

= data for all public schools (to be entered by FID based on information supplied by the local education authorities, i.e., ECDs and City Education Departments)

51. *Table 16* shows how this information is entered for the same seven schools as above. School #5, for example, is a soum-center school located 45 minutes from the aimag center, which is 15-hour drive from UB. It has access to central electricity but operates its own furnace for heat. It now has access to a central water supply, but it still maintains its own septic system (hence the value of 2 in *column 8*). These values for School #5 sum to 21.75 (the school's "index value"), which is then weighted by the school's enrollment (375) to give it 8,156 "allocation units." This entitles the school to 0.165 percent of the fourth budget fund, which we saw in *table 9* amounted to MNT 18.837 billion in FY201X. The school's allocation of MNT 31.081 million (= 0.165 percent of MNT 18.837 billion) from Budget Fund 4 is split between salaries and OVCs in the same ratio (approximate 4:1) as prescribed by the allocation formulae for these two budget categories, in other words MNT 24.865 million as an additional allocation for salaries and MNT 6.216 as an additional allocation for OVCs.

Table 16: Examples of how to enter data to compute supplemental allocations to compensate public schools for “negative school characteristics”

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
School name	Number of students	School “locaton”	Distance in hours between:		Access to central utilities			Index of school characteristics (sum of columns 4-8)	Allocaton units: index weighted by number of students (column 9 times column 2)	% of total
			School and aimag center (or, for city schools, UB center)	Aimag center and UB center (= 0 for UB schools)	Heat (= 0 if yes, 4 if no)	ElectrifiHy (= 0 if yes, 4 if no)	Water and Sewage (= 0 if yes, 4 if no, 2 if one but not both)			
School #1	6,580	UB	0.25	0.00	0	0	0	0.25	1,645	0.033%
School #2	2,300	UB satellite	1.00	0.00	4	0	4	9.00	20,700	0.419%
School #3	1,770	Aimag-center	0.00	10.00	0	0	0	10.00	17,700	0.359%
School #4	1,350	Aimag-center	0.00	1.00	4	0	0	5.00	6,750	0.137%
School #5	375	Soum-center	0.75	15.00	4	0	2	21.75	8,156	0.165%
School #6	600	Soum-center	2.00	4.00	4	4	4	18.00	10,800	0.219%
School #7	44	Bagh	1.50	15.00	4	4	4	28.50	1,254	0.025%
...
Total *	500,000	N/A	1,080	3,150	888	54	750	5,922	4,935,000	100%
Average *	833	N/A	1.80	5.25	1.48	0.09	1.25	9.87	8,225	0.17%

* To be computed based on data from all public GSE schools (assumed here to 600)

= label or computed cell

= data for individual school (as provided by school or local education authority)

X. Formula used to allocate Budget Fund 5 (student characteristics)

52. Budget Fund 5 provides *supplemental budgets* to schools for salaries and OVCs to compensate them for *student characteristics* that are outside their control and that are assumed to increase unit costs – what will be called here, “negative student characteristics.” The author proposes three indicators of negative student characteristics:

1. Poverty

- Measured by the *poverty headcount (as a percentage of the population)* of the soum or city district in which the school is located
- At present, two sources of information on poverty exist:
 - i. Population Census of 2000
 - ii. Living Standards Measurement Survey (LSMS) of 2002/03
- The first is summarized in “Mongolia Census–Based Poverty Map: Region, Aimag and Soum Results,” by Harold Coulombe and Thomas Otter, GoM and UNDP, March 2009
- The minimum and maximum soum–level/district–level poverty headcounts reported by Coulombe and Otter were 15% and 70%
- Granted, this information is old, and poverty in Mongolia has certainly declined since 2000
- There will, however, soon be a new Population Census updating the poverty figures across the country
- Moreover, even without a new survey, using the old figures does not pose a problem *if we can assume that relative poverty has not changed* (i.e., that poverty has declined proportionately in all parts of the country)

2. Physical and mental handicaps

- This will be measured by the proportion of students in any school with certified handicaps
- Currently, there are about 18,000 students in Mongolian schools with handicaps: visual (about 7,500), hearing (2,800), speech (2,600), mental (1,500), mobility (2,100) and multiple handicaps (1,500)
- There are special schools in UB that cater to many of Mongolia’s handicapped students, but there may be some “regular schools” that also enroll small numbers of handicapped students
- Every handicapped student will be counted as 1, and those with multiple handicaps will be counted as 2, and the total will be expressed as a percentage of all students in the school

- Although we do not know in advance what the range of results will be, it is likely to consist of low numbers, perhaps 0 percent – 3 percent, and the average figure may be as low as 0.5 percent
- Therefore, we propose to *multiply each school's percentage figure by a factor of 25*

3. Language spoken by students at home

- Measured by the percentage of the student body for whom *Mongolian or English is not the first language* spoken at home
- The values are expected to range from between 0 percent in some schools to nearly 100 percent (e.g., in some schools in Bayan-Ulgii)

53. *Table 17* presents the formula used to allocate Budget Fund 5. As with the formula for Budget Fund 4 (*table 15* above), we cannot know the average values for each of the three indicators until we observe the actual values for all schools in the system. For illustrative purposes, we will assume that this has been done and that the values are as shown in *table 17*. The three figures (the poverty headcount as a percent of the population, 25 times the percentage of students with certified handicaps, and the percentage of students for whom Mongolian or English is not their first language) can then be summed to create an index of student characteristics, which has an average value of 57.5. For the 500,000 students in the system, this results in a total of 28.750 million “allocation units” (= 57.5 x 500,000), which are divided across the 600 schools.

54. *Table 18* shows, for the same seven schools, how information on student characteristics is entered into the formula. School #5, for example, is a small school in a poor soum. It only has three handicapped students, but most students in the school (96.5 percent) come from families where Mongolian (or English) is not the first language spoken at home. These factors give the school a very high index value (184.53), although the small number of students results in only a modest number of allocation units (69,200) out of a system-wide total of 28.750 million. School #5, therefore, receives 0.24 percent of the total allocation in Budget Fund 5 in FY201X (MNT 18.837 billion), which amounts to MNT 45.209 million, 80 percent of which (MNT 36.167) is added to its salaries allocation and the rest (MNT 9.042) is added to its OVC allocation.

Table 17: Formula for allocating Budget Fund 5 to government schools (supplemental funds to compensate schools for negative student characteristics)

(1)	(2)	(3)	(4)	(5)	(6)	
Indicator	Total number of government GSE schools:				600	
	Total number of students:				500,000	
	Measure	Tentatively assumed values: to be observed and computed from all schools (see next table)				Total for all students: 500,000
		Minimum *	Maximum *	Average * (Index of student characteristics)		
A, Soum-level poverty headcount	Percentage	15	70	40.00	20,000,000	
B. Students with handicaps (a student with multiple handicaps counts as 2)	(1) Percentage	0	3	0.05	25,000	
	(2) Percentage x 25	0	75	12.50	6,250,000	
C. Students whose first language at home is other than Mongolian or English	Percentage	0	100	5.00	2,500,000	
Total (= A + B(2) + C)				57.5	28,750,000	

* To be computed based on data from all public GSE schools; see next table.

= label or computed cell

= data for all public schools (to be entered by FID based on information supplied by the local education authorities, i.e., ECDs and City Education Departments)

Table 18: Examples of how to enter data to compute supplemental allocations to compensate public schools for “negative student characteristics”

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Name of school	Number of students	Name of soum or city district	Soum/ district- level poverty headcount (% of HHs)	Students in school with handicaps			Students in school whose first language is other than Mongolian or English		Index of student characteristics (sum of columns 4, 1 and 9)	Allocation units: index weighted by number of students (column 11 times column 2)	% of total
				Number (student with multiple handicaps counts as 2)	Percent	Percent times 25	Number	Percent			
School #1	6,580	District A	15	6	0.09	2.28	3	0.05	17.33	114,000	0.40%
School #2	2,300	District B	21	1	0.04	1.09	5	0.22	22.30	51,300	0.18%
School #3	1,770	Soum I	60	5	0.28	7.06	6	0.34	67.40	119,300	0.41%
School #4	1,350	Soum II	25	0	0.00	0.00	3	0.22	25.22	34,050	0.12%
School #5	375	Soum III	68	3	0.80	20.00	362	96.53	184.53	69,200	0.24%
School #6	600	Soum IV	72	20	3.33	83.33	21	3.50	158.83	95,300	0.33%
School #7	44	Soum V	48	1	2.27	56.82	0	0.00	104.82	4,612	0.02%
Total *	500,000	N/A	24,000	2,500	300	7,500	25,000	3,000	34,500	28,750,000	100%
Average *	833	N/A	40	4.2	0.50	12.50	41.7	5.0	57.5	47,917	0.17%

* To be computed based on data from all public GSE schools (assumed here to 600)

= label or computed cell

= data for individual school (as provided by school or local education authority)

XI. Subsidies for private schools?

55. The discussion thus far has focused on public schools, which today in Mongolia account for about 80 percent of all GSE schools and 95 percent of all GSE students. Although still small in relative terms, the private schools' shares have increased rapidly in the two decades since Mongolia's ban on private education was lifted, and there is no reason to believe that the role of the private sector in education will not continue to grow in the future. Up to this point, we have excluded private schools from our discussion of government funding for education because so many other countries in the world withhold public funding from private schools altogether, or if they subsidize private education at all, they tend to do so in limited and targeted ways in order to accomplish some particular purpose such as increasing access for poor students through needs-based scholarship programs.

56. In this regard, Mongolia seems to be an outlier. During interviews with a few private schools (visited by the study team to get a sense of how they differ from Mongolia's government schools), the study team was told that they received per student allocations from the Government according to the current normative means *to cover OVCs* only. Near the completion of this study, however, in meetings with MoF and MECS officials, we discovered that, in fact, the current policy is to provide allocations to private schools that *cover both OVCs and teachers' salaries*.¹⁷ In other words, *government financing of recurrent costs is nearly the same for private schools as for public schools*, despite the fact that most private schools collect substantial fees from parents, in some cases in excess of USD 10,000 per student per year.

57. To put parental fees for private school education in perspective, GoM spent about MNT 210 billion on GSE recurrent costs in FY2009. The total number of GSE students in FY2009 (a weighted average of SY08/09 and SY09/10 enrollments, public plus private) was 528,100, which means that government spending per GSE student was approximately, MNT 397,000. A private school tuition fee of USD 10,000 (given an average exchange rate of USD 1 = MNT 1,440 during 2009) was the equivalent of MNT 1.440 million, which is *36 times what Government spent on average* for all students in the system.

58. Granted, private schools, unlike government schools, must finance all of the *capital costs of education (buildings and equipment)* from their own revenues, but these capital costs tend to be "front-loaded," i.e., quite substantial when a school first opens but then, once a school becomes established, becoming smaller in any year and more spread out. An argument that the study team heard in defense of the Government's policy of subsidizing private education is that this "levels the playing field" by compensating

¹⁷ Primary level students in private schools are also covered under the School Tea Program.

private school owners for these capital costs and any other costs (such as the health insurance and pension payments of staff) that are covered by Government in the case of public schools but not in the case of private schools. It has been argued that the existence of private schools actually reduces the burden on the government budget. This is true to the extent that students enrolled in private education do not have to be accommodated in the Government's own schools and the costs of private education are not financed from the government budget. The latter does not seem to be the case, however, in Mongolia.

59. Is it fair for a few students to be receiving an education that is so much more expensive than the education that most students (the 95 percent who enroll in public education) receive? In a market economy such as exists in Mongolia today, there is nothing to stop citizens from spending their own money however they think makes sense, and if some families want and can afford to send their children to private schools, this is certainly permissible and, arguably, a good thing for Mongolia's economy. On the other hand, is it fair that these students receive, in addition to what their parents pay, a subsidy from the State that is nearly as large as the subsidy given to public school students? As the percentage of all GSE students who attend private schools continues to grow, the current policy will, to an ever increasing extent, siphon off government funds from the budget available for public education, which is where the majority of students, including nearly all students from poor families, will continue to be enrolled.

60. The author's recommendation is for the current policy to be continued *in the short run*, as this is the status quo, but for private schools to be *gradually "weaned" from the government budget*. Specifically, the author recommends that the revised funding arrangements for GSE incorporate the following measures in regard to private schools:

- *Private schools already in existence when the new funding formula is put into place (which, let us assume for the moment, will happen in FY2013) will receive the same allocations from Budget Funds 1 and 2 as public schools in the system, but only in the first year (FY2013)*
- *For these schools, the percentage of the standard allocations from Budget Funds 1 and 2 will then fall by 10 percentage points every year after that (i.e., to 90 percent in FY2014, 80 percent in FY2015, 70 percent in FY2016, and so on) until the percentage reaches 0 in ten years (FY2023)*
- *Any new private schools, which open their doors and admit students later than FY2013, will receive 100 percent of the allocations from Budget Funds 1 and 2 in the year that they open and 10 percentage points less every year after that (for example, a private schools that opens in FY2015 will receive the same allocations as a public school in FY2015, but it will receive only 90 percent in FY2016, 80 percent in FY2017, and so on until the percentage reaches 0 in FY2025)¹⁸*

¹⁸ Safeguards may need to be put into place to ensure that a private school does not shut its doors and then reopen

- Few, if any private schools in Mongolia, have dormitories, but any private school that may want to provide dormitory services in the future will *not be eligible for allocations from Budget Fund 3*
- *Private school will not be eligible for supplemental allocations from Budget Fund 4 or Budget Fund 5*

61. Private schools unable to accept these conditions or unable to cover their costs as funding from Budget Funds 1 and 2 is gradually withdrawn will be forced to shut down. A school that cannot, over a period of ten years, attract enough students and charge fees sufficient to cover its full costs is probably not a viable institution and, in fact, deserves to be shut down.

62. To accommodate the inclusion of private schools, the formula in *table 10* above needs to be revised as shown in *table 19* below. The number of schools and number of students now include both public and private. For each private school, information is needed on when it opened and started admitting students. On the assumption that the new funding formula will be implemented in FY2013, all private schools already operating in FY2013 will receive the same allocations from Budget Funds 1 and 2 as will the government schools. If *table 19* presents the version of the formula being applied two years later, in FY2015, all of the 146 private schools that were operating in FY2013 will now be receiving 80 percent of the government school allocations. The five private schools established in FY2014 will receive 90 percent of the government school allocations, and the three private schools opening their doors for the first time in FY2015 will receive 100 percent. The addition of 155 private schools and the use of these new weights will result in a new weighted number of students of 825,049. This is the number of allocation units to be distributed to the 755 public and private schools in the GSE system.

under a different name and claim to be a "new school."

Table 19: Formula for allocating salaries and OVCs to government and private schools (in FY2015, assuming new formula introduced in FY2013)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
School size	Number of schools			Number of students (head count)															
	Total	Of which, private	Of which, established in year:			Pri- mary	Secon- dary	Total	Public schools	Private schs	Of which, in private schools established in:			0-500	501-1,000	1,001-1,500	1,501-2,000	2,000+	Total
			2015	2104	Before 2014						2015	2104	Before 2014						
< 500	393	143	2	3	138	46,922	38,390	85,312	64,774	20,538	521	1,015	19,002	85,312					85,312
501-1,000	187	12	1	2	8	68,723	58,541	127,264	119,695	7,569	506	1,345	5,718	93,500	33,764				127,264
1,001-1,500	80	0	0	0	0	49,547	44,654	94,201	94,201	0	0	0	0	40,000	40,000	14,201			94,201
1,501-2,000	45	0	0	0	0	44,031	40,895	84,926	84,926	0	0	0	0	22,500	22,500	22,500	17,426		84,926
> 2,000	50	0	0	0	0	70,329	66,168	136,497	136,497	0	0	0	0	25,000	25,000	25,000	36,497		136,497
All schools	755	155	3	5	146	279,552	248,648	528,200	500,093	28,107	1,027	2,360	24,720	266,312	121,264	61,701	42,426	36,497	528,200

Table 19 (continued)

(1)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)
	Weighted students (> 2,000 students = 1)						Wfted students (primary = 1)			Weighted students (public school = 100%, private schools as shown below according to establishment year)				
School size	0-500	501-1,000	1,001-1,500	1,501-2,000	2,000+	Total	% primary	% secondary	Weighted students	Percent of all GSE students in private schools established in 2015	Percent of all GSE students in private schools established in 2014	Percent of all GSE students in private schools established before 2014	2015	100%
	1.79	1.43	1.21	1.07	1.00								Before 2014	90%
< 500	152,343	0	0	0	0	152,343	55%	45%	183,192	0.6%	1.2%	22.3%	34,677	
501-1,000	166,964	48,234	0	0	0	215,199	54%	46%	259,745	0.4%	1.1%	4.5%	257,549	
1,001-1,500	71,429	57,143	17,244	0	0	145,816	53%	47%	176,920	0.0%	0%	0.0%	176,920	
1,501-2,000	40,179	32,143	27,321	18,671	0	118,314	52%	48%	143,951	0.0%	0%	0%	143,951	
> 2,000	44,643	35,714	30,357	26,786	36,497	173,997	52%	48%	211,953	0.0%	0%	0%	211,953	
All schools	475,557	173,234	74,923	45,456	36,497	805,668	53%	47%	975,760	0.2%	0.4%	4.7%	825,049	

= label or computed cell

= formula parameter (to be decided by MECS and adjusted periodically based on new surveys of schools and experience with the funding formula over time)

= data for all public schools (to be entered by FID based on BDB data received each September from the schools)

63. *Table 20* shows the calculation of allocation units for twelve hypothetical schools, seven public and four private. School #604 is a private school established in 2014. Assuming that the new funding formula will have been introduced in FY2013 and that we are deciding on school budgets for FY2015, this will be the second year of funding from the government budget for School #604, which means that it will receive 90 percent as much from Budget Funds 1 and 2 as a comparable public school. School #5 happens to be a comparable public school, having the same enrollment (375) and the same mix of primary and secondary level students (375 and 0) as School #604, so the comparison can be seen in the table. School #5, the public school, qualifies for 670 allocation units, and School #605 qualifies for 603, which is 90 percent of 670.

Table 20: Examples of how to enter data to compute salary and OVC allocations for individual government and private schools

(1)	(2)	(3)	(4)				(5)			(6)			(7)			(8)							(25)
			School name	Public or private	School #	Year in which school opened	Number of students (head count)			Percent sec.	Unweighted number of students in first, second, third and fourth 500 in schools and those above 2,000			Weighted students (> 2,000 students = 1)				Total	Of which:		Weighted students (primary = 1)	Weighted students (public = 100%)	
Prim.	Sec.	Total					0-500	501-1,000	1,001-1,500		1,501-2,000	2,000+	Total	0-500	501-1,000	1,001-1,500	1,501-2,000		2,000+	Prim.			Sec.
Schl #1	Pub.	NA	3,135	3,445	6,580	52%	500	500	500	500	4,580	6,580	7,330	3,492	3,838	9,057	100%	9,057					
Schl #2	Pub.	NA	1,216	1,084	2,300	47%	500	500	500	300	2,300	3,050	1,613	1,437	3,697	100%	3,697						
Schl #3	Pub.	NA	975	795	1,770	45%	500	500	270	0	1,770	893	2,504	1,379	1,124	3,010	100%	3,010					
Schl #4	Pub.	NA	725	625	1,350	46%	500	350	0	0	1,350	893	2,032	1,091	941	2,456	100%	2,456					
Schl #5	Pub.	NA	375	0	375	0%	375	0	0	0	375	670	670	0	0	670	100%	670					
Schl #6	Pub.	NA	240	360	600	60%	500	100	0	0	600	893	1,036	414	621	1,315	100%	1,315					
Schl #7	Pub.	NA	44	0	44	0%	44	0	0	0	44	79	79	0	0	79	100%	79					
Schl #601	Priv.	1995	368	412	780	53%	500	280	0	0	780	893	1,293	610	683	1,600	80%	1,280					
Schl #602	Priv.	2001	210	185	395	47%	395	0	0	0	395	705	705	375	330	854	80%	683					
Schl #603	Priv.	2013	253	101	354	29%	354	0	0	0	354	632	632	452	180	713	80%	571					
Schl #604	Priv.	2014	375	0	375	0%	375	0	0	0	375	670	670	670	0	670	90%	603					
Schl #605	Priv.	2015	75	0	75	0%	75	0	0	0	75	134	134	134	0	134	100%	134					
All schools	NA	NA	279,552	248,648	528,200	47%	266,312	121,264	61,701	42,426	36,497	528,200	475,557	173,234	74,923	45,456	36,497	805,668	426,403	379,265	975,760	825,049	

= label or computed cell

= formula parameter (as decided by MECS)

= data for individual school (as provided by school in completing BDB forms each September and checked by local education authorities)

XII. Financing of CIE bilingual schools

64. In 2011, GoM signed a Memorandum of Understanding (MOU) with Cambridge International Examinations (CIE),¹⁹ under which CIE will assist MECS over a ten-year period to transform Mongolia's education system into an "inclusive, high-quality and globally competitive education system." The objectives of the reform are (1) to "align the qualifications, standards and curriculum of GSE with those of CIE," while taking into account the unique characteristics and culture of Mongolia, and (2) to establish a small number of public secondary schools across the entire country that will provide Mongolian and English bilingual instruction, to prepare students to sit for the internationally recognized CIE examinations (in particular the International General Certificate of Secondary Education (IGCSE) and the International A-Level Certificate) in English, and to serve as "centers of excellence," laying the foundations for the further, system-wide development of an internationally competitive and bilingual curriculum for all of GSE.

65. In July of 2011, the author of this report participated in a "Rapid Assessment" of the planned CIE reform fielded by MECS and ADB.²⁰ At the time, one bilingual school, the New Era School in UB, was operating, having admitted its first group of students in September 2010.²¹ Another two such schools opened in September 2011. All of the first three bilingual schools are in UB. At the time of the Rapid Assessment in 2011, the Primary and Secondary Education Department (PSED) of MECS was planning to open 12 additional bilingual schools in 2013 and another 15 in 2014, making for a total of 30 – one in each of Mongolia's 21 aimags and UB's nine departments,²² an ambitious timetable in light of the requirements for new civil works and, in particular, the successful recruitment of bilingual teachers qualified to teach secondary school subjects in English. When the 30 (or 31) bilingual schools become "fully operational" (that is, when all of them have students enrolled in all secondary-education grades, from VI to XII, a target to be reached in 2017 according to PSED's timetable), 8,400 (or 8,680) students will be enrolled in them.

66. The Rapid Assessment Team estimated that, once the bilingual schools become fully operational, they will have unit costs 2.6 times higher than the average unit cost (expenditure per student) in the GSE system as a whole owing to higher staff–

¹⁹ CIE is based in Cambridge, England. It was established originally as a department of the University of Cambridge, and while still loosely affiliated with the University today, it is a separate, for-profit company.

²⁰ T. Read, P. Mook, N. Batchimeg, T. Bolormaa and T. Burmaa, "Mongolia Standards, Curriculum and Assessment Reform: Draft Rapid Assessment Report," August 2011 (revised April 2012).

²¹ The New Era School is attached to an existing government school, School # 115, and the plan is for each of the bilingual schools to be hosted by an existing Mongolian-language school. One reason is to reduce the need for new civil works, but the Mongolian-language schools will also operate as "laboratory schools," where the new Mongolian language standards, curricula, examinations and textbooks can be piloted and where some of the in-service training of Mongolian language teachers can be based.

²² When the author was next in Mongolia, in April 2012, he learned that the planned number of Bilingual Schools in UB has grown from 9 to 10, increasing the total of Bilingual Schools in the whole country to 31.

student and teacher–student ratios, higher average salaries for staff, and also higher non–salary costs, reflecting better and more generous allocations of equipment and teaching materials.²³ Allocations according to the per–student funding formula will not be enough to cover these higher unit costs (even though all students in the bilingual schools will be secondary–level students and, therefore, receiving allocations 45 percent higher than students at the primary level). In order to finance the higher costs of the bilingual schools, and assuming that study in them, as in the rest of Mongolia’s GSE system, will be tuition–free, Government will need to provide *additional funding over and above the levels determined by the funding formula*.

67. This raises a question of equity or “fairness.” Students in government GSE schools currently number about 500,000. The 30 (or 31) bilingual schools, when fully operational, will enroll only 8,400 (or 8,680) students, or about 2 percent of the total. Students who pass through the bilingual schools should be at a distinct advantage in the future as compared with other GSE school leavers when it comes to opportunities for further study and access to good, high–paying jobs. Should these students, or their families, not be asked to share in some of the higher costs of high–quality bilingual education? Even if students were recruited on a random basis to fill the limited number of places in the bilingual schools, it could be argued that, in light of the golden opportunity afforded them, selected students should be asked to pay (or pay back later) a share of the costs.

68. Students will *not*, however, be recruited randomly. They will be selected according to examination results. Except for the few students being recruited directly into Grade IX in the first few years of the New Era School, English language will not be an admission criterion for admission into the bilingual schools. Even, however, on exams that test “general knowledge” (mathematics, science, Mongolian language, social studies, etc.), there is little doubt that students who perform highest on these exams do not tend to come from poor homes or isolated rural homes lacking in a strong reading culture. Selection will be biased in favor of students from wealthier families and students from homes in urban areas (including the aimag centers), and it will be biased against students from poor, rural, and nomadic families.

69. If the quality of the bilingual schools is perceived to be good, then many families should be willing to share in the high costs of this education. Already, families pay extremely high amounts to send their children to private schools, including Orchlon (the only private school in Mongolia now preparing students for the CIE exams) and the International School. Annual fees in these two schools range from a low of about USD 7,000 (Orchlon, for the lower grades) to a high of about USD 25,000 (the International School). Some families pay even more to send their children to schools overseas. On

²³ Read, Moock et al., *op cit*, pp. 52–54.

the other hand, the Government says now that tuition fees in the bilingual schools will be zero (although students may be asked to contribute toward the costs of textbooks and examination fees).

70. This can be justified perhaps by the fact that the bilingual schools are being opened as “government schools,” and there are laws that prohibit students in government GSE schools from having to pay tuition fees. Laws can be changed, however. Already, the Government has approved (in principle) two special bonuses for staff working in the bilingual schools, and legal work is underway to re-categorize the bilingual schools so that they will not be subject to the same limited allocations for salaries and OVCs that ordinary schools receive under the current per student funding formula and normative means. Under these circumstances the bilingual schools could be labeled as something else (“semi-private schools” or “public-private partnership schools”) and then be permitted to charge fees.

71. The leadership of MECS has rightly observed that some bright students from poor homes may, in fact, be selected into the bilingual schools (against all odds) and that the existence of fees might mean that these students would be unable to attend. Mongolia has a functioning State Training Fund, however, established to provide needs-based (as well as merit-based) scholarship support for students in higher education and TVET institutions who cannot afford the fees charged at the tertiary level. The same body could be used to help finance bright-but-poor students lucky enough to be selected into fee-paying bilingual schools.

72. In light of the above reasoning, the author of this report recommends that the 30 (or 31) bilingual schools receive *government funding according to the per-student formula in the same way and at the same levels as all other public GSE schools and that any funding short-fall be made up by the charging of fees*. There is no reason for MECS to consider tuition fees for the bilingual schools as high as those charged by Orchlön (between USD 7,000 and USD 10,000) or even by the cheapest of private schools in Mongolia. In any case, this would be difficult to do now, in the first few years of the program and before the reputations of the bilingual schools have been established.²⁴ Still, it is recommended that the principle of charging fees for a child studying in any of the 30 (or 31) new “centers of excellence” be seriously considered by GoM as soon as possible, bearing in mind the enormous advantages that will be conferred on students in bilingual schools compared to students in regular GSE schools. It will be more difficult to introduce fees later, after more of the first cohorts of students have been asked to pay nothing at all.

²⁴ It may also pose a political risk in 2012 and 2013, which are years in which national elections are being held.

XIII. Summary

73. Mongolia's per student funding formula for allocating funds to general secondary education (GSE) schools operates currently as follows:

- Only **teachers' salaries and "other variable costs"** (OVCs) are covered by the per student funding formula.
- All other costs incurred by schools are budgeted differently:
 - o **"Fixed Costs"** (which, for schools, include heat, electricity, water and sewage, and transportation): FC budgets are negotiated between the schools and the local education authorities (Education and Culture Departments (ECDs) in the aimags and City Education Departments in UB) and are essentially incremental in nature.
 - o **Non-teaching staff salaries:** Since 2007, budgets for non-teaching staff have been determined in much the same way as those for fixed costs. Once another non-teaching staff person is hired by a school, that position becomes an obligation of the school and of the Government that must be met (at least until the position becomes vacant owing to the retirement, voluntary transfer or death of the incumbent).
 - o **The School Tea Program:** This program provides a "snack" to every primary school student in attendance on any given day. In this sense, it is "formula driven," but a school's allocation depends on attendance days and not on enrollment. The current allocation is MNT 400 per student attendance day. In FY2010, the Tea Program accounted for 1.9 percent of government recurrent spending on GSE, which was about one-fifth as much as Government spent on OVCs.
 - o **Other subsidies and transfers,** such as the pensions of retired staff. While this allocation appears in a school's annual budget, it is an obligation of Government and, in no way, affects the school's current delivery of education services.
 - o **Textbooks:** Books are provided to schools in kind and do not show in a school's annual budget.
- A school's **entitlement for teachers' salaries and OVCs depends on the numbers of primary, lower-secondary and upper-secondary students and differs according to the school's location (bagh, soum-center, aimag-center or city) and school type (primary education only, basic education only, or "full secondary").** The "normative means" are updated every year and announced in a government resolution that Parliament passes, usually in the second half of the year preceding the year in which the new means apply, but most often later than July (the month in which schools are expected

to submit their budget proposals for the coming fiscal year) and sometimes, as in FY2012, not until after the start of the new fiscal year, making it difficult for schools and education authorities to plan.

- In recent years, the normative means for teachers' salaries have risen by a lot, as they had to do in order to keep pace with government-wide increases in the salaries for all civil servants, whereas the normative means for OVCs have risen little (if at all) in nominal terms and have fallen in real terms. **The current "mix" of teachers and non-salary inputs in the production of education services resulting from these changes is almost certainly "sub-optimal."** In other words, within the current level of total spending, the learning outcomes of Mongolian students could be increased by spending more on OVCs and less on teachers (and other staff).
- A per student funding formula allocates more money to any school which (other things being the same) enrolls more students than another school. However, Mongolia's **current funding formula assumes a linear relationship between unit costs and school size.** In other words, the additional allocation (for teachers' salaries or for OVCs) is the same for every additional student. The additional allocation should, in fact, be more for the first student and less for each additional student, at least up to some point (perhaps 2,000 students in Mongolia), beyond which "economies of scale" are largely exhausted and assuming a linear relationship then becomes reasonable.
- The current **funding formula does not consider certain student factors and school-level factors** that are outside a school's control and **that can be expected to raise the costs of providing education of any given level of quality or ensuring an equal chance of "success"** (high academic achievement, completion of secondary education, entry to tertiary education and adequate lifetime income) for all students (whether rich or poor, whether living in UB or the countryside, and whether (for those in UB) attending school in the central city or the outskirts or (for those outside UB) in an aimag center, a soum center or a remote bagh).

74. A per student funding formula can be judged successful by the extent to which it allocates funds to schools in a manner that is **efficient** (not wasteful), **equitable** (ensuring equal levels of school inputs for all students) and, ideally as well, **compensatory** (ensuring an equal chance of "success" for all students. A good formula for Mongolia's GSE system needs to take into account how schools differ in at least five important ways:

1. School size

- *Indicator: Enrollment*
- *Rationale: All else equal, smaller schools are more expensive to operate than larger schools (on a per student basis)*

2. Levels of education offered

- *Indicator: The mix between primary and secondary students*
- *Rationale: Secondary education is more expensive than primary because of teacher specialization and smaller classes*

3. Students living in dormitories

- *Rationale*
 - o *This is an added cost, unrelated to a school's primary purpose, which is student learning*
 - o *Schools in Mongolia differ as to whether or not they include dormitories and, for those that do, how many students are thus accommodated*

4. School characteristics that are outside a school's control and that raise unit costs, including:

a) Remoteness

- *Indicator: Distance and condition of roads:*
 - o *Between school and aimag center, and*
 - o *Between aimag center and UB*
- *Rationale: This affects the prices of inputs faced by a school, including the willingness of teachers and other staff to work there*

b) Access to centrally provided utilities

- *Indicator: Whether or not a school is "on the grid"*
- *Rationale: Primarily for consideration in negotiating a school's "fixed cost" allocation, but it may also affect the willingness of teaching and non-teaching staff to work in the school and also the performance of students (if, for example, schools "off the grid" tend to be colder during winter months and have less light at night to enable students to study and do their "homework")*

5. Student characteristics that can raise the cost of teaching students so as to equalize their chances of success, including:

a) Physical and mental handicaps

b) Language spoken at home as a student's mother tongue

c) Socio-economic status of the community

75. The current funding formula takes into account 1, 2, 3 and 5a, but 4a, 4b, 5b and 5c are not explicitly considered. The new funding arrangement recommended in this report takes all of these factors into account and includes other significant changes:

- A school's allocation under the formula for salaries will cover **all salaries and not just teachers' salaries**
- The **allocations for OVCs will be increased** relative to the allocations for salaries, from approximately 1:4 to 1:8
- The **distinction between lower secondary and upper secondary students will be dropped**, and the only differences by level of education will be between primary and secondary (lower and upper secondary combined)
- The funds available in **MECS's budget for GSE in any year will be divided into five "water-tight" compartments in the following proportions:**

o Fund 1: Salaries	58%
o Fund 2: OVCs	14%
o Fund 3: Dormitories	10%
o Fund 4: School characteristics	9%
o Fund 5: Student characteristics	9%
- **Each fund will be allocated to GSE schools by a formula**
- The **formulae for Funds 1–3 will take into account "economies of scale"** in the production of education and dormitory services. Students in each school will be divided into five groups: the first 500, the second 500, the third 500, the fourth 500, and all those above 2,000. Similarly, dormitory residents in any school will be divided into four groups: the first 50, the second 50, the third 50, and all those above 150. Students in the fifth group and dormitory students in the fourth group will each be given a weight of 1.0, and those in the preceding groups will be given higher weights.
- Similarly, the formula used to allocate Funds 1 and 2 will **differentiate between primary level and secondary level students**. The former will be given a weight of 1.0, and the latter a higher weight.
- The formula for Funds 1 and 2 will also **differentiate between government (public) schools and private schools**. Public schools will be given a weight of 100 percent, whereas **private schools will be given weights set at 100 percent initially** (in the year that the new funding arrangements are introduced or, for schools opened after that, in the year that they first admit students) **but declining by 10 percentage point every year** until the allocations disappear altogether.
- Initial values for all parameters of the formulae are proposed in this report, but it is expected that the **values of parameters will be adjusted over time**

as MECS gains experience with the new funding arrangements and also as economic and social (and perhaps political) conditions in Mongolia change.

- The **allocations derived from the fourth and fifth funds** (school and student characteristics) **will be added to a school's allocations from the first and second funds** (salaries and OVCs) in the same proportions (58:14, which is about 4:1).
- Under the new funding arrangements, **schools will be given considerable discretion as to how funds are allocated across individual budget lines within the schools' overall allocations for salaries and OVCs. School managers will submit budget proposals that reflect their schools' needs.** The budgets that they get will reflect closely the proposals they submit. **Schools will then be held accountable, however, for executing their budgets as proposed and approved.** They will need to get permission from the local education authorities (Aimag ECDs and City Education Offices) for virements that exceed certain percentage thresholds. Importantly, once they know their budgets, schools will be expected to live within their means. Requests for supplemental allocations will be granted only in exceptional cases.
 - Under the new funding arrangements, there will **necessarily be "winners" and "losers"** – schools whose allocations will be higher and lower than what they were getting and would have continued to get under the current system of normative means. **To help "losers" to adjust** to reduced salary levels that necessitate smaller numbers of teaching and non-teaching staff, **it may be necessary for implementation of the new system to be phased in over a few years.**

76. In addition to making the allocations of government funds to GSE schools more efficient and equitable, the new funding arrangements will offer the **advantage of relative simplicity**. This will enable schools and local education authorities to predict their future budgets sooner and more accurately as is essential for meaningful education planning. It will also relieve the Finance and Investment Department (FID) of MECS from the onerous task of trying to price inputs for different locations and different school types in order to recommend annual revisions in the "normative means." The **only data needed to allocate funds to GSE schools for salaries and OVCs** (which together account for over three-quarters of the budgets that schools receive) **according to the new formula will be estimates of the following:**

- The **"next year's" budget for GSE schools** after holding back enough money to cover textbooks, the Tea Program, and other subsidies and transfers (about one-quarter of the budgets that schools receive), and
- **For each school in the GSE system**, the following information and estimates:

- o **Name of the school**
- o **City district or rural soum** in which the school is located, **and (from poverty mapping that has been done) a measure of the poverty headcount** of that district or soum (as a percentage of the population)
- o Projections of the school's **enrollments at two levels:**
 - **Primary**, and
 - **Secondary**
- o A projection of the number of **students with a certified mental or physical handicap** (and the number of students with more than one handicap)
- o A projection of the number of **students from homes in which Mongolian or English is not the first language spoken**
- o A projection of the **number of dormitory residents**
- o The **time needed to drive between the school and the aimag center or, if a UB school, the city center** (in good weather, not counting stops)
- o The **time needed to drive from the aimag center to UB** (for schools outside UB only)
- o **Whether or not the school is “on the grid”** and has access to centrally provided services for:
 - **Heat**
 - **Electricity**
 - **Water**, and
 - **Sewage**
- o Whether the school is **public or private**
- o If private, the **year in which the school was established**

77. Whereas private schools will be gradually “weaned” from the government budget, the 30 or 31 schools now being introduced as **bilingual schools preparing students for Cambridge International Examinations (CIE) qualifications will receive the same levels of funding as other public schools.** To the extent, however, that allocations under the new funding arrangements will not cover the higher costs of education in the bilingual schools, the difference will be made up by the charging of fees. Students from poor homes who manage to gain admission into the bilingual schools will be offered scholarships from the State Training Fund.