NORM-BASED PROVINCIAL BUDGET ALLOCATIONS FOR EDUCATION IN AFGHANISTAN:

TECHNICAL GUIDANCE FOR AGREEING A NORM-BASED APPROACH FOR 1390

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Contents:

1. Background and Introduction

This note provides technical analysis and background on the provincial budget allocations for general education for 1389 and 1390. It briefly describes the current practice for allocating provincial budget allocations for general education; conducts an analysis of the resulting allocations; discusses options for output-based budget norms within the education sector; and considers – in a preliminary manner – the distributive impact of introducing output-based budget norms. It also outlines steps required to implement this change for the current budget cycle.

The Government of Afghanistan is seeking to improve the allocation of its budget resources through the introduction of several budget process reforms. These reforms include linking the budget to ANDS policy objectives; the deepening of program-based budgeting in the budget formulation process; and the introduction of provincial-based budget reforms. These reforms should be seen as an integrated improvement in the budget formulation process, rather than three separate reform agendas.

In order to ensure that public services are financed in a transparent, equitable, efficient and policy-driven manner, the budget process should make sure that the country's financial resources are appropriately allocated among and within the country's 34 provinces. The first step to achieving an effective intergovernmental or subnational budget allocation is to establish an objective norm-based method for

determining provincial resource allocations. Although certain types of budget norms are currently already being used in the preparation of the national budget, these norms are largely input-based norms: the current budget norms merely quantify the cost of existing or desired inputs across provinces, without considering the link between the inputs being provided to each province and the sectoral outputs and outcomes being pursued. It is generally agreed that the allocation of budget resources across provinces should be based on client-based, output-oriented norms, which would allocate budget resources in accordance with provincial needs and which would therefore result in improved and more equitable access to public services across the country.

As part of an ongoing engagement with the Government of Afghanistan on subnational finance issues, the World Bank has been providing technical support to the Ministry of Finance and other selected stakeholders in the development and implementation of budget norms. The intention of the next step in this process of engagement is to ensure that the provincial budgetary resources for General and Islamic Education as well as other agreed programs within the Ministry of Education are allocated in accordance with sound budget norms in 1390.

2. Overview of provincial education expenditures in Afghanistan

Unlike in countries that have a devolved budget structure in which provinces have their own budgets, all public education expenditures in Afghanistan are planned and budgeted within Afghanistan's national budget. This makes it somewhat more difficult to determine the provincial share of different education programs.[1] In the context of Afghanistan's budget, the "provincial share" of a program's resources does not necessarily include only those financial resources that are contained within the provincial budget line for the program and that flow to provincial level through the provincial treasury. While this is sometimes the case (e.g., in the case of teacher salaries), in other cases, the 'provincial' spending for a program actually takes place at the central level on behalf of the province, although the benefits of such spending are (either directly or indirectly) directed to the provincial level. For instance, the centrally-funded and procured construction of classrooms in the provinces, as well as the centralized procurement of text books both fall in the latter category.

To the extent that provincial treasuries are relied on to finance provincial education expenditures, it is relatively easy to use budget and treasury data to determine the vertical and horizontal allocation of resources.[2] For instance, out of the US$ 237 million that was budgeted for general education salaries and wages in 1388, US$ 197 million (or 83 percent) was allocated to the provincial level. Similarly, 75 percent of the on-budget resources for general education goods and services (US$ 5.4 million out of US$ 7.1 million) was allocated in the national budget for the provincial level.

It is more difficult to determine the vertical allocation of development expenditures, particularly to the extent that provincial goods and services (or infrastructure) are

[1] For a more complete discussion, see World Bank, Intergovernmental Fiscal Relations And Subnational Expenditures In Afghanistan, August 2008.

[2] The 'vertical' allocation of resources signifies the division of resources between different government levels or administrative tiers. The 'horizontal' allocation of resources denotes the distribution of resources between different subnational jurisdictions at the same government level or tier.

procured centrally and provided to the provincial level in-kind. The Ministry of Education and the World Bank are currently preparing a 'public expenditure tracking study' (PETS) to analyze the degree to which centrally procured items effectively reach the provincial level, as well as track execution issues in provincial allotments in the ordinary budget.

2.1 Overview of provincial resources for General and Islamic Education, 1389

Table 1 presents an overview of the resources currently budgeted for General and Islamic Education in Afghanistan for use at the provincial level for 1389. The table combines resources that are provided through the ordinary (recurrent) budget, as well as resources that are provided to the provincial level through the development budget. Development expenditures include both discretionary expenditures (development spending fully under the control of the Government) as well as non-discretionary expenditures (development spending which is earmarked for specific development activities).

Table 1
Planned Provincial Expenditures for General and Islamic Education, 1389

	Budgeted expenditure for 1389 (US$ mln)	**Percent of budget total**
1. Wage expenditures (21)	281.54	73.29
2. Goods and Services (22)	39.41	10.26
3. Assets (25)	2.00	0.52
4. School books (DANIDA)	9.00	2.34
5. Educ. quality enhancement grant *	12.90	3.36
6. Infrastructure expenditures	36.50	9.50
7. Other expenditures	2.81	0.73
Total	371.27	100.00

*: This includes US$ 6.6 million carried forward and US$ 6.3 million new budget..

Of the categories presented in the table, rows 1, 2 and 3 reflect ordinary budget expenditures from government resources, following the regular budget classification system. In contrast, rows 4-7 reflect projectized – often non-discretionary – development expenditures. For instance, infrastructure expenditures reflect both EQUIP (Education Quality Improvement Program) classroom construction expenditures, as well as DANIDA-funded provincial education warehouse facilities. Other education expenditures include planned provincial spending from various donor-funded programs, including funding provided by UNESCO, DANIDA, and the provincial component of the EQUIP education management grant.[3]

[3] An argument could be made that certain provincial education expenditures that are currently classified as development expenditures (such as school books, or education management expenditures) should properly be classified as recurrent expenditures.

2.2 Current approach to horizontal allocation of provincial expenditures

Substantial attention has been paid in recent years to the horizontal allocation of public resources in Afghanistan, as previous analyses uncovered substantial variations in provincial resource allocations. For instance, in 1386, Nimroz Province received a budget allocation for goods and services of almost Afs. 500 per student, whereas Herat received less than Afs. 40 per student for the same purpose.[4] Such a large disparity raises a concern that education resources may not be distributed across provinces in a fair and efficient manner, especially if the provincial allocations are made in a discretionary way.

In February 2010 a collaborative review conducted by the World Bank with the Ministry of Education of budgetary practices for 1389 established that the distribution of general education resources across the 34 provincial education departments (plus the education department for Kabul City) occurred in a norm-based manner. However, it was also noted that norms are applied by the Ministry of Education in an input-based and fragmented way. This approach results in a number of problems.

First, as different input-based norms were applied for each relevant object code, 12 different norms were used to distribute wage and salaries expenditures across provinces (for each minor object within Major object code 21), while 16 different norms were used to distribute the modest total expenditures for goods and services across provinces (Major object code 22). As such, within goods and services expenditures, different types of budget norms were used for distributing travel allowances, fuel expenditures, furniture, postage, and so on. As a result, many of the norms were used to distribute small sums of money, using up valuable time and energy in the budget formulation process and isolating these sums from other aspects of the budget. For instance, resources for postage were distributed using a detailed norm, separate from other goods and services expenditures, resulting in each province receiving and earmarked amount for postage expenditures which -on average- amounts to less than $2000 per province.

Second, this fragmented approach results in an over-earmarking of budget resources. The current budget process presumes that the central line ministry is in a position to determine spending priorities across budget objects for each of the 34 provincial line departments, and indirectly, over 300 district line departments. In reality, as part of the current budget formulation process, the central line ministry is not in a position to determine whether a province or district has a greater need for travel allowance or postage. As such, the application of such detailed norms provides a false sense of accuracy of what provincial needs really are, and reduces the scope for increased provincial level input into resource allocation now or in the future.

The fragmentation of budget allocation could be alleviated by determining the provincial division of education resources in a simpler, more transparent manner based on client-based or output-based norms. For instance, rather than applying 16 separate norms for each individual component of recurrent non-wage spending, it

[4] It should be noted that such comparisons are complicated by the accuracy of demographic data and enrolment statistics.

might be possible to apply one single norm to all spending that falls under budget code 22. This proposed solution is discussed in greater detail in the next section of the report.

Third, a major concern with the current norms is the fact that they are input-driven. Although provincial budget allocations are made in a seemingly objective manner (rather than in a discretionary or *ad hoc* manner), the base for these norms may still be discretionary. For instance, if wage expenditures are determined in proportion to the existing number of school teachers in each province, but the number of teachers was determined in a discretionary manner, the resulting allocation of wage resources may be highly inequitable and inefficient. At times later adjustments in the norm used in response to resource constraints revealed during the budget process may also introduce an *ad hoc* element to the determination of the norms used.

Furthermore, as a result of the fragmented and centralized nature of the budget norms as currently used, as well as due to a current budget formulation process which does not treat provincial expenditures any differently from central expenditures, a perception may arise that provincial expenditures are allocated in an inequitable, inefficient and discretionary manner. In fact, provincial officials may view that central government officials are blocking the provision of adequate resources to the provincial level. From a provincial perspective, one might question why only US$ 7.1 million in expenditures is budgeted for general education goods and services, and why 25 percent of these resources are used at the central administration level, providing merely one dollar per student to the provincial level for this purpose. Although the scarcity of resources is a fundamental problem in the public sector, a more objective, transparent, and output-based provincial distribution of education resources should be an important element to improve the allocation of public resources in support of improved service delivery, poverty reduction, and strengthening the responsiveness of the public sector to the people's needs.

2.3 Budget execution of provincial expenditures

One could argue that any reform that reduces the level of detail and "accuracy" in the budget formulation process would be inferior to any approach that provides greater accuracy. However, such a view is not applicable to the realities of Afghanistan's budget environment. Instead, one could argue that a simpler, less detailed norm-based approach – using fewer norms – would enhance the transparency and predictability of the budget formulation process in Afghanistan.

For context, Table 2 provides an overview of provincial budget execution for 1388 (up to February 16, 2010). These rates reflect the execution of expenditures passing through the provincial mustoufiats, and exclude budget items procured and executed through the central treasury on the provinces' behalf (e.g., capital expenditures). Whereas the average provincial budget execution rate is relatively high – and not dissimilar to the central budget execution rate – there are relatively substantial variations at the provincial level in budget performance. As such, excessive emphasis on achieving a highly detailed and "optimal" provincial distribution of budget allocations creates rigidity and is weakened by variations in budget execution practices across provinces, meaning that the detailed budgeted amounts do not correspond consistently with the amounts actually available or spent. The implication

of this tentative analysis is that – rather than seeking to micro-manage provincial expenditures during the budget formulation process – it may be more effective to focus on broader categories of norm-based provincial allocations during the budget formulation process while giving provincial officials additional discretion in using these resources so that flexibility may allow execution to be improved. This is indeed one of the objectives of provincial budgeting reforms already under pilot.

Table 2
Provincial Budget Execution for General Education
Budget Execution Ratio, YTD 1388

	Wages and Salaries (Code 21)	Goods and Services (Code 22)
Average	92.6	74.9
Minimum	65.5	16.5
Maximum	100.0	100.0
Note: Budget execution data up to February 16, 2010		

3. Proposed features of provincial allocation norms for Afghanistan

In ongoing discussions between the Ministry of Finance, the World Bank, and other stakeholders, a clear consensus has emerged that the allocation of provincial expenditures based on the current set of detailed input-based norms should be replaced with an allocation process that relies on client-based, output-oriented norms, which more closely ties the allocation of budget resources to the objectives that the government is trying to pursue, and reduces the fragmentation of norms applied.[5] This proposed approach is consistent with sound public finance management concepts as well as with international best practices.

3.1 General features of sound norm-based budget allocations

International practices suggest that there are four main approaches to determining expenditure needs – hence resource allocations – within sectors and across subnational jurisdictions, including (1) Discretionary or *ad hoc* determination of expenditure needs; (2) determining expenditure needs based on the amount and location of existing inputs; (3) determining subnational expenditure needs based on desirable (yet unaffordable) service delivery standards; and (4) determining expenditure needs based on affordable demand-driven financial norms.

The most comprehensive review to date on the use of budgetary norms is possibly provided by James Alm and Jorge Martinez-Vazquez (2002).[6] Alm and Martinez argue that while budgetary norms are not necessary for the proper functioning of the budget process at the national or sublevels, nonetheless, many countries use some sort of budgetary standard for budget formulation. The review goes on to point out that

[5] See "Workshop Report: Workshop on Provincial Resource Allocations: Improving Provincial Resource Allocation Norms for General Education" (Kabul: 17-18 February 2010).
[6] James Alm, Jorge Martinez-Vazquez, "On the use of budgetary norms as a tool for fiscal management", Public Finance and Management, Summer, 2002.

these norms can vary from the very informal and loose to the highly formal and precise. The use of budgetary norms can be helpful, for example, by allowing more transparency in the budget, although the exact nature of the budgetary norms is also critical in achieving an efficient and equitable allocation of resources.

Alm and Martinez observe that the broad trend across almost all countries is for budget procedures and controls to become less complex, and this tendency is observed throughout the budget formulation process, including the assessment of subnational expenditure needs. Indeed, perhaps the major trend is to use simpler methods of determining expenditure needs where rules are clear for every component of the budget and for all participants in the budget process. The consensus also appears to be that traditional budget processes should place a greater emphasis on the outcomes achieved by government spending units and the evaluation of managers and personnel according to these outcomes rather than controlling *ex ante* expenditure control, and that norm-based expenditure needs assessment can help in this process. This is the distinction between input-based and outcome- or results-based budgeting, and is consistent with Afghanistan's overall budget process reform approach described in the opening of this report.

International experiences identify input-based budget norms as problematic for a number of reasons. First, the approach presumes that subnational inputs (such as subnational public servants and infrastructure) are already distributed across subnational jurisdictions in a fair and equitable manner, which is typically not the case. Second, costing out a series of desirable input-based expenditure norms typically results in a resource requirement that exceeds available budget resources. When available budget resources fall short of some normative level of need, subnational budgets are often reduced in an arbitrary or discretionary manner. Finally, negative incentives may be associated with the use of input-based subnational budget norms, for example by encouraging inefficient mixes of inputs to secure additional budget resources.

In contrast, there are a number of advantages to determining subnational resource distributions using client-focused or output-based budget norms (or formula-based allocations in the context of devolved public sector budgets). First, this type of norm-based approach intends to determine the relative distribution of available resources, so that the available pool of resources is distributed in proportion each jurisdiction's relative need, as determined by the number of clients in each jurisdiction as well as by cost variations in serving clients in different areas. Using the pool of available resources resolves the affordability problem. Second, the approach establishes a direct link in the funding formula between the budget allocation and the public service that is to be funded, rather than relying on intermediary inputs as a measure of need. Third, if the measures of subnational expenditure need are properly chosen, this approach avoids the incentive-problems typically associated with input-driven budget norms.

Central line ministry officials have many choices on how to structure budget norms or intergovernmental transfer formulas. However, independently of the final structure of

the norm-based approach or allocation formula, Martinez-Vazquez and Boex suggest that all subnational allocation mechanisms should obey several principles: [7]

- First, the budget norms or horizontal allocation approach should provide a source of adequate resources to subnational jurisdictions for the functions assigned to them.
- Second, the norm-based allocation approach should support a fair allocation of resources by providing more resources to subnational jurisdictions with greater fiscal needs, in terms of clients and the cost of service delivery (and lower tax capacity, if local revenue is relevant – not currently the case in Afghanistan).
- Third, norm-based budget allocation should be provided in a predictable manner. The approach should be stable over a period of years to promote resource predictability and overall budget certainty.
- Fourth, norm-based allocation should be, to the extent possible, simple and transparent. The budget norms should also be understandable to all stakeholders, in particular subnational officials as well as (national and subnational) legislators, and not be subject to political manipulation or negotiation.
- Fifth, the norm-based approach should not induce inefficient expenditure choices by subnational jurisdictions, nor should they create negative incentives for revenue mobilization (to the extent that subnational jurisdictions have revenue-raising authority).
- Sixth, the norm-based allocations funds should be provided in a way that balances national priorities and local discretion.
- Seventh, during the introduction of the new allocation approach, the system should avoid sudden large changes in funding for subnational jurisdictions. Changes in the existing formula should strive to hold local government "harmless" by not abruptly causing some jurisdictions to become worse off.

Likewise, the literature suggests that there are a number of desirable characteristics for the variables or data to be used as allocation factors. For instance, the variables used in the computation of budget norms should:

- Reflect needs or demands for public goods (for example, the number of clients or variations in the cost of providing public services) rather than inputs such as infrastructure.
- Accurately reflect the specific expenditure need (they should be statistically sound).
- Be regularly updated in the future (preferably every year or every two years; ten years).
- Come from an independent source respected by all stakeholders.
- Be drawn from a source that cannot be manipulated by the central government or one or more regional or local officials.

[7] Jorge Martinez-Vazquez and Jameson Boex, The Design Of Equalization Grants: Theory And Applications, World Bank Institute, 2001.

3.2 Development of provincial resources allocation norms proposed for Afghanistan

Scope. Introducing norm-based subnational budgetary allocations involves five basic steps:

1. Determine the overall budget structure (number and functions of programs to which the norm-based allocation approach will be applied)
2. Determine the size of the pool for provincial allocation (vertical allocation of resources)
3. Determine the horizontal allocation mechanism between provinces (e.g., the type of formula to be used)
4. Determine the variables or allocation factors that will be used (i.e., population, land area, etcetera).
5. Implementation and administration.

The first step in introducing norm-based subnational budget allocations is to determine the overall budget structure, including the number and types of programs or budget components to which the norm-based allocation approach will be applied. For instance, should one set of norms be applied to a sector as a whole, or to each program within a sector? Similarly, should norms be applied to a program as a whole, or to different components of the budget by major object type (e.g., by code 21, 22, and 25)? Should norm-based allocations be applied to all programs or public services, or only to a selected number of them?

The decision was made in Afghanistan to use the General Education Program as a relatively narrow entry point in 1389, and to gradually expand outward in subsequent years. There are a number of reasons why the General and Islamic Education Program within the education sector is a natural candidate for piloting the development of norm-based provincial budget allocations in Afghanistan. Basic education is the most prominent public service delivered at the provincial level in Afghanistan, and therefore, the improved allocation of sectoral resources can have a major impact on public service delivery in the country. Within basic education, the General Education Program covers a large majority (over 75%) of sectoral resources. In addition, from a practical viewpoint, a substantial share of the sector's resources are on-budget and discretionary (unlike some other sectors), so that the Government has substantial control over the sector's finances. Furthermore, from a technical viewpoint, the clients for general and Islamic education are (relatively) easily identifiable, and cost variations between provinces can potentially be quantified. Finally, the Ministry of Education offers a strong institutional counterpart; MoE has been engaged in both the program-based budgeting pilot as well as the provincial budgeting pilot, and MoE has already started the process of using provincial allocation norms.

The basic proposal for introducing norm-based provincial sectoral allocations in Afghanistan. The proposal for improved provincial resource allocation norms in Afghanistan closely follows the public sector's current budget structure, is consistent with the budget process improvements pursued by the Ministry of Finance, and provides for formula-based provincial resource allocations as specified in the Subnational Governance Policy prepared by IDLG. In the context of both the program-based budget process as well as the provincial budget process, provincial

allocation norms would be piloted for General Education in 1389 and 1390, with an expansion possible to other programs during 1390.

The basic proposal for improved provincial resource allocation norms for general education would establish norm-based allocations for 5 or 6 budget windows within the program, in line with the budget components identified in Table 1. Thus, instead of applying norms for every object code in the budget, a norm-based provincial allocation of resources would be done at for the major object codes (Code 21, 22 and 25). In addition, norms would be pursued for a number of (mostly non-discretionary) windows in the Development Budget, although the expectation is that some of these windows should eventually be merged into a unified budget process as budget integration proceeds.

For example, the available resources for provincial expenditures on goods and services might be allocated based on a simple budget norm by which each province receives a fixed amount, while the remainder of available resources would be distributed among the provinces in accordance with the number of students or school-aged children in each province.

How are actual budget allocations determined within these norm-based provincial ceilings? Within the provincial resource allocations set by these 5-6 sets of norms, a set of guidelines or secondary norms might be necessary within some of these budget windows to determine the exact use of resources. In many cases, the secondary norm would allocate a share of the overall resource ceiling for a specific purpose (or object code).

For example, rather than using a separate norm for allocating resources for the maintenance of school desks and chairs across provinces in proportion to the number of school buildings or classrooms in each province (as is currently the case), the total amount of Goods and Services spending would be determined in aggregate based on a simple norm (for instance, in proportion to the number of enrolled students in each province, perhaps plus a small fixed amount for each province). As a secondary norm, a certain share or percentage of each provincial allocation would then be set aside for the repair and maintenance of desks and chairs. Additional sectoral budget instructions could then guide the planning and use of available resources at the provincial level, for instance, by indicating that provincial education department should plan to spend roughly 100 Afs. on average for the maintenance or repair of each desk.

Of course, as the provincial budgeting pilot progresses, provincial officials can increasingly be relied upon to allocate the available resources within each of the major ceilings to specific activities and objects within each program. As such, while the secondary resource allocation norms may start out being compulsory, provincial officials may be given substantial discretion within each major code to reallocate resources among objects. As such, over time (and in the pilot provinces), the secondary norms and guidance would largely become indicative rather than compulsory. The greater the discretion provided to the provincial level, the more responsive provincial line departments can become to the service delivery needs of the communities they serve.

The proposed provincial resource allocation approach might appear slightly more complex than the current process, since a two-stage approach is followed: first, the main provincial allocation norm or formula allocates a program's resources (within a certain budget component) across the country's provinces; second, this resource ceiling is divided (either compulsory or indicatively) across budget objects using a secondary (percentage) norm. Yet, there are several advantages to this process:

- The allocation approach is not input driven, and therefore more equitable than the current budget norms. For instance, provinces with fewer school buildings per clients are no longer penalized by getting a smaller share of operation and maintenance resources.
- The allocation approach links expenditure allocations more closely to the number of clients served by the public sector (and possibly, variations in the cost of serving those clients), and is therefore consistent with ANDS and sectoral policy goals.
- The approach is transparent: it is easy to explain to all stakeholders how resources are distributed across provinces.
- The approach is affordable: the norms are not absolute and therefore do not demand more resources than available in the budget. They also provide for hard budget constraint at the provincial level and provide realistic planning ceilings for each province.
- When adequate planning capacity is present at the provincial level, the proposed process allows a balance between central sectoral guidance and adequate provincial planning space.

3.3 Process of agreeing on norms for 1390

The process of agreeing on provincial allocation norms for General and Islamic Education for 1390 is envisioned to be a collaborative effort between the Ministry of Finance and Ministry of Education. Working together with Ministry of Finance focal points for provincial, program budgeting and education, as well as the Budget Department, the Ministry of Education will convene a working group (which may incorporate three or four sub-working groups, as needed) to develop provincial budget norms for the various windows within the general education program. Sub-working groups would focus on developing norms for specific budget windows, such as Code 21, Code 22, school books, or education infrastructure (i.e., EQUIP and/or Code 25). Depending on the exact nature of each budget component, the membership of sub-working groups may be expanded to contain budget stakeholders, technical experts (e.g., from the MoEd Planning Department or EMIS) and/or donor representatives. Guidance for the activities of the *ad hoc* working group for developing provincial allocation norms for 1390 includes:

1. The working group would first confirm with all relevant stakeholders that provincial budget norms should be established for the General Education Program at the major object code level.
2. Based on suggestions made in the workshop conducted in February 2010 (as well as previous related workshops), the working group should assess possible factors and data availability for factors such as the number of clients for general education, remoteness, climate, inter-provincial cost differences (for wages, maintenance and construction), measures of insecurity, enrollment of boys and

girls and/or mobilization needs, school-age children, and school quality, that might be used for a more detailed allocation formula.

3. Based on the starting point recommended in provided below in Sections 4 through 7 of this report, the sub-working groups would propose specific allocation norms/formulas to allocate education resources to the provincial level, for each of the various provincial budget components (E.g., Code 21, Code 22, school books, etc.) based on the (expected) budget ceiling for General Education for 1390.
4. The working group should conduct basic simulations and assess whether the preliminary proposals give rise to an allocation of resources that is both technically desirable as well as politically acceptable, and – if introduced – which provinces would gain or lose compared to their budget allocations in 1389.
5. In developing the provincial allocation norms, the working groups should bear in mind that – if strict implementation of an 'ideal' norm is not possible from one year to the next – that the provincial allocation norms should be defined in such a way that implementation is feasible given all institutional constraints.
6. The working group must also consider the application of these norms to the budget formulation process, including the isolation within programs of the pool for subnational expenditures.

It is proposed that in early May 2010, the World Bank Subnational Governance team will facilitate a small workshop and/or a series of working meetings with Ministry of Education and Ministry of Finance to arrive at consensus and establish indicative provincial budget norms to be used for the 1390 budget formulation process.

The next few sections of this report provide guidance on the development of provincial budget allocation norms for the main budget windows within General and Islamic education, including the provincial goods and services expenditure (budget code 22) in Section 4; norm-based allocation of wage expenditures (major object code 21) in Section 5; the allocation of infrastructure expenditures (Section 6); and the norm-based allocation of other general education expenditures (Section 7). Conceptual or practical considerations which apply to more than one (or all) spending categories, these considerations are discussed in the next section on goods and services (Section 4).

In addition to providing a conceptual discussion and concrete options for each budget allocation norm, some simulations and analyses are conducted. The results from the simulations show the extent to which current allocation patterns are similar or dissimilar to basic norm-based allocation patterns. In order to compare different allocation patterns in a quantitative manner, an Index of Fit is computed for each simulation, which measures how closely the proposed allocation pattern matches the existing allocation pattern. Annex 1 provides a more detailed description of how the Index of Fit is computed to assist with additional simulations for proposed norms.

4. Goods and services (operation and maintenance): major code 22

4.1 Current allocation approach

Under the current input-driven allocation approach, provincial allocations for goods and services are made for each different object (/object code) in the budget. As noted

earlier (in Section 2.2), 16 different norms were used to distribute goods and services expenditures across provinces in 1389. Seven of the objects accounted for over 80 percent of provincial expenditures on goods and services. Within provincial goods and services expenditures, different types of budget norms were used for distributing travel allowances, fuel expenditures, furniture, postage, and so on. For instance, building repair and maintenance (22416) accounted for 11 percent of these expenditures, and was allocated across provinces in proportion to the number of school buildings in each province.

4.2 Conceptual considerations for norm-based allocations

The provincial allocation of resources for educational goods and services (e.g., operation and maintenance expenditures) is relatively easy, because these allocations are not complicated by special considerations that beset wage expenditures or infrastructure (as discussed in the next sections). It should be noted that school books are not currently included in goods and services expenditures in Afghanistan's budget context, as they are provided mainly via the development budget.

Allocate resources in proportion to the clients (or demand) for general education. The basic approach to distributing goods and services expenditures across the country's 34 provinces on a client-driven basis is fairly straightforward. Under the simplest scenario, the pool of available resources could be distributed in proportion to the number of clients in each province (i.e., the number of school-aged children or number of pupils in each province). This scenario is reflected in the example in the box below. In this example (and subsequent examples), it should be noted that the pool of resources available to the provincial level for this specific purpose (Afs, 1,892 million in the example) should be determined before the horizontal allocation norms are applied.

Box 1: Example of client-based allocation for goods and services expenditures: Norm-based allocation of Afs. 1,892 million.

	I. Number of students ('000)	II. Proportion	III. Total Pool	IV. Allocation	V. Note: Allocation per student
Province A	670	0.1313	1892	248.4	370.7
Province B	1483	0.2906	1892	549.7	370.7
Province C	1228	0.2406	1892	455.2	370.7
Province D	1723	0.3376	1892	638.7	370.7
Total	5104	1.0000	1892	1,892.0	370.7

Alternatively, the norm-based allocation could take into consideration that the characteristics of different provinces (e.g., their geography) might impact the cost of delivering services in different locations. In addition, the nature of different pupils in each province might lead to relative cost variations across provinces, which could be taken into account in the provincial allocation of resources. These later options are discussed further below.

School-aged children versus enrolled students. In order to assure an equitable and efficient distribution of resources, the focus of any norm-based allocation mechanism

for general education funding should target the clients who should benefit from these services. This begs an important question: which variable should be used to measure the number of clients of general education at the subnational: actual enrollment in a province or the number of school-aged children?

While there are arguments both in favor and against either of these measures, the number of school-aged children in each province would be the *conceptually* preferred option. An important reason why the school-aged population count in a province is a better measure of provincial education needs is that enrollment figures are not only a reflection of the demand for education, but also reflect the quantity of education supplied. As an example, one might consider a province where there is not a single school, and as a result, there is no enrollment to report despite the fact that there are children in the province that would attend school if there were one. This example makes clear that the reliance on school enrollment figures versus the number of school-aged children would perpetuate any bias against historically under-resourced provinces, and that the use of the *potential* number of clients (i.e., the number of school-aged children, regardless whether they are currently enrolled in school or not) rather than the current number of clients served (i.e., current enrollment) would result in a more equitable allocation of resources.

Another – more practical – reason why the size of the school-aged population in a province (based potentially on census data) might be a preferred measure of the subnational demand for basic education is because subnational education officials are able to manipulate school enrollment figures. When reported enrollment figures are used to distribute provincial education resources, head masters and provincial education officials have an incentive to artificially inflate enrollment figures in order to secure more government funding. The ability of the central line ministry to monitor and verify enrollment data reported by schools, districts and provinces in Afghanistan may be to weak to ensure that self-reported enrollment figures are not biased in this way.[8] While enrolment is recorded as part of the Education Management Information System (EMIS), substantial concerns could be raised with respect to the accuracy of this enrolment data. In addition to reporting bias, additional concern could be raised to the extent that this data reflects official enrolment levels (students registered at a school) as opposed to actual enrolment levels (students regularly showing up to receive instruction).

At the same time – even if accurate census-figures for the school-aged population in each province of Afghanistan were currently available – enrollment figures would provide a more up-to-date measure of provincial education needs, as the size of the

[8] Indeed, during previous discussions, MoF officials flagged the concern that based on the current methodology applied, EMIS figures actually overstate the aggregate enrolment levels. As a result of this bias, it was felt that EMIS enrolment data could not be relied upon to determine a norm-based aggregate resource envelope for basic education. Likewise, anecdotal evidence in support of over-reporting enrolment was also reported by EQUIP. For example, NGOs that initially allocated quality grants under EQUIP found that the enrollments level reported by schools to the EMIS were higher than the actual head count when visiting the schools directly. However, the Ministry of Education does not face this perverse incentive if the EMIS data is exclusively used to determine the relative distribution across provinces. Nonetheless, it would be helpful for EMIS to collect accurate data on *actual* full-time equivalent attendance within schools in different provinces, including the number of enrolled students, persistently absent (but enrolled) students, and the estimated number of un-enrolled students in the school's catchment area.

school-aged population based on census data would only be available every ten years (although inter-census estimates could be produced by the statistics bureau). To be fair, enrollment data is likely not available instantaneously either; a lag of one, two or even more years in the reporting of enrollment data is not uncommon in many developing countries. Another concern that should play a role in the selection of the preferred measure of clients is inter-provincial migration. If such population movements are present, census-based estimates are likely to be less accurate than enrollment counts. A related disadvantage of basing education allocations on the number of school-aged children as opposed to enrollment figures is that it fails to compensate provinces for students who are enrolled out-of-province.

Finally, we should recognize that the reliance on actual enrollment figures (if measured and reported properly) might give provincial education officials an incentive to reduce drop-out rates and encourage recruitment and enrollment drives, particularly the enrollment of girls. At the same time, the use of enrollment figures (vis-a-vis the size of school-aged population) would penalize provinces with high dropout rates that may be due to factors unrelated to educational performance such as poverty or insecurity. In particular, to the extent that there is a correlation in Afghanistan between attendance rates on one hand and poverty and remoteness on the other hand, relying on current student enrollment levels (rather than on the number of school aged children) will result under-serving needier provinces in Afghanistan.

Actual enrollment figures would have to be reported by the district and provincial education officials themselves, while the size of the school-aged population could – in the future – hopefully be based on census figures. However, constraints on data availability in Afghanistan suggest that relative enrolment figures in each province would currently be the best available option for determining the relative distribution of general education resources, although there is a need to improve the estimation and reporting through EMIS of enrolled students, persistently absent (but enrolled) students, and un-enrolled students.

Cost-variations for provincial operations and maintenance expenditures. In addition to recognizing that different provinces have different numbers of school-aged children or pupils, provincial education departments in different provinces may be facing different cost structures. A common example might be a situation in which the cost of providing general education in rural provinces is higher than more urban provinces. One possible approach to address this complication would be to distribute a portion of the total available resources in proportion to the number of clients, while allocating another portion of the resource pool in proportion to the land area of each province. However, this solution presumes that part of the service delivery costs varies in direct proportion to land area, which is often not the case. An alternative solution would be to group different types of provinces in different categories, and to make cost adjustment by type of province.

For instance, the box below illustrates the case in which rural provinces (Province B and D) are provided with somewhat greater allocation per student (20 percent greater) than more urban provinces (Provinces A and C, in the example). This larger allocation may off-set increased service delivery costs resulting from higher price levels in more remote areas, as well as greater fuel expenditures in less densely populated areas.

Box 2: Example of client-based allocation for goods and services expenditures, with provincial cost-adjustments: Norm-based allocation of Afs. 1,892 million.

	I. Number of students ('000)	II. Cost factor	III. Adjusted enrolment	IV. Proportion	V. Allocation
Province A	670	1.0	670.0	0.1166	220.6
Province B	1483	1.2	1,779.6	0.3098	586.1
Province C	1228	1.0	1,228.0	0.2137	404.4
Province D	1723	1.2	2,067.6	0.3599	680.9
Total	5104		5,745.2	1.0000	1,892.0

Similar adjustments could be made to recognize different expenditure requirements between different types of students within and across provinces. For instance, it is common in many developed countries to recognize that the cost of books and other learning materials is higher in higher class grades. Likewise, it is not uncommon for provinces or local governments in developed economies to receive higher per-student allocations for special types of students, such as exceptionally gifted students or students with learning problems.[9] In numerous developing economies, the number of students which are required to attend boarding school is often taken into account using a separate norm. In Afghanistan, the special considerations in encouraging and retaining female students seem relevant here.

One point should be re-iterated when considering the application of relative provincial allocation norms as described above: the special designation of a province or a student does not result in the province or student receiving a specific, required or guaranteed amount of additional funding. Instead, the only assurance is that provinces with greater relative needs will receive a proportional increase in their resource allocations vis-à-vis other provinces, while the total amount of resources is constrained by the pool of resources available for the specific purpose.

4.3 Analysis of current allocations

An important question to consider before moving to replace the current allocation approach (relying on input-based norms) with output-based norms – as is currently proposed – is whether this reform would have a major impact on the distribution of resources across the provinces. For instance, if moving from the current approach to an output-based approach would result in a major shift of resources, this might suggest that the current allocation pattern is systematically flawed. In addition, if there is a large discrepancy between the current allocation pattern and the distribution achieved under an 'ideal' norm-based approach, this would indicate that the introduction of the new approach would have major political economy implications, with major winners and losers. In the other hand, if a client-driven formula would come close to the current allocation pattern, this would suggest that the reform process would likely be much more politically acceptable, as a potentially substantial improvement in transparency and administrative efficiency could be achieved without a major impact on distributional patterns.

[9] Of course, it is hard to define and measure which students qualify for these programs. If schools and subnational jurisdictions receive more resources as a result of having more 'special' students, a rigorous certification process would be required to prevent schools and subnational officials from abusing the system.

In order to analyze the current allocation of resources, we compared the actual planned budget allocation for each province for major object code 22 (per the approved annual budget) with two simulated allocation patterns. These simulated formulas/norms reflect simple yet 'typical' allocation norms for subnational education spending:

- Simulation 1: The simulated allocation, if all provincial resources for goods and services would be allocated among provinces 100% in proportion to the number of enrolled students;[10]
- Simulation 2: The simulated allocation, if 20% of provincial resources would be distributed evenly among all provinces (equal shares), while 80% of the resources would be allocated in accordance to the number of enrolled students.

Comparisons were produced for three budget years: 1386, 1388 and 1389; Table 3 compares the actual allocation patterns for 1386 and 1389 with the simulated allocation patterns. An Index of Fit (IOF) is computed in order to compare the distribution patterns: the IOF represents the percentage of resources that are 'correctly' allocated when comparing the two allocation patterns. Somewhat similar to a correlation coefficient, the IOF varies in its extremes between one (indicating a perfect fit between two distribution patterns) and zero (indicating complete divergence between the two allocation patterns). See Annex 1 for a detailed description of the Index of Fit.

Table 3
Index of Deviation / Index of Fit Analysis:
Provincial allocations for Goods and Services, 1386, 1388 and 1389

	Simulation 1		Simulation 2	
	IOD	**IOF**	IOD	**IOF**
1386	0.2406	**0.7594**	0.1968	**0.8032**
1388	0.2526	**0.7474**	0.2312	**0.7688**
1389	0.1708	**0.8292**	0.1245	**0.8755**

Two patterns are revealed by the simulations and by the Index of Fit analysis. First, the Index of Fit is systematically higher for 1389 then for 1386 and 1388. This suggests that the actual budget allocations made in 1389 are more consistent (with less random fluctuation) than the allocations in earlier years. While there is little difference between the allocation patterns for 1386 and 1388, the analysis suggests an improvement has occurred in 1389 in the inter-provincial allocation of education resources.

Second, the statistics in Table 3 reveal that Simulation 2 systematically performs better than Simulation 1. This suggests that the actual allocation pattern (in each of the three years analyzed) is consistently more similar to the norm-based allocation that relies on a fixed lump sum per province (20% of the allocation amount) as well as on enrollment (80% of the allocation amount) then when compared to a norm-based allocation which relies exclusively on the number of enrolled students in each

[10] Student enrollment is based on figured reported through EMIS for 1386.

province. This may suggest that the 'formula' used for Simulation 2 may be an appropriate starting point for discussions regarding the introduction of output-based provincial allocations norms for general and Islamic education.

In fact, the analysis of the data suggests that norm-based Simulation 2 achieved an allocation pattern that is 88% the same as the current allocation pattern for 1389.[11] As such, Simulation 2 achieved a very similar allocation pattern by exclusively relying on only two factors (a lump sum and enrollment), instead of the current 16 different allocation norms. As such, the simulated allocation is much more transparent, as it can be explained to any stakeholder in a clear and concise way, and it provides for more potential flexibility for the use of resources within that budget window. In addition, the simulated norm-based approach – while producing largely the same results as the current actual allocation – could be argued to be more equitable and efficient, as it does not rely on input-based drivers, such as the number of school buildings in each province, which would allocate resources in proportion to inputs rather than allocating resources corresponding to a province's true needs.

4.4 Options

Option 1. Given the strong simulation results, the first option for distributing provincial allocations for goods and services among the 34 provinces (and Kabul City) would be to distribute 20 percent of these resources based on a fixed lump-sum amount, while 80 percent could be allocated among provinces based on the number of reported students. The Ministry of Education would have to be aware that provincial officials might be inclined to over-report enrolment once funding is tied formally to reported enrolment figures.

Option 2. A second, slightly more advanced option would be to recognize that General and Islamic Education were recently combined into a single program. In practice, it may be desirable to set separate funding norms for these sub-programs based on enrolment for general education and Islamic education, by allocating different relative amounts of resources based on the type of enrolment.

Keep it simple. Ministry of Education official may decide that a slightly more complicated norm than suggested above might be appropriate. While this is possible and may be appropriate (as long as the requisite data are available), any additional variable included in the norm-computation results in an incremental decrease in transparency. As a rule of thumb, it would be best to keep the number of allocation factors used in the provincial allocation norm under four.

Changes over time. Finally, it should be noted that changes can be made to the chosen allocation norm over time. While it would be prudent to avoid frequent (annual) changes to the allocation norms, it would be appropriate to review the provincial allocation norms every 3-5 years, to assess whether or not the allocation norm is performing as desired. In particular, if and when reliable census data becomes

[11] If the allocation pool is distributed 40% in proportion to the equal shares principle and 60% in proportion to enrolled students, the IOF increases even further to 89.2 percent. However, from a perspective of transfer design, it would be poor practice to focus such a large share on overhead resources, vis-à-vis resources to be used by service delivery units in proportion to the number of clients served.

available regarding the number of school-aged children in each province, further analysis and a possible revision of the formula should be considered.

Secondary budget norms. Consistent with the overall approach outlined in Section 3.2, a set of secondary allocation norms should continue to guide the breakdown between budget objects for goods and services with major object code 22. Most of these secondary budget norms would specify spending on a specific object as a percentage of the overall provincial allocation. For instance, a secondary budget norm may guide provincial line departments to spend 17 percent of their provincial resource ceiling on office supplies. Based on provincial conditions (including their administrative capacity as well as their priorities), provincial officials could be allowed to deviate from this guidance, within the overall resource constraint provided by the provincial sectoral resource envelope. The provincial budgeting pilot program should provide specific capacity-development on using this local discretion to provincial officials.

5. Wage expenditures: Major Code 21

5.1 Current allocation approach

Under the current input-driven allocation approach, provincial allocations for wages and salary expenditures are largely driven by the existing distribution of tashkeel across provinces. As noted in Section 2.2, 12 different norms were used to distribute wage and salaries expenditures across provinces – a different norm for each object within major object code 21. For instance, overtime pay (21106) is budgeted at 15 percent of the total budgeted wage bill.

To the extent that budget negotiations between MoEd and MoF indicate that resources are available for additional hires, the Ministry of Education Planning Department determines which provinces have the greatest needs for additional teachers, and distributes any new teachers (and budgeted resources for teacher salaries) accordingly.

5.2 Conceptual considerations for norm-based allocations

The provincial need for teachers and education staff. Consistent with the philosophy of client-driven norm-based allocation approach, the distribution of teachers and wage expenditures across provinces should link the funding for education wage expenditures in response to the desired student-teacher ratio in each province. In the simplest scenario, the norm-based wage allocation across provinces would presume that provincial wage expenditure needs are based on a constant student-teacher ratio across all provinces, which suggests that wage resources should be allocated across the provinces strictly in proportion to the number of enrolled students in each province.

Several variations to basing the allocations fully on the number of students might be possible. For instance, it would be possible to consider that each province requires some fixed overhead in terms of the provincial education department that is unrelated to the size of the province. If this would be ignored in the allocation norm, this would disadvantage provinces with relatively smaller enrolment (e.g., Panjsher, Nimroz, Nuristan and Zabul). In response, the norm-based allocation could distribute a small

share of the provincial wage allocations based on a fixed lump sum per province or an amount per province based on the grade of the province (Grade I, II or III).

Other options are to recognize that the optimal student-teacher ratio across provinces is not necessarily constant in Afghanistan. For instance, instruction in lower grade levels (younger children) typically allows for larger class sizes then the more advanced instruction needed for older children. Thus, different norms might be applied for the number of students by grade level. Doing so would provide relatively greater resources to provinces that – all else equal – have more students in higher grade levels, as these provinces would have a relatively greater need for wage expenditures. Of course, doing so would require more detailed information about the number of students in each province by class grade. However, adding this complexity to the norm only makes sense if the *relative* proportion of students across grades actually varies across different provinces.[12] If the ratio of students across different grade levels is relatively constant across provinces, adding this complexity will actually not result in a very different distribution of resources across the provinces.

Likewise, strictly based on preferred student-teacher ratios, one could conceivably modify the relative need for wage expenditures in each province based on the number of boys and girls (if a lower student-teacher ratio would be desired for either group). Similarly, one might suggest that in order for rural areas to be served better, a lower target student-teacher ratio should be applied in rural or hard-to-access districts. If this is the case, provinces with a greater rural population would require relatively greater wage resources under the general education program. Again, the introducing of such additional norms based on the type of students served will require the availability of additional data, and will only have a substantive impact on the distribution of resources if there are considerable variations in student-type across different provinces.

Cost-variations for teachers and education staff. In addition to recognizing that there may be different preferred student-teacher ratios across different provinces in Afghanistan, we should recognize that there may be cost differences to employing teachers across different provinces. In particular, it may be more costly to attract female teachers in certain provinces (e.g., more rural provinces). Likewise, it may be more expensive to attract teachers to more remote provinces. If the Government is serious about providing equitable access to public services across different provinces in accordance with the ANDS and the sector's stated policy goals (as opposed to merely maximizing the aggregate level of public services provided), then the government should put in place mechanisms that will allow provinces with less desirable locations to provide the necessary incentive bonuses in order to attract adequate government staff. In that case, the provincial resource allocation mechanism should recognize the cost differences across provinces (and districts) in employing teachers, and accordingly provide greater resources for provinces or locations where it is costlier to attract public school teachers. A simple provincial cost schedule which indicates the level of top-up allowances which could be provided to public servants in

[12] The reader should be reminded that the total amount of resources provided for wages and salaries is taken as pre-determined. Therefore, producing the more detailed breakdown will not increase the size of the total wage pool available for general education; it will only impact the relatively distribution of the wage pool for provinces that have a greater share of students in higher class grades.

different locations could drive the measure for relative provincial expenditure needs for wages and salaries (including allowances).

Whether or not to incorporate cost-variations for teachers and other education staff into the provincial resource allocation formula is not strictly a provincial resource allocation question: the answer depends on the political decision whether the government is willing – within its limited resources available for general education – to forego hiring additional teachers in order to provide existing teachers (and possibly a few newly hired teachers) with location bonuses. For instance, hypothetically, would the government currently prefer to provide location bonuses and hire 1000 teachers for hard-to-reach places and girls' education, as opposed to hiring 2000 teachers for boy's education in easy-to-reach locations? While attaining the objectives and targets set forth in the ANDS and sector policies may require the former approach, the latter approach may be politically more expedient. Achieving the political/institutional support for putting in place the necessary financial incentives for public school teachers to achieve a sound provincial allocation of sectoral resources (and more equitable access to public services) may be harder to achieve in the education sector than it is in the health sector, where the additional cost of providing location-based top-up allowances was borne by external donors.

Phasing-in. In contrast to spending on recurrent goods and services (as noted in the previous section), the provincial distribution of wage expenditure cannot be changed radically from one budget year to the next, as teachers cannot be moved instantaneously or easily from one province to any other province. As such, instead of imposing an 'ideal' allocation norm for the overall allocation of wage resources, it would be more appropriate to adopt a norm-based approach that provides funding for existing teachers and staff in accordance with their current distribution, but that allocates any increment in newly available wage resources (which is not pre-committed to overall wage increases) to the provinces that are most under-served in terms of staffing.

5.3 Analysis of current allocations

Similar to the analysis conduced in the previous section, in order to analyze the current allocation of resources, we compared the actual planned budget allocation for each province for wages expenditures (major object code 21) per the approved annual budget with two simulated allocation patterns:

- Simulation 1: The simulated allocation, if all provincial wage resources would be allocated among provinces 100% in proportion to the number of enrolled students;
- Simulation 2: The simulated allocation, if 20% of provincial wage resources would be distributed evenly among all provinces (equal shares), while 80% of the resources would be allocated in accordance to the number of enrolled students.

The simulated formulas/norms reflect simple yet 'typical' allocation norms for subnational education spending.

Again, analytical comparisons were produced for 1386, 1388 and 1389. Similar to Table 3, Table 4 compares the actual allocation patterns for 1386 through 1389 with

their respective simulated allocation patterns. An Index of Fit (IOF) is again computed in order to compare the different distribution patterns.

Table 4
Index of Deviation / Index of Fit Analysis:
Provincial wage allocations, 1386, 1388 and 1389

	Simulation 1		Simulation 2	
	IOD	**IOF**	IOD	**IOF**
1386	0.3463	**0.6537**	0.3521	**0.6479**
1388	0.0825	**0.9175**	0.0819	**0.9181**
1389	0.1175	**0.8825**	0.1220	**0.8780**

Three patterns are revealed by the simulations and by the Index of Fit analysis. First, the figures in Table 4 reveal that the distributional correspondence between the actual provincial wage allocations and each of the two different simulations is quite close in each of the three years, and the Index of Fit is not systematically higher for Simulation 1 or for Simulation 2, meaning that the actual allocation pattern is not inherently more similar to either of the simulated formulas or norms.

Second, if the simulations reflect two potential examples of stable, client-driven allocations, then we observe a major improvement in the actual pattern of provincial wage allocations from 1386 to 1388. Whereas almost one-third of all wage resources would have had to be reallocated in 1386 in order to achieve a sound allocation pattern (as indicated by the Index of Deviation or IOD), this percentage was reduced to less than 9 percent in 1388.

We also note that for 1389, the IOD actually worsened slightly from 8 percent to approximately 12 percent. This means that despite MoEd's best intentions to allocate new teachers where they are needed the most (based on student-teacher ratios), the provincial allocation of wage resources actually deteriorated slight in 1389 compared to the objective, norm-based computations.

Overall, the analysis of the wage allocation data suggests that the norm-based simulations both achieved an allocation pattern that is about 88% the same as the current allocation pattern for 1389. The simulated allocations thus accomplished almost the same allocation pattern by relying on only one and two factors, respectively (exclusively enrollment in the first case, and enrollment and a small a lump sum in the second case). In addition, the simulated norm-based approaches – while producing largely the same results as the current actual wage allocations – could be argued to be more equitable and efficient, as it does not rely on input-based drivers, such as the existing number of school teachers and education employees in each province. The slight deterioration in allocations from 1388 to 1389 could also suggest possible weakness of a discretionary allocation approach to allocating additional new teachers across the provinces.

There is one possibly important policy implication based on the finding that provincial wage expenditures are relatively (albeit not perfectly) constant across all provinces, notably the following: given that the Ministry of Education was able to achieve a relatively even distribution of wage resources per student across provinces

without resorting to extensive reliance on location-based allowance for teachers in provinces that are remote or largely rural, this might suggest that there is relatively limited need – if any – for providing top-up allowances to teachers or education staff in these provinces. In this regard, the supply of staff in the education sector may be different from the health sector. This statement should be carefully evaluated, however, as provincial allocations could hide substantial variations among districts within the province.[13]

One caveat should be noted: the simulations presented in Table 4 rely on reported enrollment figures in each province. As such, the simulations and comparative analysis suggests that teachers in Afghanistan are currently distributed across provinces more or less in proportion to the number of *enrolled* school-aged children. Since enrollment rates may vary substantially across provinces, however, the results do not necessarily mean that each province is provided with the same general level of basic education services. In order for this, we would have to conduct the simulations based on the *total* number of school-aged children (enrolled plus non-ennrolled school-aged children) for which data are currently not available.

5.4 Options and preliminary proposal

Even though the difference between an 'ideal' norm-based pattern of provincial wage expenditures and the current allocation pattern of provincial wage expenditures (as analyzed above) is not very large, it may be appropriate – for one or two years – to specify the norm-based allocation of teachers and wages in a way that focuses on 'filling the gap' between the current allocation and the optimal allocation pattern, rather than expecting wage resources (and education staff) to be strictly allocated in proportion to an allocation pattern driven by client- and cost-based norms. This is one way to phase in the new allocation. As mentioned earlier, a sound norm-based approach does not define an ideal or "optimal" allocation based on potentially unaffordable service delivery levels or norms; instead, the "ideal" allocation of resources merely reflects the best allocation of currently available resources. Of course, the budget requests made to the Ministry of Finance should indicate the extent to which the level of aggregate budget resources that is provided will be sufficient to achieve the sector's policy objectives.

Under the proposed approach, the first step in the allocation process would be to allocate available wage resources to fund existing wage requirements based on existing tashkeel levels. Second, to the extent that available (budgeted) wage resources for the next financial year exceed existing wage commitments (including government commitments for mandatory allowances or across-the-board wage increases), this surplus can be allocated in proportion to the 'wage expenditure gap'. The 'wage expenditure gap' would simply be defined as the gap between each province's wage commitment (based on previous year's tashkeel, adjusted for any wage increases) and the 'ideal' norm-based allocation (see below). Only provinces for

[13] Also, it is currently not completely clear to what extent national wage policies are strictly followed in all circumstances. For instance, there is anecdotal evidence that in some provinces, teachers who teach multiple shifts may be drawing salary more than once (in effect, informally providing the teacher with a top-up allowance). As the Verified Payroll program progresses across the workforce important data on this question may emerge.

which the norm-based allocation exceeds the existing wage commitment are considered to have a 'wage gap'.

Box 3: Example of wage-gap filling allocations					
	I. Current allocation, 1389	II. Norm-based allocation, 1390	III. Difference	IV. Wage gap	V. Gap-based allocation
Province A	47	42	-5	0	0.00
Province B	103	93	-10	0	0.00
Province C	56	77	21	21	15.27
Province D	74	108	34	34	24.73
Total	280	320	40	55	40.00

The 'ideal' or norm-based wage allocation (column II) for a province is computed as the province's share of the total pool of provincial wage expenditures, when allocated based in proportion to one or more allocation factors. Here, several options are proposed.

- Option 1: The total provincial wage pool is allocated in proportion to the total number of enrolled students in each province.
- Option 2: Each province is allocated a small fixed amount (possibly 20% of the allocation pool) or a fixed allocation by the grade of province (Grade I, II or III) and the remainder allocated in proportion to enrollment.
- Option 3: Same as Option 2, except enrollment in each province is weighted by a provincial cost index.

In the case of Option 3, enrolment in each province would be broken down into a select number of categories, such as the number of students in urban districts; the number of students in rural districts; and the number of students in remote or otherwise hard-to-reach districts. The standard provincial cost index would be 1.0 for 'regular' low-cost (urban) enrollment, whereas – for instance – rural enrolment might be multiplied by a factor 1.1, reflecting an expected higher cost of 10% in the delivery of general education in rural districts. Likewise, the enrolment figure for students in high-cost or hard-to-access districts might be multiplied by a factor 1.5. The exact multiplication factors presented here are suggestive: they should be determined by the actual cost variations between different categories of provincial service provision. Rather than using the urban/rural/remote classification, the Ministry of Education might find classification into boys and girls or into groups by class grade level more appropriate. However, it is highly recommended not to create more than a handful (3-5) of different enrolment categories. Equally, secondary budget norms should be used as described in 3.2 above to ensure that the adjusted budgetary resources are directed to these additional needs. Consistent with the overall approach outlined in Section 3.2, a set of secondary allocation norms should continue to guide the breakdown between budget objects with major object code 21. For instance, overtime pay could continue to be budgeted equal to 15% of the overall provincial wage bill, and so on.

It is important to realize that as complexities are introduced into the specification of the norm, the norm will quickly become less transparent. As such, it might be preferable to start out with a very basic norm-based allocation (i.e., Option 1 or 2) and

only to introduce more detailed categorization of provincial expenditure needs in subsequent years.

It should also be kept in mind that the budget allocation process should be consistent with other personnel and payroll processes and procedures. For instance, if a 'gap filling' approach is adopted, this means that any increases in tashkeel should be accorded provinces in proportion to the wage resources directed at that wage gap. Likewise, if a provincial cost index–approach is chosen, it needs to be made clear whether different cost categories will be associated with different levels of wage allowances, or whether different categories will merely allow certain provinces to achieve a higher student-teacher ratio for certain types of students. In other words, the norm should be attuned to the policy of the Ministry for meeting these challenges.

6. Infrastructure expenditures

6.1 Current allocation approach

Provincial expenditures in support of general education infrastructure are funded from a number of sources. The largest of these sources is the classroom construction component of the EQUIP Program, amounting to US$ 32.5 million for 1389. In addition, based on external funding (from DANIDA), US$ 4 million was budgeted to construct a warehouse for educational materials in each province. The Government itself budgeted US$ 2 million for education infrastructure, largely to fund the completion of a number of existing construction projects.

Unlike the recurrent budget, which is fully under the government's budgetary purview, infrastructure expenditures in education are largely project-driven, non-discretionary expenditures. As a result, they are fragmented across different parts of the budget. To the extent that the construction of other education infrastructure is being funded by PRTs, direct bilateral support, or other external funding sources, this infrastructure is largely excluded not only from the discretion of the Government, but also from its planning view. It does not appear that the Ministry of Education has a clear position on the optimal distribution of school infrastructure across provinces and districts. As a result, the decision where infrastructure spending should be prioritized does not seem to take place in a context where there is a clearly-stated sectoral policy or full information.

The current allocation of education infrastructure resources is largely driven by the EQUIP program. It is somewhat unclear how the current distribution of EQUIP classroom resources for 1389 was determined. The original determination of where schools and classrooms should be constructed was made at the outset of the EQUIP program in a somewhat static, one-off, project like manner. The intention was to complete the construction of the required infrastructure over a multi-year framework. From the side of the donors (IDA and ARTF) there is no requirement for a "fixed" list of school infrastructure to be built (though this approach was followed by the MOE/PCU) and a more equitable norm based budget allocation is welcome.

Over time, it appears that EQUIP has gone through several iterations of allocation approaches, with increasingly normative, needs-based allocations being made. To complicate matters further, since the budget execution rate in education infrastructure

has been relatively low, the current funding pattern may include carried-forward commitments made in previous years. The large component of carried-forward budgets in EQUIP budgets – for infrastructure as well as for school grants – are tied to budget execution bottlenecks in the education sector. As noted in Section 2.3 (and also addressed briefly in Section 8), this provides the rationale of linking the current analysis of norm-based budget allocations to a public expenditure tracking survey (PETS) in Afghanistan's education sector.

6.2 Conceptual considerations for norm-based allocations

Rather than viewing the education infrastructure shortfall in Afghanistan as a one-off problem, going forward, it would be appropriate to recognize that the country's education infrastructure needs will continue to grow and expand as the school-aged population grows and as enrolment rates continue to increase. As a result, general education infrastructure should be programmed as a regular annual component of the national budget.

In this view, the quantification of the shortages in education infrastructure needs across the national territory shifts from being a static, one-time exercise. There is a need to have a recurring mechanism for quantifying where the need for education infrastructure is the greatest each year, so that the annually available budget resources can be targeted to these provinces and districts. The measurement of infrastructure needs should take into account two types of infrastructure projects, namely school improvement projects (constructing perimeter walls, latrines, additional classrooms and possibly teacher housing for existing school buildings) as well as the construction of new school buildings. The distribution between these two categories of infrastructure is a matter of policy choice, but more likely than not, the government will want to fund both types of infrastructure spending at the same time, rather than focusing exclusively on one or the other. However, the mix of these types budgeted might vary depending on the existing stock of infrastructure, discussed next.

Three basic approaches. International practices suggest that there are three basic ways to allocate provincial resources for education infrastructure:

1. Distribute infrastructure resources across provinces in proportion to the number of students or school-aged children in each province, regardless of the existing infrastructure availability.
2. Distribute infrastructure resources across provinces in proportion to the "infrastructure gap" or the "school gap" (i.e., the gap between desired number of school buildings and the current number of school buildings available in each province). This approach is similar to the filling of the wage gap in Section 5.4 above (also see Box 3).
3. Distribute infrastructure resources only to those provinces that have the largest infrastructure back-log or the largest "classroom gap".

There are pros and cons to each of the three approaches. The first approach will provide every province in the country with some infrastructure resources, including those that are relatively well off. This approach requires the least information with respect to existing infrastructure, but means that any pre-existing infrastructure disparities will dissipate only very slowly over time.

The second approach is slightly more targeted, as provinces that have relatively high levels of existing infrastructure will receive a smaller allocation. While this makes sense from a service delivery viewpoint, this may be politically less attractive. The third option is the most targeted and the most pro-poor response, by focusing the bulk of education infrastructure spending on the places where the existing infrastructure is the least adequate. However, this approach is not only likely to be the least politically feasible, but it may also encounter other problems: areas that currently have the biggest infrastructure backlogs are also likely to be locations that are hard to access and may have a hard time attracting qualified teachers and other education staff.

Measuring existing infrastructure availability. The second two more advanced approaches for allocating education infrastructure resources require the central line ministry to have good information about the existing stock of education infrastructure. As such, for either of these approaches to be viably implemented, a good database of the existing number of schools in each province and district, as well as the physical infrastructure available to each school is an obvious pre-requisite in order to determine the relative need for education infrastructure in different provinces. Much – if not all – of this information is currently available through EMIS. However, since the availability of school infrastructure is dynamic rather than static over time, the exact data should be updated each year. In addition to feeding the EMIS system for centralized management purposes, the available school level data could conceivably also be used to increase the transparency and accountability in the education sector at the local and provincial levels, by publicly making available basic school profiles for every school in the country, based on existing data collection efforts.

Defining infrastructure needs. In order to define an education infrastructure "gap" (or a "school gap" or "classroom gap"), there is a need to quantify both the existing infrastructure level as well as the desired infrastructure level. This brings the question: how do you define a province's education infrastructure needs? The simplest answer to this question would be to simply use the count of existing (government approved) schools without school buildings in each province as the measure of infrastructure need.

This, however, may not be an accurate measure of provincial education infrastructure needs, as doing so would presume that the existing number of schools in each province is actually the 'required' or desired number of schools in each province. Although the creation and approval of schools is no doubt guided by a number of standards (including the number of school-aged children residing with a certain distance of the school, and so on), it is likely that there are gaps between the current number of 'required' schools and the number of approved schools. For instance, given the scarcity of resources, it is quite possible that rural or remote areas are under-served in terms of approved schools, despite having an adequate number of school-aged children in the area (who, in the absence of having a school in their proximity, fail to enroll). Conversely, there may be areas where the number of government-approved schools exceeds the relative requirement; this is not uncommon in urban areas or other areas where there is a high demand for education from the population. To the degree that there is subjectivity involved in the approval of new schools, provincial officials in one part of the country may be more likely to tolerate school facilities being used in multiple shifts or less likely to approve new schools where the

popular demand for schooling is deemed low, whereas officials in other parts of the country may be stricter in applying the centrally defined norms.

As such, caution should be used when relying on the existing number of approved schools (with or without buildings) as a measure of the requirement or need for education infrastructure. Indeed, a preliminary analysis shows that significant variations exist in the approved number of schools in each province relative to the number of enrolled student..[14] As such, for the sake of determining the relative level of education infrastructure need in each province, it may be appropriate to base each province's relative infrastructure need on provincial enrolment levels, possibly adjusted for population density (e.g., see Box 2).[15] To the extent that construction costs vary considerably across provinces, a similar needs-adjustment could be made.

6.3 Options and preliminary proposal

To the extent that current education infrastructure is tied to donor-funded projects, it may not be possible for the government to unilaterally apply its policy goals to the provincial allocation of resources in regard to education infrastructure funding. Nonetheless, it behooves the Ministry of Education to have a clear policy view in this regard, and may find that a clear position on the matter will encourage donor agencies to follow the government's lead. For example, this approach could be compared to the aggregate impacts of existing non-discretionary infrastructure spending, in turn guiding the evolution of sectoral programs.

In order to achieve a norm-based allocation of provincial education infrastructure expenditures, it is suggested that provincial infrastructure expenditures should be divided into two pools or windows. The majority of resources could be provided as an allocation for new school and classroom construction, allocated to provinces in proportion to some measure of the provincial education infrastructure gap. To the extent that the norm-based allocation falls short from exactly funding a discrete number of 'standard' schools in a province (e.g., funding is available for 8.5 schools, instead of either 8 or 9 schools), the balance of the funds (e.g., after budgeting for 8 schools) could be used to construct additional classrooms for new or existing schools.

The second allocation window (covering the remainder of the available funds) should be distributed among provinces for infrastructure improvements to schools with existing buildings. This amount could be allocated in proportion to provincial enrolments, and could be used for things such as perimeter walls, latrines, purchase of school furniture, minor classroom additions, major renovations, as well as the construction of staff housing where appropriate.

Within the confines of guidelines issued by the Ministry of Education, provincial education officials should play an increasingly important role in determining the location of new schools, supervising progress on construction, and guiding the

[14] Since provincial factors such as population density impact the required number of schools, we should not expect the required number of schools per 1000 pupils to be the same across all provinces. However, while reasonable variations can occur, the current range of variation in the ratio of approved schools to provincial enrollments seems to suggest more discretionary factors are at play as well.

[15] At the same time, efforts should be made to align the approval of new schools in accordance with an objective set of criteria which are driven by the government's policy objectives.

prioritization of minor provincial infrastructure expenditures and expenditures for improvements to infrastructure.

7. Other General Education Expenditures

In addition to the resources identified in Sections 4, 5, and 6, there are a number of other provincial general education expenditures that have to be distributed – whether done implicitly or explicitly – among provincial jurisdictions. These resources largely consist of non-discretionary development spending, including donor-funded expenditures on school books and a school quality enhancement grant funded under EQUIP. This section will focus on the norm-based distribution of schoolbooks (which are provided with US$ 9 million of DANIDA funding) and the EQUIP School Management Grant.

Although these funds may currently not be under the discretion of the Government, it is important that these resources are included in a unified and comprehensive overview of the sector's finances. In addition, it is important that the Ministry of Education (as the steward of the education sector) and the Ministry of Finance (as the steward of the country's public finances) form a joint opinion as to how these resources should be distributed. Doing so would allow the government to engage its donor partners more effectively on aligning non-discretionary resources with the government's policy objectives. For the sector to have a comprehensive policy stance on provincial resource allocations also serves as a credible argument that donor resources should increasingly be funneled through on-budget, discretionary modalities, whether through budget support though ARTF for national education sector programmes, or through a sector-wide approach (along with a multi-donor sector basket fund).

7.1 Current allocation approach

School books. Currently, the purchase and provision of school books to the provincial level is centralized. School books are procured centrally by the MoEd with international financial support, and the books are distributed in-kind to the provincial level.[16] For budgeting purposes, the in-kind allocation of school books for each province is notionally recorded in proportion to the number of students in each province. In practice, however, the provincial allocation of school books is based on requests from provincial officials.

In the absence of more systematic data on in-kind distribution of school books, it is difficult to come to any firm conclusions with respect to the allocation of school books in Afghanistan. It is unclear whether in practice this means that some provinces receive more than their fair share of books whereas other provincial requests may go unfilled. It may also be the case that some provinces over- or under-request books vis-à-vis their relative student population. However, the planned public expenditure tracking exercise should clarify this issue.

[16] Another anomaly –which is not further addressed here- is that school budgets are considered capital spending (code 25) rather than recurrent spending on goods and services (code 22).

Quality enhancement grant. Under the EQUIP program, schools in Afghanistan receive a education quality enhancement grant. The purpose of this grant is to fund improvements in school quality, and can be used for a variety of purposes related to the operation and maintenance of the school to be determined at the community level by a school management committee. The size of the grant received by each school is a function of the school's enrolment, so that schools receive the following grants:

- Schools with enrolment between 500-1000 students: US$ 2500.
- Schools with enrolment between 1000-1500 students: US$ 3500.
- Schools with enrolment more than 1500 students: US$ 5000.

As a result of these allocation norms, the amount of resources received by each province depends on the number of schools in the province, as well as the relative size of the schools in each province.[17]

7.2 Considerations for the norm-based allocation of other resources

School books. There is anecdotal evidence that numerous obstacles have been encountered in the centralized procurement and distribution of school books across the national territory in Afghanistan. Since decentralized procurement of school books is unlikely to improve responsive service delivery in the short run, there is a need to make sure that the centralized provision of schoolbooks to the provincial level and beyond occurs in a manner that is as efficient, equitable and transparent as possible.

In this regard, it may be preferable to make explicit and transparent rules about the provincial distribution of text books. The most obvious, client-driven and transparent approach would be to allocate available books in proportion to the number of enrolled students in each province. The number of books to be provided to each province (and possibly, to each district and/or school) and the distribution schedule could even be published in the newspapers or broadcast for added transparency. To the extent that transportation challenges stand in the way of school books reaching certain provinces (or locations with each province), line ministry officials should assist provincial officials in resolving these obstacles with all deliberate speed, rather than reducing the subsequent allotment of school books for these locations.

Quality enhancement grant. The allocation approach used for the quality enhancement grant has strengths and weaknesses. Key strengths of the current approach are, first, its transparency, and second, that it recognizes that the student is the ultimate client of public education, by linking the size of the grant to each school's enrolment. Two apparent weaknesses can also be raised. First, one could argue that the current approach – relying on three school-size categories – results in a pretty uneven and discontinuous allocation of resources per student: for instance, a school of 500 students receives US$ 5.00 per student, whereas a school with an enrollment of 999 students would receive US$ 2.50 per student. In turn, a school with an enrolment of 1,001 students would receive US$ 3.50 per student. A second concern is that the grants are tied to the number of schools, meaning that provinces with fewer schools (and possibly a greater under-served population) actually receives

[17] Although it does not appear that every school receives a quality enhancement grant each year under the EQUIP program.

less money in aggregate to enhance the quality of education when compared to provinces that have more schools and higher enrolment rates.

The above-noted criticism of the current approach notwithstanding, the current allocation mechanism appears to be a reasonable, norm-based allocation approach given the current environment in Afghanistan. For instance, although relying on categories of enrolment-size creates some inequity in per-student terms (compared to providing a grant that is proportional in size to the number of enrolled students), the chosen approach largely removes the financial incentive to over-report the number of students in a school. Likewise, while the provincial distribution of the school enhancement grant may cause inequities across provinces to the extent that the norm is input-driven (by being based on the number of schools), the resulting inefficiency and inequity is most appropriately managed by ensuring that new schools and classrooms are constructed in provinces that have a deficiency in this regard. This is the approach already advocated in Section 6. To the extent that the centralized establishment and approval of new schools and the prudent allocation of infrastructure resources will ensure an equitable distribution of schools and school infrastructure across provinces, the quality enhancement grant will automatically follow a more appropriate allocation pattern over time. In addition, at some point in the future, this source may be integrated with the infrastructure improvement pool of resources described in section 6 above.

8. Integration with Budget Formulation Processes

In order to ensure that public services in Afghanistan are financed in a transparent, equitable, efficient and policy-driven manner, the government is pursuing an objective norm-based method for determining provincial resource allocations, which links the allocations provided to each province to its service delivery needs. In this light, this technical note has provided analysis and a conceptual framework for developing norm-based provincial budget allocations for general education for 1390.

The quantitative analysis has indicated that, to a large extent, current budget allocations are actually distributed across provinces in a pretty consistent manner, and in a way that seems to be improving over time. Yet, it is suggested that provincial allocations can be further improved by shifting from the current fragmented, input-norm-based allocation approach to provincial budget allocations that are more consolidated and that is driven by outputs rather than by inputs. This would first require the government to identify 5-6 provincial budget components or budget windows to which separate norms would be applied, including salaries and wage expenditures; goods and services expenditures; expenditures on school books and learning materials (whether applied to a funding pool or in-kind); education quality enhancement grants; and education infrastructure.

As described in Section 3.3, the Ministry of Education – with support from other key government stakeholders- would take the lead in developing concrete, simple and output-based norms for each of these windows. While this process should be internal to the government, the World Bank would be available to provide technical guidance and support in the finalization of these norms, and in integration this process into the budget formulation process for 1390 beyond the general education program. Based on

the progress that has already been made towards the formulation and implementation of output-based provincial allocation norms, it is expected that this norms will be able to be fully introduced for (general) education as part of the budget formulation process for 1390.

In addition to developing these allocation norms, some other considerations that should be kept in mind as the government pursues an improved allocation of budgetary resource, include:

- How should guidance on the improved norm-based provincial allocations be included into the budget circulars and into the budget formulation process? How and when should other sectoral provincial expenditures be norm-based?

- What impact will the introduction of these norms have on other government processes, such as the establishment of provincial tashkeel and the possible provision of location-based allowances.

- To the extent that a single service-delivery modality may not be suitable for all conditions, what alternative modalities of delivering education services should be considered? For instance, to what extent can boarding schools or community-based schools improve access to basic education for residents in remote or hard-to-reach areas? What implications does this have for norm-based funding arrangements?

- How would the provincial budgeting pilot process best support the effective use of these norm-based allocations, including considering alternative service-delivery methods? How should the model for provincial budgeting build upon norm-based allocations to produce a clear deconcentration policy within sectoral ministries?

- The budgeted provincial allocation of resources is only as good as the budget execution across provinces. As such, it will be important to have a clear picture of the effectiveness of budget execution at (and across) the provincial level. The public expenditure tracking survey (PETS) that is currently being discussed by the government and the World Bank provide important insights into whether the funding actually flows, and the extent to which public funding is effectively translated into improved public service delivery for various budget components.

ANNEX 1:

INDEX OF FIT: HOW TO MEASURE AND COMPARE DIFFERENCES IN ALLOCATION PATTERNS

In comparing provincial allocation patterns, it is useful to be able to quantify how similar or how different two allocation patterns are. In addition to using the standard statistical measure of correlation –Pearson's correlation coefficient- for this purpose, we can use a measure known as the "Index of Fit" to specifically analyze the deviations between two allocation patterns. The Index of Fit (IOF) is an indicator that measures how well one allocation pattern resembles another pattern based on the absolute difference for each subnational jurisdiction (e.g., province) between the two allocations. The Index of Fit is specifically computed in two steps. First, the Index of Deviation is as fifty percent of the sum of the absolute differences, divided by the total allocation amount. Then, the Index of Fit is defined as one minus the Index of Deviation. An example may be useful in illustrating the use of the Index of Fit.

The example in the box below shows 3 provinces (Province A, B, and C), each of which would receive a certain norm-based allocation amount (Column I), and each of which in reality receive an actual budget allocation which is different from the norm-based amount (Column II). The total allocation pool distributed in this example (both in Columns I and II) equals US$ 1000. (The totals of Column I and II have to be the same in order to compute and IOF). Column III shows the absolute difference between the allocations received by each province and the norm-based allocation; for example, the absolute difference for Province A is 220-200=20. Next, we compute the sum of this the absolute differences for all provinces combined. In the example, we can easily determine that the sum of the absolute differences is 240.

Box: Example of Index of Fit

Provinces	I. Norm-based allocation	II. Actual	III. Absolute Difference	IV. Received too much	V. Received too little
Province A	220	200	20		20
Province B	600	500	100		100
Province C	180	300	120	120	
Total	**1,000**	**1,000**	**240**	**120**	**120**
IOD			**0.120**		
IOF			**0.880**		

Taking 50 percent of the sum of the absolute differences (50% of 240 = US$ 120 in this example) has a practical interpretation as illustrated in Columns IV and V: you would have to take 120 dollars away from some provinces and distribute it to other provinces in order to achieve exactly the same allocation incidence pattern (or fit) between the two allocation patterns. In other words, the total deviation in this example is US$ 120.

Next, the Index of Deviation (IOD) is computed by dividing 50% of the sum of absolute differences (50% * 240 =120) by the total allocation pool (1000) in order to express the IOD as a percentage of the total allocation amount. In the example, the IOD of 0.120 suggests that the deviation is 12%, so that 12% of the allocation pool would have to be redistributed from one set of provinces to another in order to achieve an identical "fit". In the most extreme cases, the IOD would range from zero (no deviation between the two patterns at all) to one (complete deviation; redistribution of all resources would be necessary to achieve the same distribution pattern).

Finally, the Index of Fit (IOF) is defined as one minus IOD. As such, the IOF defines the share of the total allocation amount that is allocated the same under both allocation patterns being compared. For instance, the IOF of 0.88 in the example suggests that 88 percent of the total allocation pool is distributed the same under both allocation patterns, whereas the remaining 12 percent of the allocation pool will have to be re-distributed in order to achieve a perfect fit. As such, the IOF range from zero (completely imperfect fit; redistribution of all resources is necessary to achieve fit) to one (perfect fit; no redistribution necessary).