



# **OECD Review of Policies to Improve the Effectiveness of Resource Use in Schools (School Resources Review)**

**Design and Implementation Plan for  
the Review**

## TABLE OF CONTENTS

BACKGROUND.....	4
Introduction.....	4
Related work.....	5
Purpose of the Review.....	5
Summary: Proposed scope of the Review.....	6
Context.....	11
Education environment.....	12
Objectives of the education system.....	13
ANALYTICAL FRAMEWORK.....	14
The concepts of effectiveness and efficiency.....	14
Educational production functions.....	14
Resource types.....	15
Inputs.....	16
Types of outputs.....	17
Levels of analysis.....	18
KEY ISSUES AND QUESTIONS FOR ANALYSIS.....	20
Issue 1: Governance of resource use in schools.....	20
Issue 2: Effectiveness of resource distribution.....	24
Issue 3: Effectiveness of resource utilisation.....	27
Issue 4: Effectiveness of resource management.....	32
Policy priorities as expressed by countries.....	33
Areas of priority for the Review.....	35
METHODOLOGY.....	36
Main components of the Review.....	36
Governance of the Review.....	38
Collaboration.....	39
Modes of participation.....	39
Outputs.....	40
Dissemination.....	40
REFERENCES.....	41
ANNEX 1: POLICY PRIORITIES EXPRESSED BY COUNTRIES.....	45
ANNEX 2: PROVISIONAL TIMELINE FOR THE REVIEW.....	50
ANNEX 3: NATIONAL CO-ORDINATOR FOR COUNTRY REVIEWS.....	51

## Tables

Table 1. Thematic Modules to analyse effectiveness of resource use in schools.....	21
Table 2. Country policy priorities for improving the effectiveness of resource use in schools, as rated by countries, 2013 .....	34
Table 3. Country policy priorities for improving the effectiveness of resource use in schools shown according to the analytical framework .....	35
Table A.1 Results of priority-rating exercise, Issue 1 – Effectiveness of Resource Distribution .....	48
Table A.2 Results of priority-rating exercise, Issue 2 – Effectiveness of Resource Allocation.....	49
Table A.3 Results of priority-rating exercise, Issue 3 – Effectiveness of Resource Management.....	49

## Figures

Figure 1. Conceptual framework to analyse resource use in schools, part 1 .....	8
Figure 2. Conceptual framework to analyse resource use in schools, part 2 .....	9

## BACKGROUND

### Introduction

1. When resources are limited, as they always are, these resources need to be well used to support educational improvement objectives to the greatest possible extent. Policy makers and educational leaders at all levels of the school system are confronted with competing demands from a variety of actors inside and outside the education sector. In distributing and allocating resources to different programmes and priorities, they are faced with choices involving complex trade-offs. To make such choices, they need information regarding the cost and effects of different alternatives. This is what effectiveness and efficiency analyses are about.

2. Efficiency is high on education policy agendas across the OECD. As countries are seeking to enhance the performance of all students while reducing achievement gaps between different groups of students, there has been greater focus on ensuring that resources are directed to those areas where improvements in teaching and learning can best be achieved. An optimal distribution and use of resources would achieve both efficiency and equity objectives together, by ensuring that resources are channelled to where they are most needed.

3. A range of global developments have increased attention to efficiency in education in recent years. Fiscal pressures related to the global financial crisis, demographic developments influencing the size and composition of student populations, the rising importance of education and more educated parents have all contributed to a renewed interest in optimising resource use in education.

4. The OECD Review of Policies to Improve the Effectiveness of Resource Use in Schools (also to be referred to as the *School Resources Review*)<sup>1</sup> will provide analysis and policy advice on how to distribute, utilise and manage resources so that they contribute to achieving countries' educational objectives to the fullest. This paper provides the implementation plan for the OECD Review, setting out the analytical framework, issues for analysis, proposed outputs, methodology, timeline and resources required. The Review will seek to make the most of the OECD's greatest strengths – providing a setting where governments can compare policy experiences, seek answers to common problems, and identify and share good practices.

5. This revised project plan incorporates feedback on an earlier version of this document [[EDU/EDPC\(2013\)4](#)], which was discussed both at the meeting to launch the OECD Review, held on 27-28 March 2013 at the OECD Headquarters in Paris [[EDU/EDPC/M\(2013\)1](#)] and at the 13<sup>th</sup> meeting of the OECD Education Policy Committee, held on 18-19 April 2013 at the OECD Headquarters in Paris [[EDU/EDPC/M\(2013\)2](#)]. It seeks to respond closely to the needs and expectations of countries.

---

<sup>1</sup> This Review is designed to deliver the Output Result 3.3 “Review on policies to improve effectiveness of resource use in schools (incl. Effective Learning Environments)” for the Education Policy Committee’s Programme of Work and Budget for 2013-14 [[EDU/EDPC\(2012\)1/REV1](#)] and will contribute to the second pillar of the PWB “Learning from educational data”.

## Related work

6. While recent global developments have led to renewed interest in studying the effectiveness and efficiency of school systems, these topics are not new to the OECD. This Review will be able to build on a range of previous projects conducted within the Directorate for Education and Skills and elsewhere in the OECD.

7. Indicators from *Education at a Glance* provide a wealth of descriptive information regarding the financial and human resources invested in education across OECD countries. This Review will draw extensively on such data, while also collaborating with INES and its relevant networks to identify data gaps where additional indicators need to be collected.

8. In addition, initial analyses from PISA provide important information on how resources invested in education are distributed across schools and students and how these investments are associated with performance. For example, these analyses indicate that many countries face challenges in achieving an equitable distribution of resources across schools. This Review aims to get behind such data to explore how resources could be re-allocated to optimise their impact on quality and equity in schooling.

9. A range of other projects within the Directorate for Education and Skills also touch upon the effective use of resources in schools such as the recently completed policy reviews on Evaluation and Assessment Frameworks and on Equity and Quality in Education, CERI's work on Market Mechanisms and on Governing Complex Education Systems, as well as work by the Centre for Effective Learning Environments (CELE) on Designing for Education. Results from TALIS also provide key information regarding the use of human and material resources within schools and classrooms. This Review will draw its scope respecting the boundaries posed by such other projects in order to avoid overlaps and ensure complementarity with other work.

10. The Review will also take account of previous exploratory work conducted by the OECD's Economics Department on efficiency in education [[ECO/WKP\(2007\)6](#) and [ECO/WKP\(2007\)3](#)]. The Review will consider this and other work from outside the OECD in analysing if and how efficiency in education can be measured and benchmarked. Importantly, the Review will also draw and build on an initial paper on *Resources for Learning* discussed by the Education Policy Committee (EDPC) in 2011 [[EDU/EDPC\(2011\)4](#)].

## Purpose of the Review

11. The purpose of the Review is to analyse how resource inputs in school systems should best be distributed, utilised and managed to optimise school outputs, encourage successful teaching and learning and promote continuous improvement. The Review will provide analysis and policy advice to help governments and schools achieve effectiveness and efficiency objectives in education.

12. Educational effectiveness refers to the ability of a school or school system to adequately accomplish stated education objectives, but studies of effectiveness are not necessarily concerned with money and the costs of different inputs. Educational efficiency, on the other hand, refers to the achievement of stated education objectives *at the lowest possible cost*.

13. The Review will draw on different strands of research to bring together studies on the costs of different resource inputs as well as analyses of how such inputs can be transformed into outputs by allocating educational spending in productive ways. The Review will look at the spending choices and trade-offs countries face in striving for this and will seek to:

- synthesise research-based evidence on effective resource use in the school sector and disseminate this knowledge among countries
- identify innovative and successful policy initiatives and practices
- facilitate exchanges of lessons and experiences among countries, and
- identify policy options for policy makers to consider.

14. Analysing effectiveness of resource use in schools is complex, deals with every aspect of school policy and requires a comprehensive analytical approach. At the same time, a wealth of research has been conducted on the effectiveness of resource use in most single areas of school policy (e.g. teacher policy, school leadership policy). As a result, the Review will need to have particular care in developing its analysis in ways that add value to this knowledge. The Review will:

- propose an analytical framework to comprehensively analyse resource use in schools
- provide analysis which connects resource use across distinct areas of school policy
- revisit previous OECD work (e.g. work on teacher policy; school leadership) adding analysis of the costs of the different policy alternatives
- place considerable emphasis on trade-offs between alternative uses of resources using cost-effectiveness analysis, and
- give careful attention to issues of policy implementation and the political economy of reform.

15. The OECD Review is also an opportunity to ensure the analysis of effectiveness of resource use in schools is informed by an educational perspective. Economic and financial perspectives will be considered in light of the broad objectives of education, equity of educational opportunity and the long-term impact of education. This will be achieved through the analysis of the relevant research on learning, school effectiveness and efficiency in education.

16. An important area for analysis will be resource use in contexts of changing education budgets, i.e. policy approaches to accommodate either an increase or a cut in the education budget. The analysis will be particularly sensitive to the potential negative consequences of budget cuts, namely the potential adverse effects on the equity of educational opportunities and the potential social impact of the reorganisation of human resources in education.

### **Summary: Proposed scope of the Review**

17. This section briefly summarises key aspects to be covered as part of the Review, such as the levels of the education system that will be included, the types of resources and outputs to be considered and the key issues to be addressed. These key aspects are illustrated in the conceptual framework depicted in Figures 1 and 2. The remainder of this paper will explore each of these aspects in greater detail.

18. The Review will focus on pre-tertiary levels of education, including vocational and pre-vocational education at the secondary level. The scope of the Review does not include tertiary education and adult education, even if it will look at the distribution of resources between school education and other education levels. Analysis relating to early childhood education and care (ECEC) and apprenticeships within vocational education and training will draw on previous OECD work on early childhood education

and care (*Starting Strong* series) and on vocational education and training (*Learning for Jobs* Review), respectively. Analysis relating to ECEC will also require a close collaboration with the OECD project “Monitoring Quality of Early Learning and Development”. While the Review will include analysis on the use of school facilities (e.g. decisions regarding school size), it will not directly consider the *design* of such facilities because this is already covered in the extensive work of the OECD’s Centre for Effective Learning Environments (CELE).

19. School systems rely on a broad range of resources. This Review will consider four resource types, which result from the overall financial resources available to education: financial transfers (e.g. public funding of individual schools, transfers to different levels of school administration), human resources (e.g. teachers, school leaders and education administrators), physical resources (e.g. buildings and equipment), and targeted programmes (i.e. funding programmes targeted at particular groups or with specific policy objectives such as scholarships for disadvantaged students or programmes to improve school leadership). These resource types are closely interlinked because financial transfers and targeted programmes may then be used in further human and physical resources. These resources can be used at a number of levels: student level (when resources are given directly to students as with financial aid at secondary level); teacher level (the management of the teaching workforce); school leader level (the management of school leadership); school level (e.g. programmes targeted at schools); and system and sub-system level (e.g. education administration).

20. While educational objectives vary across OECD countries, this Review attempts to look at a range of outputs that are at the heart of all education systems, such as ensuring adequate access, participation and performance of students. Quantitative measures of access and participation in education (e.g. enrolment, drop-out and completion rates) offer important indicators of student flows across the system, but they provide little information on the actual quality of teaching and learning within schools. Measures of student performance, such as results achieved in standardised assessments, provide more precise measures of actual learning outcomes, even though they typically only capture a small part of countries’ curriculum objectives. Given the key goal of education systems to close achievement gaps, particular attention should also be paid to the distribution of results across student groups and the differential impact of different inputs on disadvantaged groups. In addition, the effectiveness of resource use in schools can also be assessed in relation to longer term outcomes such as labour market and social outcomes (e.g. earnings, rates of return, productivity levels, social mobility).

Figure 1. Conceptual framework to analyse resource use in schools, part 1

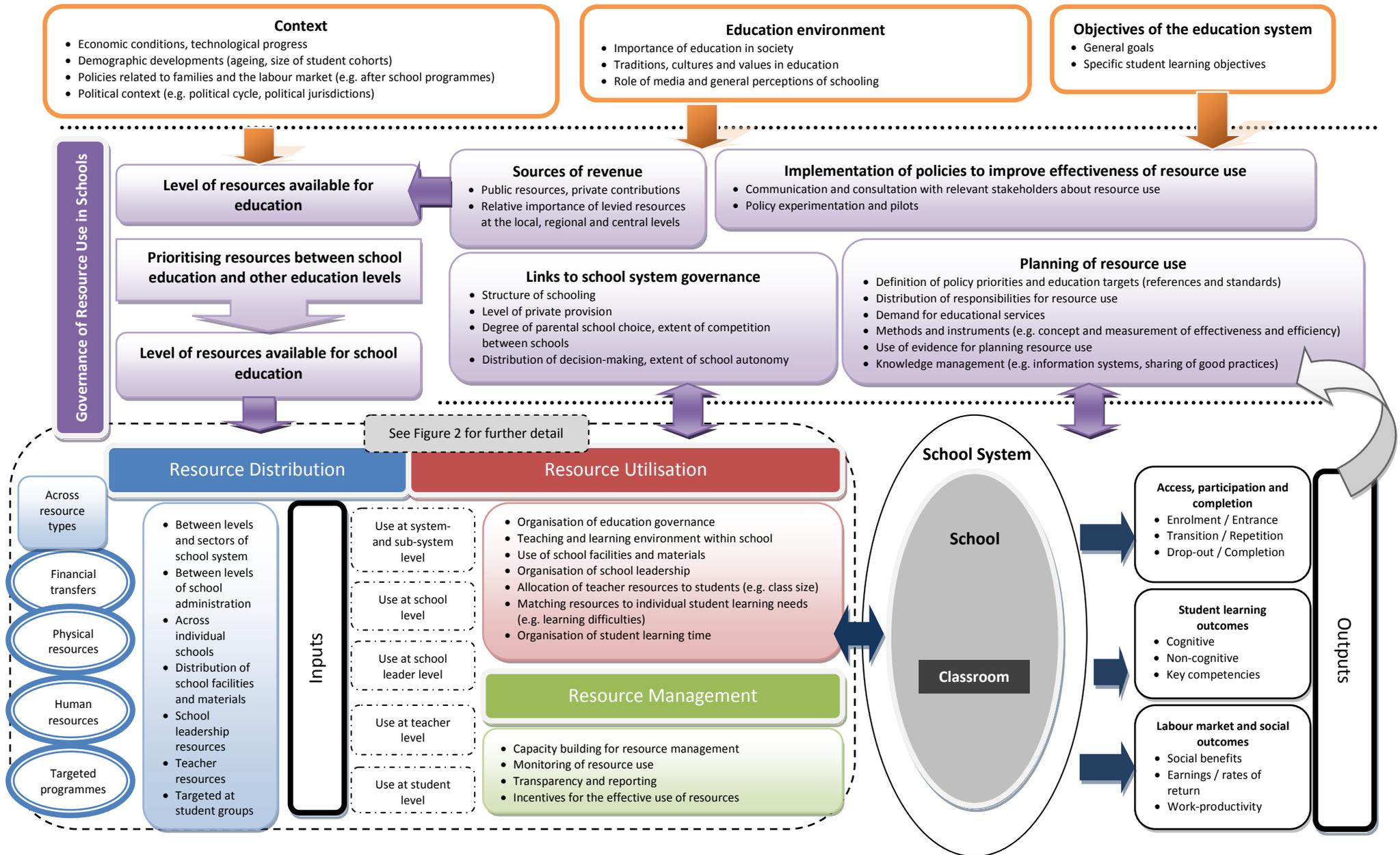
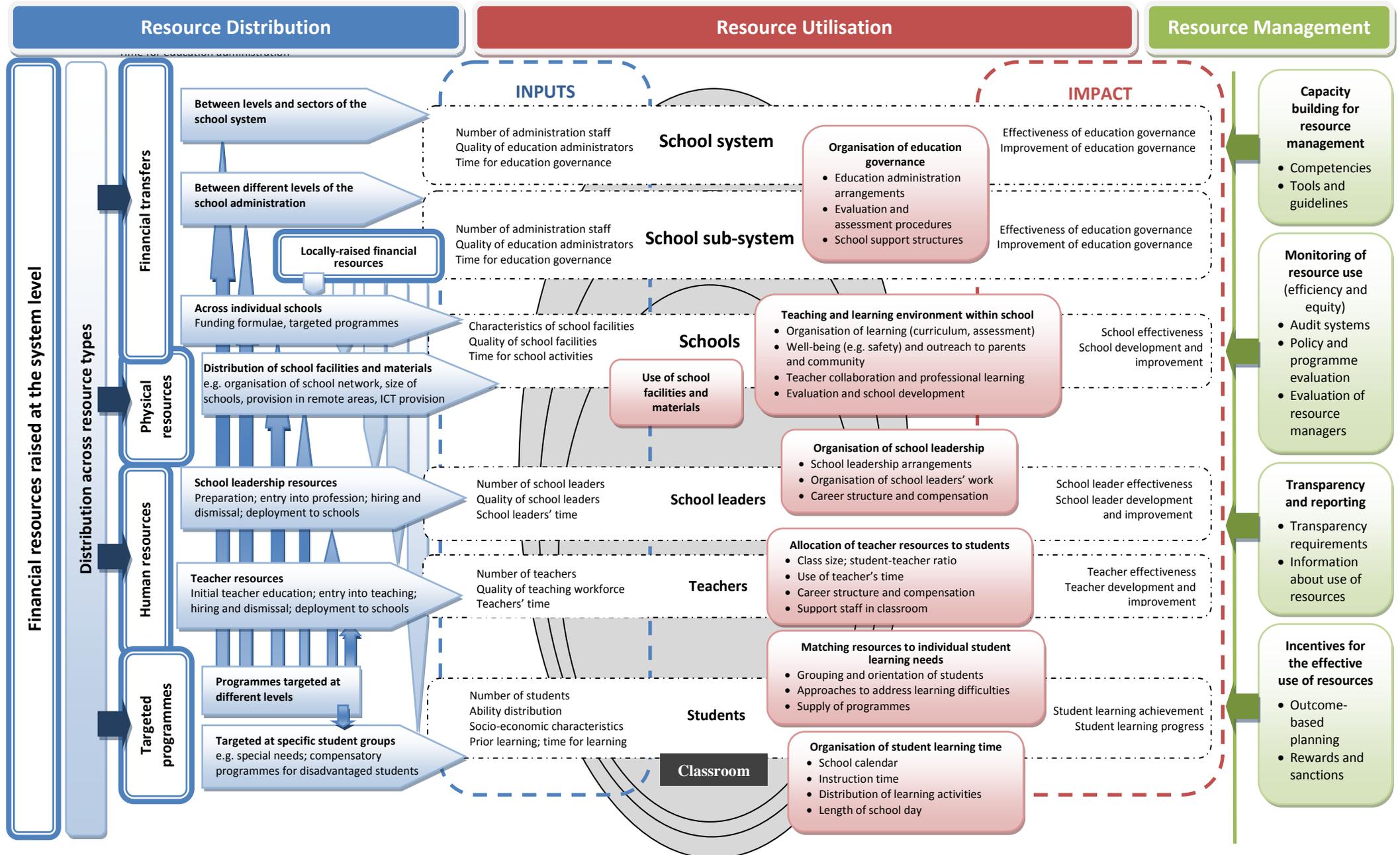


Figure 2. Conceptual framework to analyse resource use in schools, part 2



21. The conceptual framework proposes four main issues for analysis: (i) effective resource governance within the school system; (ii) effective distribution of resources across the system; (iii) effective utilisation of resources once they have been allocated to different priorities and programmes; and (iv) effective management of resources at different levels of the system. These issues are explained in further detail below.

1. **Effectiveness of resource governance.** This issue is concerned with how resources can be effectively governed within school systems. One aspect analyses how the effectiveness of resource use is influenced by the key foundations of school systems. The latter relate to aspects such as the level of resources available for education, sources of revenue for education (e.g. relative importance of public and private resources) and approaches to school system governance (e.g. size of private sector, level of parental choice, structure of schooling). Another aspect relates more directly with the governance of resource use. It includes the planning of resource use (e.g. definition of priorities and targets, distribution of responsibilities for resource) and the implementation of policies to improve the effectiveness of resource use in (e.g. communication and consultation with relevant stakeholders about resource use).
2. **Effectiveness of resource distribution.** This issue is concerned with how resources can be effectively distributed across the school system. This includes the distribution of resources between the different levels of the administration (e.g. central, state, regional and local), across resource types (e.g. human resources, physical resources, targeted programmes), between levels of the school system (e.g. pre-primary, primary, secondary), between different sectors (e.g. general programmes, vocational and programmes) and between individual schools (e.g. through funding formulae and special targeted programmes). In addition, it also deals with the distribution of school facilities and materials (e.g. organisation of the school network), the organisation of teacher resources (e.g. number of teachers; teacher preparation), the organisation of school leadership resources (e.g. number and profile of school leaders) and resources targeted at specific student groups (e.g. special needs; programmes for disadvantaged students).
3. **Effectiveness of resource utilisation.** Making resource decisions is not only about distributing resources across the system but also about ensuring that such investments translate into improved teaching and learning at the school level. This issue analyses how resources can be effectively used and allocated, through specific policies and practices, to different priorities and programmes once they have reached different levels of the school system. Among other things, it considers how resources are matched to students' needs (e.g. grouping of students within schools; student support systems; programmes to prevent early school leaving); how teacher resources and teaching time are allocated to students so that they optimally respond to improvement priorities (e.g. class size, teacher-student ratios, use of teachers' time); how student learning time is organised (e.g. instruction time, length of school day); how school leadership is organised and distributed; how resources in schools are organised to create environments conducive to effective teaching and learning (e.g. outreach to parents and communities); and how school facilities and materials are used to support such environments (e.g. use of school facilities for afternoon tutoring or summer schools).
4. **Effectiveness of resource management.** Resource utilisation in the school sector does not happen in isolation. It takes place within institutional contexts that may facilitate or hinder effective resource allocation and use. This issue is concerned with how resources can be effectively managed at all levels of the school system. It looks at capacity building for resource management (including the competency frameworks and professional development opportunities available to support resource management capacity); the monitoring of resource use (e.g. audit systems, evaluation of resource managers); transparency and reporting; and incentives for the effective use of resources (outcome-based planning; rewards and sanctions).

## Context

### *Economic conditions and technological progress*

22. The global financial crisis has created fiscal pressures on government budgets. This has brought education spending under closer scrutiny. While cutbacks in the school sector have been limited in most OECD countries up to now, it is unlikely that education budgets will remain entirely spared from fiscal consolidation related to the financial crisis. From the data currently available, it appears that the financial crisis had not yet affected investment on education in the majority of OECD countries (OECD, 2013a). However, between 2009 and 2010, public expenditure on educational institutions as a percentage of GDP fell in around one-third of OECD countries as a result of the economic crisis (OECD, 2013a). In fact, a range of countries including Greece, Ireland, Italy, Portugal and Spain are implementing severe austerity measures which include cuts in education spending impacting different parts of school systems. This may involve salary cuts for educational personnel, freezing of career progression and downsizing of the educational administration (OECD, 2013b). On the other hand, the demand for education from individuals who are unemployed is likely to increase, requiring additional spending on higher levels of the education system, which in turn may put pressures on school system budgets (Karkkainen, 2010).

23. These developments clearly enhance the focus on the efficient use of resources in the education sector. While public resources should always be used responsibly, in times where additional demands are made on taxpayers it is particularly important to ensure that no resources are wasted through inefficient use of funding. Even where education budgets can be shielded from budget cuts, a greater focus on efficiency can help ensure that the best possible outcomes are achieved with a given level of resources.

24. Also, technological progress has great implications for the type of knowledge and skills that individuals are expected to have once they leave the school system. Teachers are expected to develop new knowledge and competencies to be sensitive to the new demands of a knowledge-based society. For instance, teachers need to be equipped to make the most effective use of ICT in their teaching activities. This has important implications for resource use in schools.

### *Demographic developments*

25. Demographic developments further add to the urgency to re-examine spending choices in education. Many OECD countries are facing an overall ageing of the population due to falling birth rates and increasing life expectancy. These demographic changes have important implications for education systems. On the one hand, governments need to distribute funding between different public services, and ageing populations make more demands on health care, social services and pensions systems. As a result, education systems may face a funding squeeze as policy priorities might be shifting more towards funding the cost of health care, pensions and care for the elderly.

26. On the other hand, some education systems are faced with challenges in dealing with an overall decline in the school-age population. The overall decrease in the number of children is amplified in some areas by internal migration from rural to urban areas, leaving some schools with very few students. This raises questions about how to best use the freed up teacher and other resources to ensure all children are guaranteed high quality education. Some countries are reorganising their school networks by closing down small schools and creating larger cluster schools, while others experiment with different ways to maintain small community schools and/or optimise the use of technological resources to cater to children in isolated areas.

27. At the same time, OECD countries are facing increasing diversity within their student populations due to growing interconnections between countries and increased levels of migration. In some

countries, recent economic developments have increased gaps between the rich and poor and migration has led to increasing diversity in the values and needs of different population groups. At the same time, educational research has brought about a better understanding of the need to respond to individual student needs by providing each learner with individualised feedback and providing inclusive and multiculturally sensitive programmes (Nusche, 2009). In this context, schools are expected to rethink resource allocations and ensure available resources are matched with individual student needs. At the same time, the diversity of student backgrounds also raises questions about the equity of funding across schools with varying levels of needs.

### ***Policies related to families and the labour market***

28. Education policy is affected by overall policies related to families and the labour market. For instance, policies seeking to increase women's participation in the labour market would typically influence the extent of provision of early childhood and care services, the duration of the school day and the offer of extra-curricular activities in schools. Also, an approach to make the teaching career attractive for people from a wide variety of personal and family circumstances is to provide flexible working conditions. These can include programmes that enable teachers to work part-time, take more leave opportunities, and reduce their working hours without jeopardising their long-term employment and pension rights.

### ***Political context***

29. The political environment and the factors shaping government priorities are potentially important influences on the perceived necessity for school reform, the resources available for reform, and the direction of the reforms. As a major field of public policy in most countries, schooling is often affected by political views about public sector reform, for example in regard to decentralisation of responsibilities, privatisation and accountability. Also, policy makers are often constrained by the duration of the political cycle as the depth of any reform in education is influenced by the sequence of the electoral process. Another important influence on the distribution, utilisation and management of school resources is the set of political jurisdictions established in countries as well as the extent of authority in the area of education granted to each jurisdiction.

### **Education environment**

#### ***Importance of education in society***

30. The importance given by society to education critically conditions the ability of the education system to secure private resources as well as the priority given by the government to education as a recipient of public resources. In some countries the profile of education is very high as an issue of public interest. In these cases, individuals view achievement in education as the key social escalator for success in life and parents typically exert considerable efforts to secure the educational success of their children. This is often reflected in the strong prevalence of private tutoring, high willingness to invest private savings in education and strong social pressure for governments to give high priority to education.

#### ***Traditions, cultures and values in education***

31. Policies to improve the effectiveness of resource use in schools are developed within the broader context of existing traditions, cultures and values in education, which differ across countries. These shape the nature and significance of approaches to resource use in schools, including monitoring policies. Examples of important contextual aspects which condition policy perspectives on resource use in schools are: the culture of evaluation and accountability within the education system; the tradition of quality-focussed policies in the education sector and within the public sector; prevailing conceptions of effectiveness and efficiency; the extent to which teachers are trusted as professionals; the extent of the

regulatory and standard-setting role of national education authorities; whether education staff are part of the civil service; and the level of education of parents.

### ***Role of media and general perceptions of schooling***

32. An important contextual influence for the development of education policy is the role of the media. As it increasingly engages in the education policy debate, the media places a growing pressure for an effective use of public funds and leads the general public to demand transparency in the delivery of education services. To a great extent, it shapes societal views of schooling. Governments are under pressure to release information about the effectiveness of the education system and to provide evidence of the efficient use of public resources. At the same time, the attention the media devotes to education issues is also an opportunity for governments to publicise their accomplishments and feature the impact of their education policies.

### **Objectives of the education system**

#### ***General goals***

33. Countries typically devise statements about the ultimate goals of their education system. Overall goals for education systems typically emphasise the following aspects: the personal development of individuals; the acquisition of skills and competencies (e.g. learning in the course of life, critical thinking); equality of educational opportunities; equity of access, participation and outcomes; values and attitudes (e.g. civic skills, fundamental rights, principles of democracy, respect of diversity, protection of the environment). Countries vary in the extent to which these aspects are a priority, which inevitably influences the way resources are distributed and used.

#### ***Specific student learning objectives***

34. At the level of student learning objectives, countries develop a basis for common expectations of outcomes from schooling in a variety of forms such as curricula, study programmes, educational standards or learning progressions (OECD, 2013b). This influences resource use considerably. For instance, the definition of the curriculum to be taught in schools has a direct impact on the relative demand for teachers in specific subject fields and determines to a great extent how student time in curricular activities is to be organised.

## ANALYTICAL FRAMEWORK

### **The concepts of effectiveness and efficiency**

35. Effectiveness and efficiency are typically pursued together in education policy and this Review aims to support both. The idea behind these concepts is to ensure that resources (such as direct spending, teaching time and materials) are used in educational activities so that they produce desired outputs (such as completion rates, diplomas and learning achievements). While the concepts of effectiveness and efficiency are closely related, they differ in the emphasis placed on the monetary value of inputs.

#### ***Effectiveness***

36. Educational effectiveness refers to the ability of a school or school system to adequately accomplish stated education objectives. Studies of educational effectiveness analyse whether specific resource inputs have positive effects on outputs, and if so, how large these effects are (Lockheed and Hanushek, 1994). However, effectiveness analyses are not necessarily concerned with money and the cost of different inputs.

#### ***Efficiency***

37. Educational efficiency, on the other hand, refers to the achievement of stated education objectives *at the lowest possible cost*. In other words, efficiency is effectiveness plus the additional requirement that this is achieved in the least expensive manner (Scheerens, 2000). A more efficient school or school system achieves better outputs for a given set of resources, or it achieves comparable outputs using fewer resources. In order to analyse efficiency, it is necessary to have information regarding the cost of inputs.

### **Educational production functions**

38. Early economic research into education production functions has focused primarily on the impact of traditional resource inputs such as teachers and teaching time on student outcomes (e.g. research on the impact of overall spending, class size and teacher-student ratios). This type of research typically found only weak associations between such resource inputs and student performance (e.g. Hanushek, 1986, 1997). This overall weak relationship between spending on education and performance can also be observed in the results from PISA. These findings suggest that once all schools have received the minimum resources necessary to allow effective teaching, additional material resources may not have a significant impact on outcomes (OECD, 2010a).

39. However, other lines of school effectiveness research have pointed to the important variations in learning outcomes across schools with otherwise comparable characteristics and resource inputs. Research into the characteristics of “highly effective schools” has emphasised the importance of allocating resources within schools in productive ways. Such research has typically investigated how funding, people and materials are used in highly effective schools in order to shape school structure, organisation and processes, which in turn impact on teaching and learning outcomes (e.g. Scheerens and Bosker, 1997; Sammons et al., 1995).

40. School effectiveness research, however, is sometimes criticised for its limited focus on the cost of different inputs. Hence, a particular programme may be judged as highly effective in achieving measurable learning outcomes in students, but there may be a similar programme used in a neighbouring school which is able to achieve even better outcomes at half the cost. To allocate funding effectively between different alternatives, it is important to integrate information on the cost of different options. While not all educational inputs and strategies can be quantified, cost analysis studies aim to identify the costs associated with complex choices and provide methods for choosing alternatives to achieve desired outputs (Pan et al., 2003).

41. To the extent possible, this Review will aim to bring together findings from such different strands of research including information on the cost of different inputs. While information on costs of alternative resource inputs is essential to measure efficiency, it is important to keep in mind the difficulties in estimating the monetary value of many key resources in education.

### **Resource types**

42. Educational inputs are generated by a broad range of resources. This Review will consider mainly four types of resources, which result from the overall financial resources available to education: financial transfers (e.g. public funding of individual schools, transfers to different levels of school administration), human resources (e.g. teachers, school leaders and education administrators), physical resources (e.g. buildings and equipment), and targeted programmes (i.e. funding programmes targeted at particular groups or with specific policy objectives such as scholarships for disadvantaged students or programmes to improve school leadership). These resource types are closely interlinked because financial transfers and targeted programmes may then be used in further human and physical resources.

43. The Review will look at overall levels of school funding and distribution across resource types, before analysing in more detail the range of human resources, physical resources and targeted programmes to which such funding is allocated. It will also analyse sources of funding, in particular the distinction between public and private sources.

### ***Financial transfers***

44. There are different ways of transferring and distributing school funding across the system and to individual schools. At the central level, funding may be concentrated in the Ministry of Education or be spread across a range of central agencies. How financial resources are distributed across the school system depends on the governance of the school sector and the respective resource management responsibilities at different levels of the administration. It is also related to the structure of the school system itself, including the size and importance of different sectors and programmes. The way funding is allocated to individual schools further depends on the funding formulae used to calculate costs per student. Financial resources distributed at school, sub-system and system levels are further allocated to programmes and priorities at the respective level. In addition, similar distribution mechanisms also exist in relation to resources levied at the local level (e.g. regions, municipalities).

### ***Human resources***

45. The education staff (e.g. teachers, school leaders, support staff, education administrators) hired at different levels of the school system ensure a broad range of functions and bring different types of expertise. Human resources account for a very large proportion of educational expenditure. Over 62% of current expenditure on education is devoted to compensating teachers and 16% to compensating other staff (OECD, 2012). Four key factors influence teacher costs per student: the level of teachers' salaries, instruction time for students, teaching time per teacher and average class size. How human resources are

distributed across the school system depends among other things on existing qualification requirements for staff across different levels and sectors of the school system. It is also related to the governance of teacher and school leader recruitment, i.e. whether teachers and school leaders are centrally allocated to schools or hired at the local or school level. Where school leaders are responsible for human resource management, they need to establish policies to attract and retain qualified teachers and ensure that staff skills are matched with student learning needs. Important decisions also need to be made regarding the distribution of teacher time, as an important resource, for different activities such as planning, instruction, collaboration and professional development.

### *Physical resources*

46. Given the labour-intensive nature of education, a relatively small proportion of overall expenditure is devoted to physical and material resources. Spending on physical resources includes capital expenditure on assets that last longer than one year (e.g. spending on the construction, renovation and major repair of school buildings) as well as current expenditure used each year on elements such as maintenance and rental of school buildings and other facilities. Material resources include such items as computers, textbooks and other instructional materials. On average across OECD countries, just over 9% of total spending was devoted to capital expenditure in 2009 while over 90% was devoted to current expenditure. Of the overall current expenditure, only 22% were allocated on average to spending other than compensation of staff (OECD, 2012). How physical resources are distributed across the system depends, among other things, on the typical size of schools and on whether facilities are used continuously or only for certain parts of the day, week and year. The cost of physical and material resources is also likely to vary between educational levels and sectors, with higher levels of education and vocational education and training typically requiring more specialised equipment than primary education, for example.

### *Targeted programmes*

47. The distribution of public funding for schooling can also target particular school agents or specific policy priorities. In some countries, schools may receive a sizeable share of public funds through developmental programmes attached to particular policy objectives such as the introduction of innovative curricula, the improvement of management practices, the enhancement of the collaboration with the school community, quality improvement, or better support for disadvantaged students. Similarly, funding can also be directed to specific school agents through targeted programmes. Examples include compensatory programmes for disadvantaged students (e.g. means-tested voucher system, scholarships in upper-secondary education for students from low-income families) and performance-based reward schemes for teachers and school leaders. Targeted programmes typically distribute funding on a differentiated basis (depending on the characteristics of the potential recipients); restrict eligibility to a subset of school agents, schools and sub-systems; and may be based on a competition among eligible recipients.

### **Inputs**

48. Actual inputs used in the provision of educational services are intimately related to resource types. These include:

- **Students:** number, ability distribution, socio-economic characteristics, demographic profile, prior learning, time for learning
- **Teachers:** number, quality of the teaching workforce, teachers' time
- **School leaders:** number, quality of school leaders, school leaders' time

- **Schools:** characteristics of school facilities, quality of school facilities, time for activities at school
- **System and sub-system:** Number of administration staff, quality of education administrators, time for education governance.

### **Types of outputs**

49. While the definition of inputs to the school system is relatively straightforward, there is less consensus about the desirable outputs of schooling. Educational outputs are anything that a school or school system produces. Such outputs may be measured in terms of the number of lessons taught, the proportion of students completing different stages of education, the learning outcomes achieved by students or the broader labour market and social outcomes of education. This Review will focus on three types of outputs: access, participation and completion; student learning outcomes; and labour market and social outcomes.

#### ***Access, participation and completion***

50. Access, participation and completion rates in education are a common measure of educational output. They can be measured in terms of student entry, enrolment, transition, repetition, drop-out and completion rates at different ages, grades and levels of education. Such measures of student flows provide important information on the opportunities of students to access education at different levels and participate in various educational sectors and programmes, and on the extent to which some students leave the school system too early. When analysing such outputs for different student groups (e.g. from different socio-economic and language backgrounds), they can give some insights regarding the equity of access and participation in education. The advantage of such measures is that access, participation and completion indicators are typically collected and available to researchers in most school systems. However, unless completion is related to the achievement of precise learning standards, these measures provide limited information on the actual quality of teaching and learning within schools.

#### ***Student learning outcomes***

51. Most studies of educational effectiveness and efficiency seek to use more precise measures of educational output, by focusing on the actual learning outcomes achieved by students. Outcomes describe what a student achieves as a consequence of schooling, as opposed to what the school system intends to teach.

52. Diplomas or marks achieved by students may provide some information on learning outcomes, but there are concerns about reliability and comparability where marks are assigned by individual teachers and schools (OECD, 2013b). The most widely used measures of learning outcomes in efficiency studies are the results achieved by students on standardised assessments. Standardised assessments are designed and marked outside individual schools so as to ensure that the questions, conditions for administering, scoring procedures, and interpretations are consistent and comparable among students (Popham, 1991). These standardised procedures ensure a high level of reliability of scores across different schools and educational settings. However, it is important to keep in mind that standardised assessments are typically implemented only for certain age groups in a few core subjects and cover only a small range of intended curriculum goals. As a result, they provide a limited picture of overall learning quality in a school or school system.

53. Analysing the effectiveness and efficiency of education processes is further complicated by the fact that student learning outcomes are shaped by a broad range of factors many of which are outside the

control of schools. Students learn not only in classrooms but in many other settings including in their homes, leisure activities and sometimes private tutoring. Their learning is also influenced by socio-economic background factors and individual abilities and attitudes. Therefore the relevant output for effectiveness and efficiency considerations are those outcomes that are believed to be attributable to the schooling experience rather than to other influences beyond the reach of schools. To identify the marginal improvements that would not have occurred without the resource inputs of the school system, it is important to account for other factors potentially influencing learning outcomes.

54. Finally, there are also concerns regarding the extent to which effectiveness and efficiency studies are able to take into consideration the equity goals of OECD school systems. Studies looking at differential efficiency of education processes by comparing the effects of specific inputs on different student groups are scarce. In order to reflect the equity goals of schools and school systems, it is important to go beyond the use of simple performance average to include measures of the distribution of scores across a given student population.

### ***Labour market and social outcomes***

55. While the Review will concentrate on school outputs that occur in school or immediately after schooling, it will also give consideration to the longer-term labour market and social outcomes of learning (e.g. social mobility, earnings and work productivity), mostly drawing on the extensive work undertaken by CERI on Social Outcomes of Learning and Education and Social Progress.

### **Levels of analysis**

56. The Review looks at resource distribution, utilisation and management at six levels: system, sub-system, school, school leadership, teacher and student. The Review does not directly consider how resources are used at the classroom level (e.g. the use of teaching materials and approaches to teaching and learning) but it will refer to the extensive work undertaken in this area by the OECD's Teaching and Learning International Survey (TALIS) and CERI's work on Innovative Learning Environments (ILE).

### ***System level***

57. The Review will consider the role of central governments in distributing and managing resources across the education system. There are large differences in the extent to which central governments provide initial resources and take decisions regarding resource allocation across countries. In some countries, educational spending is centralised while in others it can be much decentralised after transfers between different levels of government. On average across the OECD, just over half of initial public funds for the school sector come from the central governments, and once transfers between levels of government are taken into account this proportion decreases to 34% (OECD, 2012).

### ***Sub-system level***

58. The Review will analyse how resources are distributed, utilised and managed at the sub-system level. Sub-national school systems are defined as a system of schools under the authority of a state, regional or local government or a group of schools affiliated to a shared identity (e.g. pedagogical, religious, etc.). In many countries, sub-national authorities and schools play important roles in deciding about the strategic use of financial, human and material resources. They may also levy their own resources, which they use to achieve locally-defined educational objectives. In more decentralised countries, local authorities play an important role in making decisions about planning and structures of schooling. For instance, in 16 out of 36 countries for which data are available, decisions over the creation and closure of schools are made by local authorities. Also, decisions on the allocation and use of resources for a school's capital expenditure are taken by local authorities in at least half of the countries (OECD, 2012).

### ***School level***

59. The Review also considers the distribution, utilisation and management of resources within schools. Across the OECD, schools predominantly have responsibility for making decisions related to the organisation of instruction. While decisions about instruction time across OECD countries are typically made at the state or central level, most decisions about the organisation of teaching and teaching materials (e.g. choice of textbooks and software) are taken by schools in the majority of OECD countries. Overall across the OECD, schools have less decision-making power regarding resource management, personnel management and planning and structures (OECD, 2012).

### ***Teacher and school leader level***

60. Resources are also used at the teacher and school leader levels. Countries differ considerably in the way they manage both the teaching and school leadership professions. This concerns aspects such as requirements to enter the profession, initial preparation, hiring/dismissal procedures, selection and deployment to regions and schools, conditions of service, professional development, and evaluation and accountability.

### ***Student level***

61. Some resources are distributed and used directly at the student level. For instance, some specific student groups such as students with special needs or students from low-income families may receive dedicated resources which are channelled directly through student families. Other uses at the student level include the organisation of student learning time, how students are grouped for instruction and how they benefit from support for learning difficulties.

## KEY ISSUES AND QUESTIONS FOR ANALYSIS

62. The overarching policy question on which the analysis will be focussed is “What policies best ensure that school resources are effectively used to improve student outcomes?” The Review will further concentrate on four key issues for analysis. To ensure the effectiveness of resource use in school systems, the following elements seem necessary:

- that an overall, systemic framework for governing resource use in schools be designed (Issue 1)
- that resources are distributed effectively across the school system (Issue 2)
- that resources are utilised effectively, through specific policies and practices, to different priorities and programmes once they have reached different levels of the school system (Issue 3), and
- that resources are managed effectively through adequate monitoring of resource use, suitable capacity and appropriate transparency and incentives (Issue 4).

63. These four main issues are organised in thematic modules as described below. The latter are listed in Table 1 and also feature in Figures 1 and 2.

### **Issue 1: Governance of resource use in schools**

64. This issue is concerned with how resources can be effectively governed within school systems. One aspect analyses how the effectiveness of resource use is influenced by the key foundations of school systems. The latter relate to aspects such as the level of resources available for education, sources of revenue for education (e.g. relative importance of public and private resources) and approaches to school system governance (e.g. size of private sector, level of parental choice, structure of schooling, distribution of decision-making in the school system, extent of school autonomy). Another aspect relates more directly with the governance of resource use. It includes the planning of resource use (e.g. definition of priorities and targets, distribution of responsibilities for resource use, methods and instruments for planning resource use, use of evidence and knowledge management) and the implementation of policies to improve the effectiveness of resource use in (communication and consultation with relevant stakeholders about resource use, policy experimentation and pilots).

#### ***Level of resources available for school education (Issue 1.1)***

65. A major variable conditioning the use of resources in school education is the overall level of resources available. Spending choices, the distribution of responsibilities for resource use and the levels of accountability for resource use, among other things, will greatly depend on funding constraints and especially so in times of fiscal consolidation. In 2010, overall spending on the schooling sector accounted for 62% of expenditure on educational institutions, or 3.9% of the GDP, on average across OECD countries. There is, however, considerable variation of such spending across countries (from 2.5% in Turkey to 5.1% in New Zealand and Norway). Also, between 1995 and 2010, expenditure per student in pre-tertiary education increased in every OECD country with available data, and by an average of more than 39% between 2000 and 2010 (OECD, 2013a).

**Table 1. Thematic Modules to analyse effectiveness of resource use in schools**

1. Governance of Resource Use in Schools						
1.1 Level of resources available for school education (including prioritising of resources between school education and other education levels)						
1.2 Sources of revenue (relative weight between public and private sources; relative importance of levied resources at the local, regional and central levels)						
1.3 Links to school system governance (e.g. structure of schooling, size of private sector, level of parental choice, distribution of decision-making)						
1.4 Planning of resource use (priorities and targets, demand for education, distribution of responsibilities for resource use, methods and instruments, use of evidence base, knowledge management)						
1.5 Implementation of policies to improve effectiveness of resource use (communication and consultation with relevant stakeholders about resource use, policy experimentation and pilots)						
Level of resource use	2. Resource Distribution	3. Resource Utilisation	4. Resource Management			
<b>A. Use at student level</b>	<b>2.A</b> Distribution of resources across specific student groups (e.g. funding of special needs education, compensatory programmes for socio-economic disadvantage)	<b>3.A1</b> Matching resources to individual student learning needs (grouping, addressing learning difficulties, supply of programmes) <b>3.A2</b> Organisation of student learning time (e.g. school calendar, instruction time, distribution of learning activities, length of school day)	<b>4.1</b> Capacity building for resource management (competencies, tools, guidelines)	<b>4.2</b> Monitoring of resource use	<b>4.3</b> Transparency and reporting	<b>4.4</b> Incentives for the effective use of resources
<b>B. Use at teacher level</b>	<b>2.B</b> Distribution of teacher resources (initial teacher education, entry into teaching, hiring/dismissal, selection/deployment to regions and schools), including targeted programmes	<b>3.B</b> Allocation of teacher resources to students (e.g. class size, teacher-student ratios, use of teachers' time, career structure and compensation, support staff in classroom)	<ul style="list-style-type: none"> <li>• For managing targeted programmes</li> </ul>	<ul style="list-style-type: none"> <li>• Audit systems (for schools, school sub-system, school system)</li> </ul>	<ul style="list-style-type: none"> <li>• Transparency requirements (e.g. data to report to authorities, data to be publicly released)</li> </ul>	<ul style="list-style-type: none"> <li>• Outcome-based planning (resources allocated partly on the basis of an evaluation of previous resource use)</li> </ul>
<b>C. Use at school leader level</b>	<b>2.C</b> Distribution of school leadership resources (preparation, entry into school leadership, hiring/dismissal, selection/deployment to regions and schools), including targeted programmes	<b>3.C</b> Organisation of school leadership (e.g. school leadership arrangements, organisation of school leaders' work, career structure and compensation)	<ul style="list-style-type: none"> <li>• For managing financial transfers</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluation of resource managers</li> </ul>	<ul style="list-style-type: none"> <li>• Information about use of resources at the school, sub-system and system levels (outputs, types and levels of resources used)</li> </ul>	<ul style="list-style-type: none"> <li>• Rewards and sanctions (at the teacher, school leader, school and sub-system levels, as a result of levels of efficiency)</li> </ul>
<b>D. Use at school level</b>	<b>2.D1</b> Distribution of resources across individual schools (funding formulae, special funding programmes targeted at schools) <b>2.D2</b> Distribution of school facilities and materials (organisation of school network, size, provision in rural/remote areas, ICT provision), including targeted programmes	<b>3.D1</b> Teaching and learning environment within school (e.g. organisation of learning, safety and well-being practices, outreach to parents and community, teacher collaboration and professional learning, evaluation and school development) <b>3.D2</b> Use of school facilities and materials (use of facilities beyond regular school hours, use of ICT)	<ul style="list-style-type: none"> <li>• For managing the teaching profession</li> <li>• For managing school leadership</li> </ul>	<ul style="list-style-type: none"> <li>• Policy and programme evaluation (at system and sub-system level)</li> </ul>		
<b>E. Use at system- and sub-system-level</b>	<b>2.E1</b> Distribution of resources between levels of the education administration (system- and sub-system levels), including targeted programmes <b>2.E2</b> Distribution of resources between levels and sectors of the school system <b>2.E3</b> Distribution of financial resources across resource types	<b>3.E</b> Organisation of education governance (education administration arrangements, evaluation and assessment procedures, school support structures)	<ul style="list-style-type: none"> <li>• For managing physical and material resources</li> </ul>			

### *Sources of revenue (1.2)*

66. Sources of revenue for education are another key structural feature of education systems with important implications for educational resource use since they condition the overall level of resources available, the availability of resources across localities and regions, as well as the level of accountability for education spending. An important policy aspect is the relative weight of public and private resources for schooling. Private resources can be raised from families, in some countries, through the introduction of fees in pre-primary education or secondary education or the existence of a well-developed fee-paying private school sector. Also, the business sector may provide contributions to the education system, especially for the vocational sector.

67. Another key policy aspect is the relative importance of levied resources at the local, regional and central levels. In countries where school funding is heavily dependent on local tax bases, this may have adverse effects on matching resources to student needs, as areas with more disadvantaged students will typically have fewer resources to meet student needs.

### *Links to school system governance (1.3)*

68. The effectiveness of resource use is linked to the specific approaches followed for school system governance. For instance, the level of school private provision, the degree of parental school choice and the overall extent of competition between schools frame incentives for school agents and schools which affect the effectiveness with which resources are used. In fact, the growing use of market mechanisms in education is closely interlinked with the increasing focus on efficiency. Market mechanisms in the school sector aim to facilitate the co-ordination between the demand and supply of educational services. Several countries are attempting to raise educational quality by making information from school evaluation and student assessments available to parents for the purpose of informing school choice and enhancing competition between schools (Waslander et al., 2010). In systems where funding follows the student, parents are treated as clients who choose the school providing the best quality. Even though not all school choice settings actually put pressure on schools to compete for students, in such education systems schools are increasingly expected to show that they are meeting national education objectives and can justify their use of public resources. Also, the overall structure of schooling conditions the way resources are used in the school system. This includes aspects such as the relevance of vocational programmes, the starting school age, the duration of compulsory education, the organisation of schooling in different stages, the relative importance of subjects, and the existence of national qualification frameworks.

69. Also, developments in education administration structures influence the effective distribution, utilisation and management of resources at different levels of the school system. Over the past decades, there has been a broad trend towards more decentralisation and school autonomy. As a result, sub-national authorities such as regions and municipalities, as well as individual schools, have acquired greater responsibility in managing their own budgets, recruiting their own staff and organising school structures. Moves towards greater decentralisation and school autonomy typically go in line with government efforts to incorporate business practices into the public sector by introducing “new public management” structures stressing outcomes-based planning, evaluation and assessment, parental and community control, school choice and competition (Mulford, 2003). Most countries’ approach to education administration combines central direction (either at the national or sub-national level) over policy development and standard-setting with a measure of devolved responsibility for the implementation of policy at the local and school levels. The central direction often involves a number of agencies with key functions in the school system. Most countries draw on the capacity of a range of entities in governing the education system, including quality assurance agencies, inspectorates or school review agencies, education councils bringing together a range of stakeholders, funding agencies, institutes to promote innovation in education, and organisations to

provide professional development to school agents. The establishment of such agencies typically involves considerable resources.

70. In addition, there is considerable variation among OECD countries in the extent to which education administration is devolved to the local level. One implication of significant levels of devolution of responsibilities are variations in the implementation of national policy at the regional/local level. This has both advantages and drawbacks. The diversity of approaches allows for local innovation and thereby system evolution and the large degree of autonomy given to the region, municipal and school levels may generate trust, commitment and professionalism. At the same time, there may be concerns about the lack of systematic application of national directions, inconsistency of practices and little capacity or commitment to developing quality frameworks at the local level. These concerns might be amplified by weak articulations between the different decision-making levels (e.g. between regions and municipalities) and limited collaboration between the regions, municipalities and schools (e.g. as in networks and partnerships of municipalities).

#### ***Planning of resource use (1.4)***

71. Resource use requires reference standards against which its effectiveness can be assessed. Typical reference standards are the established policy priorities and education targets as well as the objectives of the education system more generally. Another important aspect of planning relates to analysis of demand for different services within the education system, including trends in relative student demand across levels and sectors of the education system. Furthermore, the planning of resource use involves the development of methods and instruments to monitor resource use. This includes conceptualising “effectiveness” and “efficiency” and developing the associated measures. The Review will analyse approaches used in the measurement of effectiveness and efficiency and will elaborate on the advantages and disadvantages of the different approaches.

72. Another key aspect of resource use planning is the distribution of responsibilities for resource use. At the local and school level, resource use involves a very broad range of responsibilities including setting up budgeting and accounting systems, designing staff recruitment schemes, setting up relationships with contractors and vendors, overseeing construction work, choosing and ordering materials and responding to accountability obligations, to name just a few. Similarly, at the system and sub-system levels, resource use includes a range of tasks such as channelling resources to policy priorities, distributing resources across the different levels of education administration, monitoring resource use across the system, managing the teaching workforce, organising school leadership, maintaining the school system infrastructure and communicating with the relevant stakeholders about resource use.

73. The planning of resource use further involves the use of evidence from evaluation and research, including that generated by resource use monitoring activities. This requires actors in schools and the educational administration to be focused on collecting evidence about the effects of resource use at different levels of the system. Making the best use of the evidence generated by resource use monitoring activities depends to a large extent on the development of coherent information management systems. These include elements such as standard frameworks for data collection and reporting and data information systems. Another important aspect of knowledge management is to set up systematic processes to identify best resource use practices and ensure that they are spread and shared across educational jurisdictions and schools.

#### ***Implementation of policies to improve effectiveness of resource use (1.5)***

74. Resource allocation decisions are constrained by conflicting expectations and demands by a range of stakeholders inside and outside the education system, including politicians, school boards, inspectors, educational associations, community leaders, parents and the media (Plecki et al., 2006). This

requires communication and consultation with relevant stakeholders about resource use as well as actions to build consensus about priorities for spending. As the state of knowledge about the effectiveness of different spending options is incomplete, education administrators and leaders need to be able to make decisions based on the best evidence available and act in response to particular needs in the context of uncertainty. Such evidence is also instrumental to inform consensus-building among stakeholders. Other implementation dimensions include clarity of objectives for resource use, the continuing monitoring of resource use and the sharing of results with stakeholders and policy experimentation and pilots.

## **Issue 2: Effectiveness of resource distribution**

75. This issue is concerned with how resources can be effectively distributed across the school system. It concerns not only resources levied at the central level but also those levied at the more local level (e.g. regions, municipalities). It includes the distribution of resources between the different levels of the administration (e.g. central, state, regional and local), across resource types (e.g. human resources, physical resources, targeted programmes), between levels of the school system (e.g. pre-primary, primary, lower secondary, upper secondary), between different sectors (e.g. general programmes, vocational and pre-vocational programmes) and between individual schools (e.g. through funding formulae and special compensatory programmes). In addition, it also deals with the distribution of school facilities (e.g. organisation of the school network), the organisation of teacher resources (e.g. number of teachers; teacher preparation), the organisation of school leadership resources (e.g. number and profile of school leaders) and resources targeted at specific student groups (e.g. special needs; compensatory programmes for disadvantaged students). The distribution of resources across the education system may be faced with competing demands for funding from different levels of the educational administration, different sectors of the education system and individual schools with different types of funding needs.

### ***A. Use at the student level***

#### *Distribution of resources across specific student groups (Issue 2.A)*

76. Some resources for student learning are distributed directly to students instead of being channelled through schools. Examples include compensatory programmes for socio-economic disadvantage such as financial aid provided to low income families for secondary education, extra out-of-school support (including with the involvement of the community and parents) and the provision of meals at school; and special programmes to assist students from a cultural minority or a migrant background.

77. Another particularly important instance of resource targeting is the provision of adequate teaching and learning opportunities for students with special educational needs, including the choice of learning setting (e.g. special school or in mainstream school) and special accommodations and provisions for students with special needs. Special needs education absorbs a significant share of education budgets in some OECD countries, which emphasises the importance of identifying cost-effective policies that ensure satisfactory learning outcomes for students with special needs.

### ***B. Use at the teacher level***

#### *Distribution of teacher resources (2.B)*

78. The largest share of school resources is tied up in teacher salaries. Teachers are arguably the most important resource input influencing student learning outcomes. Hence, improving the efficiency of schooling depends to a large degree on the ability of the school sector to recruit high quality teachers who are effective in the classroom and who stay on the job for several years (OECD, 2005). The distribution of teacher resources across the school system depends on several factors, such as approaches to teacher preparation, the requirements for entry into the teaching profession, the division of responsibilities for

teacher recruitment and the mechanisms available to incentivise teachers to work in schools where their skills are most needed.

79. At the central level, there are several ways to influence the quality of teacher resources available to the school system, for example through mechanisms for the selection of individuals into teacher education, approaches to initial teacher education, definition of areas of specialisation for teachers, requirements to enter the teaching profession and investment in professional development. In some countries, applicants must pass competitive examinations to enter initial teacher education. After completion of initial teacher education, there may also be an additional probationary period or a registration process for new teachers. The way qualification requirements are set for different sectors of education also influence the skills mix of the teaching body for different levels and sectors of education.

80. The division of responsibilities for recruitment, dismissal and wage setting further influences the matching of teacher skills to local needs. School autonomy in teacher recruitment allows school leaders to screen and select teachers that have the particular skills needed at the school level. This is central to ensuring that school leaders can build their teams and establish a school culture conducive to improving student learning. On the other hand, critics of school autonomy in teacher hiring argue that this may politicise staffing decisions and increase inequality between regions (OECD, 2012). In practice, school leaders are often limited in their recruitment decisions by a complex set of rules that might reduce their ability to choose suitable candidates (Pont et al., 2008).

81. In many school systems, teacher preferences may direct the more qualified and more experienced teachers to schools enrolling mostly students with few socio-economic disadvantages (Hanushek et al., 2001; Bénabou et al., 2003; Karsten, 2006). As a result, the share of inexperienced and less qualified teachers is often higher in areas facing the greatest challenges. High rates of teacher turnover add to the difficulties in such schools. Several school systems have designed mechanisms to ensure a better distribution of teachers to match the needs of schools. This may include incentive schemes for teachers to work in areas of social need, such as offering higher salaries in schools enrolling high proportions of students from disadvantaged socio-economic backgrounds, or providing differential pay for particular expertise (Nusche, 2009).

### ***C. Use at the school leader level***

#### *Distribution of school leadership resources (2.C)*

82. School leadership, as an individual as well as an organisational quality, plays a key role in enhancing teaching and learning in schools (Pont et al., 2008). As such, it is crucial to organise resources devoted to school leadership in such a way the quality of school leaders is ensured. As with teachers, this requires effective policies to attract high-quality individuals into school leadership, prepare school leaders, recruit them into the profession and incentivise them to work in schools where their skills are most needed. This involves the development of programmes to train school leaders as well as the establishment of a career structure specific to school leaders.

83. There has been a growing realisation that successful school leadership is always context-dependent and that one type of leadership may not necessarily fit all circumstances. The school level, the size of a school, the governance of a school, the staffing of a school, the socio-economic background of students, the level of parental involvement, as well as local, regional and country contexts all influence what works as effective school leadership (OECD, 2013b). This highlights the importance of ensuring a good match between individual school leaders and specific schools, including attracting high-quality leaders into disadvantaged schools.

#### ***D. Use at the school level***

##### *Distribution of resources across individual schools (2.D1)*

84. As explained by Field (2011), many countries use formulae of greater or lesser sophistication to allocate public financial resources to individual schools. Such formulae typically attach numerical weights to a range of indicators associated with each school to determine the amount of central funding given to that school. These formulae generally include both factors in the environment that may affect the costs of teaching (such as school size) and relevant characteristics of the student population affecting their needs, such as economic disadvantage and special education needs (for a review, see Fazekas, 2012). PISA data shows that across the OECD, some countries show a strong *positive* correlation between school resources and the socio-economic level of the school population. This means that advantaged students in these countries also have better resourced schools (OECD, 2010a). This suggests that in those countries at least, resources are not being very effectively targeted on the schools where they are needed most (Field, 2011).

85. Individual schools may also receive resources through targeted programmes. Given the key focus of all OECD countries on reducing school failure and improving equity in education, many school systems have established special support programmes, or “compensatory programmes” designed to channel additional resources to schools facing particular socio-economic disadvantages. Such programmes may be targeted to areas and schools enrolling high levels of students with disadvantaged and/or migrant backgrounds. In the United States, for example, Title I of the Elementary and Secondary Act, the largest compensatory federal education programme provides additional funding to highest poverty schools which are defined as those with 75% or more of students eligible for free and reduced-price lunch (Kirby et al., 2003). Evaluations of such programmes show mixed results and indicate that the success of these programmes depends on whether conditions for effective allocation and use of funding are in place at the school level (Scheerens, 2000). If compensatory funding is distributed to schools without further guidance and support, school staff may not know how to fit these special initiatives into their school development plans or they may use the additional money on programmes that have not demonstrated to be effective (Kirby et al., 2003; Karsten, 2006; Nusche, 2009). Other examples of targeted programmes, whose funds may be distributed on a competitive basis, include special funds for improving school leadership, programmes to improve school infrastructure and programmes to support innovation in pedagogical approaches at the school level.

##### *Distribution of school facilities and materials (2.D2)*

86. In the context of declining birth rates and smaller student populations in many OECD countries, the distribution of school facilities and the organisation of the school network are also receiving increased attention. Several countries have sought to consolidate schools and create larger school clusters in an attempt to reduce costs related to the maintenance of several small schools. As explained by Field (2011), managing the trade-offs between smaller community schools and larger, but more distant, educational facilities can be a challenge. Although relationships are variable, PISA results are more often positively related to school size, other things being equal, than negatively related (OECD, 2010a, Table IV.2.4.c). The benefits of community schools are very obvious to local people, but disadvantages are less obvious, with fewer subject options, and less scope for specialised help to address particular interests and needs. Conversely larger schools may have better facilities and more options, and lower costs per student, but may also involve long (and costly) travelling times or even boarding arrangements. These alternatives may require additional financial support for students and pastoral care for teenagers living away from home. Technology developments may offer some alternatives, such as using ICT to bring some of the education and management benefits normally associated with larger schools to smaller schools.

### ***E. Use at the sub-system and system levels***

#### *Distribution of resources between levels of the education administration (2.E1)*

87. No one level of a schooling system is fully in control of the distribution and flow of educational funding. The distribution of funding across levels of the educational administration is largely dependent on national governance arrangements and varies widely across countries. Some countries have adopted highly decentralised funding approaches, which may facilitate the development of locally coherent initiatives and adequate responses to local challenges. However, capacity for resource management at the local level may be more limited.

88. In several countries, fiscal transfers are in place to redistribute funding from wealthier areas to poorer areas. However, while such redistributive mechanisms can be an effective tool to balance disparities *between* regions, inequities *within* regions may remain, when funding is only partially passed on to the schools most in need (Roza et al., 2005; OECD, 2011). An option used in some countries is to earmark funds allocated to sub-national authorities in order to ensure that these are indeed spent on education priorities rather than on other areas.

#### *Distribution of resources between levels and sectors of the school system (2.E2)*

89. Education authorities are sometimes confronted with competing demands for funding from different levels and sectors of the education system. There is strong evidence that investments in education have the highest rate of return when focused at the earliest levels of education (Cunha et al., 2005). A consistent body of research has shown that investment in early childhood education and care (ECEC) is relatively more effective and less costly than remedial programmes later on in the lifecycle (see for example Cunha et al., 2005; Heckman, 2006a, 2006b).

90. Studies also emphasise the need to sustain investments in early learning through continued high quality learning experiences in primary education to avoid that benefits gained at an early age “fade out” over time (Barnett, 1995; Heckman, 2006a; 2006b). On the other hand, education at the secondary level, and in particular in the vocational education and training sector, often requires more specialised teaching and equipment, which may contribute to higher funding needs at this level. These and other considerations need to be carefully considered when making decisions about the allocation of funding across levels and sectors of education.

#### *Distribution of financial resources across resource types (2.E3)*

91. An important policy decision at the school system level is how to distribute the available financial resources for schooling across resource types: human resources (in particular, teacher and school leadership resources), physical resources (e.g. buildings and equipment), resources channelled through targeted programmes and financial transfers for further re-distribution at a lower level. This relates to decisions about the number of teachers and school leaders in the school system, their salary structures and retirement schemes, the types and functions of non-teaching staff, the quality of the school infrastructure, the strategic importance of targeting resources to specific needs, and devolution of responsibilities for resource allocation and use.

### **Issue 3: Effectiveness of resource utilisation**

92. Making resource decisions is not only about distributing resources across the system but also about ensuring that such investments translate into improved teaching and learning at the school level. This issue analyses how resources can be effectively utilised, through specific policies and practices, to different priorities and programmes once they have reached different levels of the school system. Among other

things, it considers how resources are matched to students' needs (e.g. grouping of students within schools; student support systems; programmes to prevent early school leaving); how teacher resources and teaching time are allocated to students so that they optimally respond to improvement priorities (e.g. class size, teacher-student ratios, use of support staff, use of teachers' time); how student learning time is organised (e.g. instruction time, length of school day); how school leadership is organised and distributed; how resources in schools are organised to create environments conducive to effective teaching and learning (e.g. safety and well-being policies, outreach to parents and communities); and how school facilities and materials are used to support such environments (e.g. use of school facilities for afternoon tutoring or summer schools, use of ICT to complement face-to-face instruction).

### ***A. Use at the student level***

#### *Matching resources to individual student learning needs (Issue 3.A1)*

93. A way to match resources to individual student learning needs is to consider different approaches of distributing students into learning groups so as to provide the right level of challenge and support to each student. While in most countries students are grouped together based on their age, in some settings learning groups are designed based on individual needs and preferences, which may provide better conditions for personalised learning. Grouping students by ability within and between classrooms is a common practice in many OECD countries. However, the benefits of such practices in terms of providing the optimal pace and level of instruction to each group need to be weighed against the risks for equity when labelling certain students as “low-ability” students. The latter may cause students to internalise low expectations and lose motivation for education, with considerable costs to the education system and society. There is also evidence that the grouping of students is often biased with other criteria than student ability influencing the grouping process and students being ineffectively allocated to groups (Resh, 1998; Prenzel et al., 2005; Schofield, 2006; Strand, 2007).

94. Another way to match resources to individual student learning needs is to adapt educational offerings to students' abilities and preferences. School systems in OECD countries typically offer a diversity of educational programmes, in particular vocational tracks, following either primary or lower secondary education. Such matching involves tracking students into the different educational offerings. Practices differ considerably across OECD countries in terms of the age at which tracking occurs, the criteria for track selection and the variety of vocational tracks.

95. In addition, policies to improve the effectiveness of resource use need to pay careful attention to learning difficulties, so early-school leaving and poor performance can be minimised. A specific practice is year repetition in response to underperformance by individual students. While year repetition is rare or unknown in several OECD countries, it is very common in others, with a third or more of all students repeating years in some countries. As explained by Field (2011), it is an expensive practice, given the costs of an additional year of school education, plus the costs for individuals and economies of postponed entry into the labour market. For example, it has been estimated that these costs might amount to as much as USD 450 million annually in Belgium (Field et al., 2007). These costs might be acceptable if year repetition were a proven and effective strategy for helping students to recover from poor results, but most evidence suggests it is of little value (Field et al., 2007; Seibel and Lévassieur, 2007). Hence, it is important for policy to consider alternatives to support those students with learning difficulties. Examples include providing extra teaching time for students who fall behind, intensive interventions of one-on-one lessons for underperforming students, the presence of teaching assistants in the classroom to support the students with learning difficulties, prevention with the early identification of learning difficulties and programmes designed in partnership with parents (see Field et al., 2007).

### *The organisation of student learning time (3.A2)*

96. An important decision on the use of resources concerns the organisation of student learning time. Making an optimal use of student time and suitably allocating resources for such use are central objectives of education policy. This relates to aspects such as the organisation of the school calendar (e.g. number of instruction days, duration of school holidays), instruction time (e.g. total learning time, organisation of the school week, duration of individual lessons), distribution of learning activities (e.g. importance of extracurricular activities, after-school supervision, homework) and the length of the school day (e.g. full-day, half-day school).

### ***B. Use at the teacher level***

#### *Allocating teacher resources to students (3.B)*

97. Teachers are the most important resource in schools and their allocation to students needs to be carefully considered. This relates to teacher-student ratios, class size, the use of teachers' time and the use of support staff in the classroom, all of which are much debated topics in education.

98. The impact of class size reductions on student outcomes is one of the most thoroughly researched topics in education. There has been some controversy in the research with some studies finding that class size reductions have a positive effect on student achievement (Glass et al., 1982; Krueger, 2000, 2003) and others not finding any such effect (Tomlinson, 1988; Hanushek, 1997). Much of the disagreement is due to the fact that it is difficult to quantify the effect of class size reductions because disadvantaged students are generally more likely to be placed in smaller classes. But if extra weight is given to studies with experimental design (Finn and Achilles, 1990; Krueger, 1999), it can be concluded that class size reductions have a small positive effect on education outcomes.

99. While the overall impact of class size reductions seems to be very modest, several studies indicate that class size reductions have a significant effect on specific groups such as students with low socio-economic, migrant or minority background (Robinson and Wittebols, 1986; Krueger, 1999; Angrist and Lavy, 1999; Lindahl, 2001; Björklund et al., 2004; Andersson, 2007). These studies also show that the effect is greatest for younger individuals in the first few years of education. This indicates that additional teacher resources would be optimally allocated if they were targeted at those who benefit the most from smaller classes, i.e. disadvantaged students in pre-primary and primary schools (Hanushek, 2000; Krueger, 2000).

100. These benefits need to be set against other potential uses of resources. If all schools receive equal levels of funding, then those schools that have larger classes will have more resources available for other uses. These resources could be used, for example, in teacher professional development, specialist teachers or other staff support. The time freed up for core classroom teachers could then be used for other priorities such as preparation of lessons, curriculum development work, collaboration with other teachers or teacher leadership activities (Knight and Picus, 2012).

101. In making decisions about the utilisation of human resources within a school, an obvious consideration is that human resources are not fixed commodities as is sometimes assumed in effectiveness and efficiency studies, but they need to be nurtured and developed to ensure continuous improvements in teaching and learning. In addition, the re-allocation of human resources to new tasks may generate resistance and needs to be carefully negotiated. If no attention is paid to ensuring conditions to motivate teachers, they may not stay in the position or they may not perform at their best in supporting student learning (Plecki et al., 2006). This highlights the importance of career diversification for teachers, reflected in the career structure and compensation systems.

### ***C. Use at the school leader level***

#### *Organisation of school leadership (3.C)*

102. Given the increasing evidence on the importance of school leadership for effective teaching and learning, many school systems are experimenting with ways to better allocate and distribute leadership tasks at the school level across a range of individuals including leadership teams, middle management and teacher leaders. The effective operation of individual schools will depend to a great extent on the way the concept and practice of school leadership gains ground within schools. It is difficult to envisage either effective student learning or productive school self-review without strong leadership capacity. It is essential that school principals take direct responsibility for exerting pedagogical leadership and for assuming the quality of education in their schools. This requires reflection about the organisation of school leaders' work and the potential establishment of a career structure and a compensation system for school leaders.

### ***D. Use at the school level***

#### *Teaching and learning environment within school (3.D1)*

103. While teaching practices in the classroom appear to be the most important school factor impacting on student outcomes, school effectiveness research has also emphasised the importance of school organisation to create the conditions for teachers to perform well. In addition to the organisation of school leadership, there are a range of different ways to use resources within the school that appear to have a strong influence on teacher motivation and performance, and an indirect influence on student learning. According to several reviews of research such effectiveness-enhancing conditions include learning-centred leadership, collaborative work cultures, high standards and expectations, a focus on basic subjects, clear goals and frequent assessment and evaluation, an orderly and secure school environment and parental involvement (Scheerens and Bosker, 1997; Sammons et al., 1995; Pont et al., 2008).

104. Teachers need to be able to assess their students' learning outcomes in relation to agreed standards and to interpret assessment information to grasp the effect of different teaching resources on their students. This requires that schools benefit from clear student learning objectives (or curricula) and establish clear criteria for student assessment. Teachers also need to report assessment information to school leaders so as to allow for a whole-school perspective on learning needs and outcomes. School leaders, in turn, need to collect and analyse such data and integrate it with other evaluative information for the purpose of school self-evaluation and in view of preparing a school development strategy. This includes seeking information about learning needs and current programmes as well as interpreting evidence about the effects of prior resource allocations (Plecki et al., 2006).

105. Collaboration among teachers requires that time and space is made available for teachers to get together and foster professional learning communities. Part of this is the co-ordination of professional development programmes at the school level. Schools that associate the identified individual needs with the school priorities, and that also manage to develop the corresponding professional development activities, are likely to perform well (OECD, 2013b).

106. Authentic, valid and reliable evaluation, that which leads to the improvement of educational practices at all levels and lift student learning, is central to establishing a high-performing school system (OECD, 2013b). This requires individual schools to establish solid procedures for the self-evaluation of the school and its leadership and the internal evaluation of individual teachers. The expectation is that the results of such procedures are used for school development.

### *Using school facilities and materials (3.D2)*

107. The underuse of school facilities is often referred to as an ineffective use of existing resources in the school system. School buildings and facilities are often used only for a part of the day, week or year, which raises questions about how these resources could be used more effectively. Several school systems have experimented with innovative school calendars that alter the use of school facilities across the year. Year-round schools, schools working in morning and afternoon shifts and summer and evening schools are some examples. While the primary motivation for such initiatives is often to save cost, some of these practices may indeed have beneficial effects on student learning.

108. As explained by Field (2011), summer schools, in particular, have often aimed to increase school performance through additional and innovative programmes, with better use of educational facilities being a side-benefit. The equity benefits arise because homes with fewer cultural resources are more prone to learning loss during school holidays – particularly the long summer break (see, for example, Alexander et al., 2007). Year-round schools have also been used as ways to manage overcrowding in schools, by having several tracks of students using the facilities at different times. For example, a school operating a three track system, whereby one-third of the students are on vacation at any time, can in practice enrol around one-third more students. But theoretical advantages here do need to be set against administrative complexity.

109. Alternatively or additionally, school facilities may be used outside normal school hours for broader educational or non-educational purposes – for example to provide after-school or holiday clubs to look after children while their parents are at work, or provide for adult learning classes or other community services. This second approach has particular attractions in the context of an ageing population and declining school rolls. Such initiatives need to respond to varying local demographic patterns and social requirements.

110. In addition, there are indications in many countries that ICT has not yet been fully incorporated into pedagogical practices. There is a powerful potential for ICT to transform education, but its use in schools remains underdeveloped, partly because the main *modus operandi* of school administration and instruction are resistant to change (OECD, 2010b).

### ***E. Use at the sub-system and system levels***

#### *Organisation of education governance (3.E)*

111. The effectiveness of resource use is also dependent on the internal organisation of the education governance, at its different levels. For instance, at the local administration level, studies from the United States show that the impact of school districts on school and student performance varies widely. Several studies point to the importance of district leadership in developing strategies for improvement, helping schools to align curriculum to central standards and assessments, and providing support for low-performing schools (see for example, Elmore and Burney, 1997; Hill et al., 2000; Newman et al., 2001). Aspects such as the existence of school support structure, evaluation and assessment procedures, established capacity to provide professional development to school professionals and opportunities for community engagement and parental involvement condition the extent to which local education administration positively impacts on student learning.

112. Similarly, at system and sub-system levels, key governance functions of school systems such as the definition of student learning objectives, the establishment of an evaluation and assessment framework (monitoring of the school system, external school evaluation, external teacher evaluation, appraisal of school leaders), capacity building and technical leadership (e.g. national frameworks, guidance materials,

tools for the use of school agents) may be operationalised through distinct institutional settings and structures.

#### **Issue 4: Effectiveness of resource management**

113. Resource utilisation in the school sector does not happen in isolation. It takes place within institutional contexts that may facilitate or hinder effective resource allocation and use. This issue is concerned with how resources can be effectively managed at all levels of the school system. It looks at capacity building for resource management (including the competency frameworks and professional development opportunities available to support resource management capacity); the monitoring of resource use (e.g. audit systems, evaluation of resource managers); transparency and reporting; and incentives for the effective use of resources (outcome-based planning; rewards and sanctions).

##### ***Capacity building for resource management (Issue 4.1)***

114. The competencies of administrators and leaders with responsibilities for resource use at every level of the school system influence the extent to which they are able to plan strategically, evaluate the outcomes of different investments and allocate resources effectively among different priorities. Resource use requires various competencies that leaders at the school or local level may not have through formal training. To ensure that those in charge of resource management have adequate knowledge and skills, one option is to reflect required resource management skills in competency frameworks for local and school leadership. Such competency frameworks can be used for targeted recruitment processes but also need to be followed by training and professional development opportunities. Also, where financial and personnel management responsibilities are sharply increasing without additional support for leadership teams, school autonomy may be associated with less time and attention for providing pedagogical and learning-centred leadership (Pont et al., 2008). On the other hand, decentralisation and school autonomy, when coupled with adequate training, support and evaluation mechanisms, offers great potential for local authorities and schools to establish robust management processes where resources are directed to improvement priorities and support learning-centred leadership (Plecki et al., 2006; Pont et al., 2008).

115. A further strategy involves initiatives at the system and sub-system levels to build up a knowledge base, tools and guidelines to assist resource management procedures. These typically include tools for planning resource use, systems of budgeting and accounting, guidelines for school leaders and education administrators to report on resource use, instructions to purchase education materials and establish contracts, and information about choices of education materials.

##### ***Monitoring of resource use (Issue 4.2)***

116. A key element of resource management is the monitoring of resource use at the different levels, of which the monitoring of equity of resource use across student groups and regions of the country is a particularly important aspect. This involves schools undertaking their own monitoring and evaluation of resource use and reporting the associated outputs to the next level of the educational administration. Leaders at the local, regional and central level, together with specialised evaluation agencies, need to interpret and make decisions based on both evaluative information from schools and system- and sub-system-level monitoring tools. The latter may include audits of individual schools conducted by central or state-level education inspection services. Educational authorities also typically collect reports from public schools on their closing budget or financial audit from the previous year.

117. National audit systems have a key role to play in assessing whether or not public resources are put to good use in the school system overall. For instance, in Sweden, two external bodies may monitor the education sector: the Swedish National Audit Office and the Swedish Agency for Public Management. The Swedish National Audit Office not only produces 30 reports each year on the whole of the public sector

(financial audit) but also audits effectiveness in different areas, including education. The Swedish Agency for Public Management is under the Ministry of Finance and is responsible for conducting quality surveys/evaluations (Nusche et al., 2011). The monitoring of resource use may also involve the evaluation of individual resource managers at the different levels of responsibility.

118. Also, in arguably the majority of countries, there is only an emerging culture of systematically evaluating the impact and outcomes of different educational interventions. Indeed, an often cited finding is the lack of evaluation of particular education policies or programmes. In some countries this may be due to the lack of appropriate outcome data. Some systems have aimed to stimulate this by attaching requirements for schools to monitor and evaluate the implementation of particular education programmes as a funding condition (OECD, 2013b).

#### ***Transparency and reporting (Issue 4.3)***

119. Transparent resource management requires not only that public resources are used in line with educational objectives, but also that resource management is perceived to be effective by stakeholders and the general public. To this end, it is important for leaders and education administrators at different levels of the system to be clear in their communications and transparent in their use of resources. This includes establishing transparency requirements whereby information about resource use at the different levels is made publicly available. At the local and school level this requires particular attention to keeping parents and the local community as well as teachers and teacher unions informed about resource decisions (Gendron and Faherty, n.d.). Furthermore, transparency requirements need to specify the types of information that are to be disclosed. This would include not only information about the resources used but also evidence of their impact on learning (e.g. student achievement results).

#### ***Incentives for the effective use of resources (Issue 4.4)***

120. The mechanisms in place to articulate goals and set incentives for school agents play a key role in ensuring effective resource use. Only if goals and expectations are clearly articulated and understood by actors across the system, resources can be allocated strategically to achieve such goals. Also, schools and school agents need to have the right incentives. The right incentives will typically mean that schools and school agents can retain, at least in part, the benefits of improved efficiency. If instead schools and school agents are invited to contribute efficiency savings to central funding, they have every incentive to disguise the scope for efficiency improvements (Field, 2011). This calls for the design of systems to reward school agents for improved efficiency.

121. Several countries have introduced public sector reforms including the introduction of management by objectives and results-based budgeting. The purpose of management by objectives is to increase efficiency in education administration and school leadership by setting goals and assessing outcomes in order to influence future planning. This could involve future resources being conditional on past educational performance. The allocation of resources can be brought in line with such outcome-focused management structures, by prioritising specific improvement goals and articulating a set of strategies for resource use likely to contribute to the achievement of these goals. A focus on results-based decision-making can help establish learning-focused resource allocation cycles in which the effectiveness of resource allocations is continuously evaluated, resource needs for further improvement are identified and resources are allocated according to needs (Plecki et al., 2006).

#### **Policy priorities as expressed by countries**

122. At the Review's launch meeting of 27-28 March 2013, it was suggested that the Review should start with a priority rating exercise, where countries would indicate the issues of highest relevance to their national context. This would help shape the further scoping of the Review overall, as well as the individual

country reviews. As a result, the Secretariat developed a questionnaire on country policy priorities for improving the effectiveness of resource use in schools and invited countries to complete it by mid June 2013. The questionnaire was organised according to the analytical framework proposed in the “Draft Design and Implementation Plan for the Review” [EDU/EDPC(2013)/4]. Annex 1 describes the policy areas rated by countries and provides the results of the questionnaire. Table 2 summarises the results by providing the list of policy areas in order of importance according to countries’ ratings.

**Table 2. Country policy priorities for improving the effectiveness of resource use in schools, as rated by countries, 2013**

	Policy Area	Average score	Corresponding area of Analytical Framework
High Priority	Distribution of resources across individual schools	3.41	2.D1
	Distribution of resources between students	3.35	2A
	Matching resources to individual student needs	3.35	3.A1
	Distribution of financial resources across resource types	3.31	2.E3
	Effective teaching and learning environments	3.29	3.D1
	Allocation of teacher resources to students	3.24	3.B
	Planning and monitoring of resource use	3.18	1.4, 4.2 and 4.4
	Distribution of human resources	3.13	2.B and 2.C
Moderate priority	Transparency and accountability of resource use	3.00	4.3
	Distribution of resources between different levels of the education administration	2.94	2.E1
	Distribution of school facilities	2.94	2.D2
	Capacity for resource management	2.94	4.1
	Distribution of resources between levels and sectors of the education system	2.82	2.E2
	Distribution of responsibilities for resource management	2.82	1.4
	Stakeholder involvement	2.76	1.5
	The organisation of student learning time	2.71	3.A2
Low priority	Sources of revenue for education	2.59	1.2
	Aspects of school system governance which impact the effective use of resources	2.47	1.3
	Use of school facilities and materials to improve teaching and learning environments	2.35	3.D2

Source: Results of questionnaire prepared by OECD Secretariat on country policy priorities for improving the effectiveness of resource use in schools. Details are provided in Annex 1.

Notes: *Average Score* is computed as a simple average when the following points are assigned to each possible answer: 4 to “Very High”, 3 to “High”, 2 to “Moderate”, 1 to “Low” and 0 to “Irrelevant”. *Corresponding area of Analytical Framework* refers to areas outlined in Table 1.

123. Table 3 reflects these priorities according to the analytical framework developed previously and shown in Table 1. It should be noticed that some of the areas of the analytical framework were not rated by countries through the questionnaire (cells with white background) as the latter was based on the initial analytical framework prepared for countries’ feedback (in document [EDU/EDPC(2013)4]).

**Table 3. Country policy priorities for improving the effectiveness of resource use in schools shown according to the analytical framework**

1. Governance of Resource Use in Schools				
1.1 Level of resources available for school education				
1.2 Sources of revenue				
1.3 Links to school system governance				
1.4 Planning of resource use				
1.5 Implementation of policies to improve effectiveness of resource use				
Level of use	2. Resource Distribution	3. Resource Utilisation	4. Resource Management	
A. Use at student level	2.A Distribution of resources across specific student groups	3.A1 Matching resources to individual student learning needs	4.1 Capacity building for resource management	
		3.A2 Organisation of student learning time		
B. Use at teacher level	2.B Distribution of teacher resources	3.B Allocation of teacher resources to students		4.2 Monitoring of resource use
C. Use at school leader level	2.C Distribution of school leadership resources	3.C Organisation of school leadership		
D. Use at school level	2.D1 Distribution of resources across individual schools	3.D1 Teaching and learning environment within school		4.3 Transparency and reporting
	2.D2 Distribution of school facilities and materials	3.D2 Use of school facilities and materials		
E. Use at system- and sub-system level	2.E1 Distribution of resources between levels of the education administration	3.E Organisation of education governance	4.4 Incentives for the effective use of resources	
	2.E2 Distribution of resources between levels and sectors of the school system			
	2.E3 Distribution of financial resources across resource types			

High priority

Moderate priority

Low priority

Not rated

### Areas of priority for the Review

124. As presented in this document, the scope to analyse effectiveness of resource use in schools is considerable. Efficiency in schooling very much deals with every aspect of school policy. In order to make the analysis more feasible, a first priority was to partition the overall issue of effectiveness of resource use into smaller analytical components. These are proposed in this document as the thematic modules within each of the four main issues which are described earlier and depicted in Tables 1 and 3.

125. The OECD Review will endeavour to cover as many of the proposed thematic modules as feasible. However, the ability to cover the different thematic modules will depend on the resources available for the Review. If the latter are not deemed sufficient to cover the entirety of the thematic modules, the Review will guide its choice of the thematic modules to be covered by the analysis on the basis of the policy priorities expressed by the countries (as outlined above). Areas of analytical focus for individual country reviews will be dictated by the concerned country's priorities from the set of thematic modules proposed in the analytical framework.

## METHODOLOGY

### Main components of the Review

126. The Review methodology is based on countries working collaboratively with the Secretariat. It involves examining country-specific issues and policy approaches in improving the effectiveness of resource use in schools, and placing these experiences within a broader analytical framework to generate insights and findings relevant to countries as a whole. The collaborative approach provides countries with an opportunity to learn more about themselves by examining their experiences against those of other countries. It is also intended to add to the broader knowledge base by accumulating international evidence on the impact of policy reforms to improve efficiency in schooling, and the circumstances under which they work best.

127. Despite these potential advantages, comparative work can be challenging. The contexts within which school resources are distributed, utilised and managed can vary markedly across countries depending upon their educational traditions, school governance culture and economic conditions. Policy initiatives to improve the effectiveness of resource use that work well in one national context are not necessarily transferable across national borders. The Review will be sensitive to the role played by contextual factors in influencing the particular policies that are attempted in countries, and the factors that shape their implementation and impact. The questions to guide the Review will be framed so that efficiency policies can be understood in relation to the values, vision and organisation of schools in different countries as well as the broader economic, social and political contexts.

128. The work will be a combination of desk-based analysis and country reviews. This is complemented with meetings of country representatives to discuss progress and share experiences. The work will be organised in three phases:

- An *Analytic Phase*, to draw together evidence-based policy lessons from international data, research and analysis
- A *Country Review Phase*, to provide policy advice to individual countries tailored to the issues of interest in those countries, on the basis of the international evidence base, combined with evidence obtained by a team of experts visiting the country.
- A *Synthesis Phase*, with the preparation of a final synthesis report to blend analytic and country review evidence and provide overall policy conclusions.

129. Annex 2 provides a provisional timeline for completion of the Review.

### ***Phase 1: Analytical phase (PWB 2013-14)***

130. The Analytical Phase uses several means – country background reports, literature reviews and data analyses – to analyse the factors that shape the effectiveness with which resources are used in school systems, the associated challenges and possible policy responses.

*Part 1: Identifying the key questions for analysis and the background information needed from countries*

131. A first step in the Review is to identify the key questions for analysis. Recent experience with conducting policy reviews has demonstrated the value of reaching consensus on the key policy question(s) to focus the analysis and keep it on track. An earlier version of this document [EDU/EDPC(2013)4] gave countries the opportunity to provide feedback on the proposed issues for analysis thereby assisting with the shaping of the key questions around which the Review will be focussed. The present version of the document incorporates such feedback and provides the agreed questions for analysis. This allows the Secretariat to identify the information it needs to collect from countries on their approaches to distributing, utilising and managing school resources, evidence on the effectiveness of resource use, and strategies to use resources more efficiently as well as to enhance their impact. This step also built on the policy challenges presented in the paper *Resources for Learning: the Challenge for Schools*, which was presented to the Education Policy Committee in April 2011 [EDU/EDPC(2011)4].

*Part 2: Reviewing the literature*

132. The Review will take stock of the existing knowledge base as well as the quantitative and qualitative evidence on the effects of alternative uses of resources and on the impact of policies seeking to improve the effectiveness of resource use in schools. The Secretariat will review the literature and evidence during the course of 2013 and 2014, present it to countries and summarise it in working papers. It will also refine its policy analysis tools to use in analysing individual country practices.

*Part 3: Gathering data on countries' policies and practices*

133. There are important differences between countries with respect to the way resources are distributed across the education system (e.g. between levels of administration, levels of education, or sectors of education), the way resources are used and allocated to different priorities and programmes (e.g. matching to students' needs, organisation of learning at school), and the way resources are managed at all levels of the education system (e.g. distribution of responsibility for resource management, evaluation and accountability practices). The Secretariat will collect more detailed information on arrangements for resource use in countries, which will take into account the key questions for analysis. The gathering of data will also draw on and entail collaboration with the Indicators of National Education Systems (INES), PISA and TALIS.

134. Every effort will be made to collect this information from as many OECD countries as possible, in ways that minimise the burden on countries and make it easy to share and add to the public knowledge base. The principal objective is to take stock of current policies and practices in countries and summarise them either as a standalone output or as part of the final synthesis report.

135. Information on countries' policies and practices will be gathered through Country Background Reports (CBRs). These are prepared following guidelines prepared by the Secretariat in response to a common set of issues and questions, and use a common framework to facilitate comparative analysis and maximise the opportunities for countries to learn from each other. The Guidelines for the preparation of CBRs are set out in a separate document [EDU/EDPC(2013)11/REV1]. If deemed necessary, this information might be complemented at a later stage of the Review by a questionnaire to collect information on countries' approaches to resource use in a tabular format proposed by the OECD Secretariat.

***Phase 2: Country Reviews (PWB 2013-14 and 2015-16)***

136. Country Reviews both provide value to the individual country and important input into the comparative work. Countries are invited to request a Country Review, which involves an OECD-led review team providing from an international perspective, an analysis of school resourcing policies in the

country, and tailored policy advice and recommendations to improve the effectiveness of resource use in schools.

137. The scope and focus of each review will be determined by the country in consultation with the OECD (and with the European Commission, for those countries benefitting from the partnership with the European Commission), depending on the present arrangements and their strengths and challenges, and country priorities (e.g. resource distribution, resource management). Areas of analytical focus for individual country reviews will be chosen from the thematic modules proposed in Table 1, as part of the analytical framework. By providing an external perspective on school resourcing issues, the Country Reviews are also intended to contribute to national discussions, as well as inform other countries about effective school resourcing policies.

138. Each Country Review will include an intensive country visit (typically 5-7 days in length, but possibly longer to account for a country's circumstances) to fully understand the country's context, policies and practices and will include meetings with all major stakeholders. There will also be a two-day visit by the OECD Secretariat to make plans for the main visit (or, alternatively, preparatory meetings through video-conference). For each Country Review the Secretariat will deliver a draft report to the country for comment within four months after the review visit has taken place. Country comments are taken into account before the report is finalised and published.

139. In some countries, education policy is, in part or in whole, a regional/provincial/state responsibility. Subject to the approval of national authorities, the Secretariat may carry out a "Country Review" at a sub-national level rather than the whole country.

140. To ensure quality and delivery of the country review reports, it is necessary to limit the number of country reviews that will be undertaken each year. Given Secretariat capacity constraints, it is likely that only six country reviews can be undertaken in 2013-14. If more than six countries seek country reviews, the Secretariat will organise a second round of country reviews in 2015-16. Countries wishing to be part of the first round of country reviews are asked to formally confirm their interest to the Secretariat preferably by **15 November 2013**. The costs would be covered by Voluntary Contributions (VCs) provided by the countries reviewed.

### ***Phase 3: Synthesis phase (PWB 2015-16)***

141. This comparative phase involves the Secretariat using the earlier steps to analyse policy options and highlight good practices across countries. This could include the following points:

- analyse the merits and drawbacks of different approaches and strategies that countries use to improve the efficiency with which resources are used in the school system
- analyse how countries can effectively distribute, utilise and manage resources so that they contribute to achieving countries' objectives to the fullest
- explore policy options available to countries to improve the effectiveness of school resource use.

142. This phase will be carried out during 2015-16 with feedback by countries. The findings will be published in a synthesis report.

### **Governance of the Review**

143. The creation of a Group of National Experts (GNE) to oversee the OECD Review was agreed by the Education Policy Committee at its 13<sup>th</sup> meeting, held on 18-19 April 2013. The GNE is being established as a subsidiary body of the Education Policy Committee in order to guide the methods, timing

and principles of the Review and to allow countries to share information and experience on school resource use as well as keeping in touch with emerging findings of the exercise. A GNE Bureau, with a Chair and two Vice-Chairs, will be elected at the GNE's first meeting from among country representatives.

144. During the Review, the GNE will hold periodical official meetings. These will be open to all OECD member countries and observers to the Education Policy Committee and, upon agreement granted by the GNE, to other interested countries as well as to the Trade Union Advisory Committee to the OECD (TUAC) and the Business and Industry Advisory Committee to the OECD (BIAC).

145. Three meetings of the Group are planned during the Review with the following objectives:

- The first meeting will discuss policy issues based on evidence collected and share country experience on specific issues (Q2 2014).
- The second meeting will discuss preliminary conclusions of the overall Review and share country experience on key themes for the final synthesis report (Q2 2015).
- The third meeting will discuss a first draft of the final synthesis report to obtain guidance and feedback from countries (Q2 2016).

146. These meetings follow an initial meeting of country representatives to launch the OECD Review, held on 27-28 March 2013, which discussed the key policy issues and fine-tuned the scope for the Review.

147. Progress on the Review will be reported back to the Education Policy Committee at regular intervals using the framework established for all outputs. The Committee will also be invited to comment on the draft synthesis report.

## **Collaboration**

148. A variety of other OECD activities also address different aspects of uses of resources in schools. Therefore the Review will work in close collaboration with these activities, which include the regular work of INES, namely the INES Working Party and the Network for the Collection and the Adjudication of System-Level Descriptive Information on Educational Structures, Policies and Practices (NESLI), PISA and TALIS, the OECD Skills Strategy, work by the Learning Environments Evaluation Programme (LEEP, the evolution of the former CELE work) on the physical learning environment, work by CERI on governing complex education systems, innovative learning environments, and systemic innovation in education and policy outputs addressing early childhood education and equity in education, including the project "Monitoring Quality of Early Learning and Development".

149. The growing attention being paid to the effective use of school resources is also evident in the work of other international organisations. The OECD Review will therefore be conducted in close co-operation with other international organisations to prevent duplication of efforts and develop potential synergies. In particular, within a broader framework of collaboration, a partnership with the European Commission is established for this project. Social partners will also be involved namely through the contribution of TUAC (Trade Union Advisory Committee to the OECD) and BIAC (Business and Industry Advisory Committee to the OECD). In general, the Review will need to engage a wide range of stakeholders, including local players particularly in highly devolved education systems.

## **Modes of participation**

150. Participation in the OECD Review is open to OECD member countries, observers to the Education Policy Committee as well as other countries. The following levels of participation are possible for each country:

1. *GNE meetings*: Participation in meetings of the Group of National Experts (GNE).
2. *Country Background Report*: Preparation of a Country Background Report (CBR), by the concerned country.
3. *Country Review*: Preparation by the OECD Secretariat of a Country Review report, which provides in-depth analysis and policy recommendations to the concerned country, as explained above.

151. In 2015-16, once the OECD Review enters its synthesis phase, countries which have not opted for an individual Country Review will also be proposed a Spotlight Report. A “Spotlight Report” is a customised summary of the findings of the comparative work that puts a specific country in the spotlight. These are to be prepared by the Secretariat following the completion of the synthesis phase and are descriptive in nature.

152. Actively engaged countries (i.e. countries preparing a CBR or engaging in a Country Review) are expected to attend GNE meetings. Country participation in a Country Review requires the preparation of a CBR but does not involve the preparation of a Spotlight Report. The preparation of a Spotlight Report requires the preparation of a CBR. Each country opting for a CBR or a Country Review is expected to appoint a National Co-ordinator to take responsibility for co-ordinating the review with the OECD. The role and typical profile of a national co-ordinator are outlined in Annex 3.

## **Outputs**

153. The OECD Review will produce a number of outputs designed to assist policy making, including:

- a stock-take of current policies and practices in countries to improve the effectiveness of resource use in schools
- Country Background Reports
- Spotlight Reports
- Country Review reports presenting the results of the Country Reviews and proposing priority actions for improving the country’s uses of school resources
- meetings of the Group of National Experts (GNE) to review progress and share experiences
- a typology of approaches to resource use in school systems in as many OECD and partner countries as possible
- a final synthesis report that will draw out the key lessons for policy makers and policy options available to countries to improve the effectiveness of resource use in schools.

## **Dissemination**

154. The Review will have a strong emphasis on dissemination from the outset. The outputs will be disseminated to a wide range of stakeholders – to the Education Policy Committee through OLIS and Clearspace and to the wider general public through the OECD public website. National seminars to discuss Country Review reports may also take place. A more detailed communication strategy for the full set of outputs will be developed in due course.

## REFERENCES

- Alexander, K., D. Entwisle and L. Olson, (2007) “Lasting consequences of the summer learning gap”, *American Sociological Review*, Vol. 72.
- Andersson, C. (2007), “Teacher density and student achievement in Swedish compulsory schools”, *Working Paper 2007:4*, Institute for Labour Market Policy Evaluation (IFAU), Uppsala.
- Angrist, J. and V. Lavy (1999), “Using Maimonides’ rule to estimate the effect of class size on scholastic achievement”, *The Quarterly Journal of Economics*, Vol. 114, No. 2 pp. 533-575.
- Barnett, S.W. (1995), “Long-term effects of early childhood programs on cognitive and school outcomes”, *The Future of Children*, Vol. 5, No. 3, pp. 25-50.
- Bénabou, R., F. Kramarz and C. Prost (2003), *Zones d’éducation prioritaire: Quels moyens pour quels résultats? Une évaluation sur la période 1982 – 1992*, INSEE – 200318, [www.insee.fr/fr/ffc/docs\\_ffc/es380a.pdf](http://www.insee.fr/fr/ffc/docs_ffc/es380a.pdf).
- Björklund A., P-A. Edin, P. Fredriksson and A. Krueger (2004), “Education, equality and efficiency – An analysis of Swedish school reforms during the 1990s”, *IFAU report 2004: 1*, Institute For Labour Market Policy Evaluations, Uppsala.
- Cunha, F., J. Heckman, L. Lochner and D. Masterov (2005), “Interpreting the evidence on life cycle skill formation”, *Working Paper 11331*, National Bureau of Economic Research, Cambridge, Massachusetts.
- Elmore, R. and D. Burney (1997), *Investing in Teacher Learning: Staff Development and Instructional Improvement in Community School District #2*, National Commission on Teaching & America’s Future & the Consortium for Policy Research in Education, New York.
- Fazekas, M. (2012), “School funding formulas: Review of main characteristics and impacts”, *OECD Education Working Papers*, No. 74, OECD Publishing, Paris, [www.oecd.org/edu/workingpapers](http://www.oecd.org/edu/workingpapers).
- Field, S. (2011), *Resources for Learning: The Challenge for Schools*, OECD, Paris.
- Field, S., M. Kuczera and B. Pont (2007), *No More Failures: Ten Steps to Equity in Education*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264032606-en>.
- Finn, J.D. and C.M. Achilles (1990), “Answers and questions about class size: A statewide experiment”, *American Educational Research Journal*, Vol. 27, pp. 557-77.
- Gendron, S. and A. Faherty (n.d.), *Managing Resources to Focus on Student Performance: A Case Study of an Efficiency and Effectiveness Review Process*, International Center for Leadership in Education.
- Glass, G.V., L.S. Cahen, M.S. Smith and N.N. Filby (1982), *School Class Size: Research and Policy*, Sage, Beverly Hills, California.

- Hanushek, E.A. (2000), "Evidence, politics, and the class size debate", in *The Class Size Policy Debate, Working Paper 121*, Economic Policy Institute, Washington D.C.
- Hanushek, E.A. (1997), "Assessing the effects of school resources on student performance: An update", *Educational Evaluation and Policy Analysis*, Vol., 19, pp. 141-164.
- Hanushek, E.A. (1986), "The economics of schooling: Production and efficiency in public schools", *Journal of Economic Literature*, Vol. 24, pp. 1141-1177.
- Hanushek, E.A., J.F. Kain and S.G. Rivkin (2001), "Why public schools lose teachers", *Working Paper 8599*, NBER Working Paper Series, [www.nber.org/papers/w8599](http://www.nber.org/papers/w8599).
- Heckman, J. (2006a), "Investing in disadvantaged young children is an economically efficient policy", paper presented at the Committee for Economic Development, Pew Charitable Trusts, New York, [www.ced.org/docs/report/report\\_2006prek\\_heckman.pdf](http://www.ced.org/docs/report/report_2006prek_heckman.pdf).
- Heckman, J. (2006b), "Skill formation and the economics of investing in disadvantaged children", *Science*, Vol. 312, pp. 1900-1902.
- Hill, P., C. Campbell and J. Harvey (2000), *It Takes a City: Getting Serious about Urban School Reform*, The Brookings Institution, Washington, D.C.
- Karkkainen, K. (2010), "Summary of the June 2009 educationtoday crisis survey: Initial reflections on the impact of the economic crisis on education", *OECD Education Working Papers*, No. 43, OECD Publishing, Paris, [www.oecd.org/edu/workingpapers](http://www.oecd.org/edu/workingpapers).
- Karsten, S. (2006), "Policies for disadvantaged children under scrutiny: The Dutch policy compared with policies in France, England, Flanders and the USA", *Comparative Education*, Vol. 42, No. 2, pp. 261–282.
- Kirby, S.N., J.S. McComba, S. Naftel and S.E. Murray (2003), *A Snapshot of Title I Schools, 2000-01*, Department of Education, Washington, D.C.
- Knight, D.S. and L.O. Picus (2012), "School level resource allocation in California and Wyoming: What are the tradeoffs?", paper presented March 16, 2012 at the Association for Education Finance and Policy 37th Annual Conference, Boston, Massachusetts.
- Krueger, A. (2003), "Economic considerations and class size", *Economic Journal*, Vol.113, No. 485, pp. F34-F63.
- Krueger, A.B. (2000), "Understanding the magnitude and effect of class size on student achievement", *The Class Size Policy Debate*, Working Paper No.121, Economic Policy Institute, Washington D.C.
- Krueger, A. (1999), "Experimental estimates of education production functions", *The Quarterly Journal of Economics*, Vol. 114, No.2, pp. 497-532.
- Lindahl, M. (2001), "Home versus school learning: A new approach to estimating the effect of class size on achievement", *IZA Discussion Papers No. 261*.
- Lockheed, M.E. and E.A. Hanushek (1994), "Concepts of educational efficiency and effectiveness", *Human Resources Development and Operations Policy (HRO) Working Papers*, No. 24.

- Mulford, B. (2003), "School leaders: Challenging roles and impact on teacher and school effectiveness", paper prepared for the OECD Improving School Leadership project, OECD, Paris.
- Newman, F.M., B. Smith, E. Allensworth and A.S. Bryk (2001), "Instructional program coherence: What it is and why it should guide school improvement policy", *Educational Evaluation and Policy Analysis*, Vol. 23, No. 4, pp. 297-321.
- Nusche, D., G. Halász, J. Looney, P. Santiago and C. Shewbridge (2011), *OECD Reviews of Evaluation and Assessment in Education: Sweden*, OECD Publishing, Paris, [www.oecd.org/edu/evaluationpolicy](http://www.oecd.org/edu/evaluationpolicy).
- Nusche, D. (2009), "What works in migrant education? A review of evidence and policy options", *OECD Education Working Papers*, No. 15, OECD Publishing, Paris, [www.oecd.org/edu/workingpapers](http://www.oecd.org/edu/workingpapers).
- OECD (2013a), *Education at a Glance 2013: OECD Indicators*, OECD Publishing, Paris.
- OECD (2013b), *Synergies for Better Learning: An International Perspective on Evaluation and Assessment*, OECD Reviews of Evaluation and Assessment in Education, OECD Publishing, Paris, [www.oecd.org/edu/evaluationpolicy](http://www.oecd.org/edu/evaluationpolicy).
- OECD (2012), *Education at a Glance 2012: OECD Indicators*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/eag-2012-en>.
- OECD (2011), *OECD Economic Surveys: United Kingdom*, OECD Publishing, Paris, [http://dx.doi.org/10.1787/eco\\_surveys-gbr-2011-en](http://dx.doi.org/10.1787/eco_surveys-gbr-2011-en).
- OECD (2010a), *PISA 2009 Results: What Makes a School Successful? – Resources, Policies and Practices (Volume IV)*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264091559-en>.
- OECD (2010b), *The OECD Innovation Strategy: Getting a Head Start on Tomorrow*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264083479-en>.
- OECD (2005), *Teachers Matter: Attracting, Developing and Retaining Effective Teachers*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264018044-en>.
- Pan, D., Z.H. Rudo, C.L. Schneider and L. Smith-Hansen (2003), *Examination of Resource Allocation in Education: Connecting Spending to Student Performance*, Southwest Educational Development Laboratory, Austin, Texas.
- Plecki, M.L., C.R. Alejano, M.S. Knapp and C.R. Lochmiller (2006), *Allocating Resources and Creating Incentives to Improve Teaching and Learning*, Center for the Study of Teaching and Policy, The Wallace Foundation.
- Pont, B., D. Nusche and H. Moorman (2008), *Improving School Leadership, Volume 1: Policy and Practice*, OECD Publishing, Paris.
- Popham, J. (1991), "Why standardized tests don't measure educational quality", *Educational Leadership*, Vol. 56, No. 6, pp. 8-15.
- Prenzel, M., J. Baumert, W. Blum, R. Lehmann, D. Leutner, M. Neubrand, R. Pekrun, J. Rost and U. Schiefele (eds.) (2005), *PISA 2003: Ergebnisse des Zweiten Ländervergleichs Zusammenfassung*, PISA-Konsortium Deutschland.

- Resh, N. (1998), "Track placement: How the 'sorting machine' works in Israel, *American Journal of Education*, Vol. 106, No. 3, pp. 416-438.
- Robinson, G.E. and J.H. Wittebols (1986), *Class Size Research: A Related Cluster Analysis for Decision-Making*, Education Research Service, Arlington, Virginia.
- Roza, M. with L. Miller and P.Hill (2005), *Strengthening Title I to Help High-Poverty Schools: How Title I Funds Fit Into District Allocation Patterns*, Working Paper, Center on Reinventing Public Education, Seattle.
- Sammons, P., J. Hillman and P. Mortimore (1995), *Key Characteristics of Effective Schools; A Review of School Effectiveness Research*, OFSTED, London.
- Scheerens, J. (2000), "Improving school effectiveness", *Fundamentals of Educational Planning Series*, No. 68, UNESCO, Paris.
- Scheerens, J. and R.J. Bosker (1997), *The Foundations of Educational Effectiveness*, Elsevier Science, Ltd., Oxford.
- Schofield, J.W., in cooperation with K. Alexander, R. Bangs and B. Schauenburg, (2006), "Migration background, minority-group membership and academic achievement: Research evidence from social, educational, and developmental psychology", *AKI Research Review 5*, Programme on Intercultural Conflicts and Societal Integration (AKI), Social Science Research Center, Berlin.
- Seibel, C. and J. Levasseur (2007), *Les Effets Nocifs du Redoublement Précoce*. Audition au Haut conseil de l'Éducation, [http://educeval.education.fr/pdf/audition\\_haut\\_conseil/effets\\_nocifs\\_redoublement\\_precoce.pdf](http://educeval.education.fr/pdf/audition_haut_conseil/effets_nocifs_redoublement_precoce.pdf).
- Strand, S. (2007), *Minority Ethnic Pupils in the Longitudinal Study of Young People in England (LSYPE)*, Centre for Educational Development Appraisal and Research, University of Warwick and Department for Children, Schools and Families, London.
- Tomlinson, T. (1988), *Class Size and Public Policy: Politics and Panaceas*, Office of Educational Research and Improvement, Department of Education, Washington, DC.
- Waslander, S., C. Pater and M. van der Weide (2010), "Markets in education: An analytical review of empirical research on market mechanisms in education", *OECD Education Working Papers*, No. 52, OECD Publishing, Paris, [www.oecd.org/edu/workingpapers](http://www.oecd.org/edu/workingpapers).

## ANNEX 1: POLICY PRIORITIES EXPRESSED BY COUNTRIES

At the Review's launch meeting of 27-28 March 2013, it was suggested that the Review should start with a priority rating exercise, where countries would indicate the issues of highest relevance to their national context. This would help shape the further scoping of the Review overall, as well as the individual country reviews. As a result, the Secretariat developed a questionnaire on country policy priorities for improving the effectiveness of resource use in schools and invited countries to complete it by June 2013. The questionnaire was organised according to the analytical framework proposed in the "Draft Design and Implementation Plan for the Review" [EDU/EDPC(2013)/4].

Countries were asked to express the relevance of the following issues:

### Issue 1: Effectiveness of Resource Distribution

- **Area 1.1:** Distribution of resources between different levels of the education administration

Refers to the distribution of education resources across the different levels of the education administration: system level, the sub-system level (regional or municipal level), and the school level.

- **Area 1.2:** Distribution of resources between levels and sectors of the education system

Refers to the distribution of education resources across the different levels of the education system (e.g. pre-primary, primary, secondary, tertiary) and across different programme types and sectors (e.g. general programmes, vocational programmes, special education programmes).

- **Area 1.3:** Distribution of resources across individual schools

Refers to the distribution of education resources across individual schools. It concerns issues such as funding formulae to distribute resources to schools or special targeted programmes which provide schools with extra resources for specific purposes.

- **Area 1.4:** Distribution of resources between students

Refers to the distribution of education resources across individual students, including differences of expenditure per student across student groups. This issue includes specific resources for students with special needs (e.g. resources for the learning of students with a disability), learning difficulties (e.g. extra out-of-school support) or socio-economic disadvantage (e.g. provision of meals in primary school, financial aid in upper secondary school).

- **Area 1.5:** Distribution of financial resources across resource types

Refers to the distribution of financial resources across the different resource types: human resources (teachers, school leaders, non-teaching staff), targeted education programmes (e.g. programmes to develop extracurricular activities in schools), school infrastructure (e.g. buildings, ICT equipment) and other school materials (e.g. textbooks). This includes decisions such as the

number of teachers/school leaders, the salaries of the education workforce, the investment in the preparation of education professionals, the proportion of the budget going into infrastructure investment, and the weight of targeted education programmes in schooling policy.

- **Area 1.6:** Distribution of human resources

Refers to the administration and distribution of human resources across the education system (teachers and school leaders). It includes aspects such as the requirements to enter teaching/school leadership, hiring procedures, the dismissal and salary setting procedures, and how teachers/school leaders are assigned or selected into schools (including incentive schemes for teachers/school leaders to work in areas of greater social need).

- **Area 1.7:** Distribution of school facilities

Refers to the organisation and distribution of school facilities, in particular the organisation of the school network, the size of schools, and the provision of schooling in remote/small rural areas.

## **Issue 2: Effectiveness of Resource Allocation**

- **Area 2.1:** The organisation of student learning time

Refers to approaches to organise student learning time. This includes the organisation of the school calendar, instruction time, distribution of learning activities (including extracurricular activities), and the length of the school day (e.g. full-day, half-day school).

- **Area 2.2:** Matching resources to individual student needs

Refers to strategies to identify individual student learning needs and target resources to meet those needs. This includes practices such as the grouping (or tracking) of students within schools according to abilities or performance, year repetition, support systems for students in greater need and providing educational offerings to match student needs.

- **Area 2.3:** Allocation of teacher resources to students

Refers to how teacher resources and teaching time are allocated for student learning. It includes issues such as the number of students per class, teacher-student ratios, the use of teachers' time (including the non-teaching activities of teachers) and the use of support staff in the classroom.

- **Area 2.4:** Effective teaching and learning environments

Refers to the policies and practices conducive to an effective teaching and learning environment within schools. It includes the organisation and distribution of leadership in schools, the organization of learning (e.g. curriculum development, evaluation and assessment), the safety and well-being policies in place, the outreach to parents and communities, teacher collaboration and professional learning, school evaluation, and approaches to school development.

- **Area 2.5:** Use of school facilities and materials to improve teaching and learning environments

Refers to how physical resources, specifically school facilities and materials, are used to support learning environments. This includes the use of school facilities beyond regular school hours or

the normal school calendar (year-round schools), schools working on different shifts, and the use of ICT in student learning.

### **Issue 3: Effectiveness of Resource Management**

- **Area 3.1:** Sources of revenue for education

Refers to the origin of resources for schooling, i.e. the structure of revenue for education. This includes the relative weight between public and private sources for funding schooling (e.g. the proportion of the costs borne directly by the families) and the relative importance of levied resources at the local, regional and central levels (i.e. taxes at the different administration levels).

- **Area 3.2:** Distribution of responsibilities for resource management

Refers to the attribution of responsibilities for resource management at the different levels of the education administration. This includes, for example, defining who takes responsibility for school funding formulae, managing human resources, setting the school calendar and instruction time, deciding on school closure or opening. A particularly important aspect is the design of incentives within the education system for each school agent (e.g. policy-maker, school leader, teacher) to contribute to the effective use of school resources.

- **Area 3.3:** Aspects of school system governance which impact the effective use of resources

Refers to approaches to the governance of the school system which impact on the efficiency with which resources are used. These include the size of the privately-run school system, the existence of school vouchers for students, the extent of school parental choice and the level of school autonomy.

- **Area 3.4:** Capacity for resource management

Refers to the competencies and skills for managing resources in the education system. This includes the competency frameworks for managers of resources, professional development on managing resources effectively, and the promotion of collaborative environments and peer learning for effective resource management.

- **Area 3.5:** Planning and monitoring of resource use

Refers to the planning and monitoring of resource use across the education system. This includes the definition of goals and expectations (to assess the impact of resource use), the monitoring of the equity of resource use, policy and programme evaluation, outcome-based planning cycles (including results-based budgeting), incentive schemes for education professionals, management by objectives and evidence-based resource allocation.

- **Area 3.6:** Transparency and accountability of resource use

Refers to mechanisms that ensure the transparency and accountability of the use of resources in the education system. This includes procedures for informing the general public about the use of public education resources, the reporting at the different levels of the education administration about resource use, and mechanisms to hold authorities accountable for the use of resources.

- **Area 3.7: Stakeholder involvement**

Refers to clear communication and consultation with relevant stakeholders about resource use. This includes dialogue and consensus building about priorities for resource use in the education system.

Countries were asked to rate the relevance of each policy area for improving the effectiveness of resource use in schools, in one of five levels: Very High, High, Moderate, Low and Irrelevant. Within each of the three key issues, countries were also asked to rank the suggested policy areas in order of importance. Responses were received from 16 countries (17 education systems): Australia, Belgium (Flemish Community), Belgium (French Community), Czech Republic, Estonia, Iceland, Ireland, Israel, Kazakhstan, Korea, Luxembourg, Netherlands, Norway, Slovak Republic, Spain, Turkey and the United States. Results are summarised in the following three tables.

**Table A.1 Results of priority-rating exercise, Issue 1 – Effectiveness of Resource Distribution**

Policy Area	Very High	High	Moderate	Low	Irrelevant	Average score	Ranking points	Top 2	Bottom 2
<b>1.1 Distribution of resources between different levels of the education administration</b>	7	4	4	2	0	<b>2.94</b>	68	5	7
<b>1.2 Distribution of resources between levels and sectors of the education system</b>	4	8	3	2	0	<b>2.82</b>	74	4	7
<b>1.3 Distribution of resources across individual schools</b>	8	8	1	0	0	<b>3.41</b>	49	6	1
<b>1.4 Distribution of resources between students</b>	9	5	3	0	0	<b>3.35</b>	45	8	1
<b>1.5 Distribution of financial resources across resource types</b>	7	7	2	0	0	<b>3.31</b>	69	3	4
<b>1.6 Distribution of human resources</b>	6	7	2	1	0	<b>3.13</b>	61	4	5
<b>1.7 Distribution of school facilities</b>	5	7	4	1	0	<b>2.94</b>	82	2	7

Notes: *Average Score* is computed as a simple average when the following points are assigned to each possible answer: 4 to “Very High”, 3 to “High”, 2 to “Moderate”, 1 to “Low” and 0 to “Irrelevant”. *Ranking points* are the sum, across country responses, of the ranking attributed to each specific area within the Issue “Effectiveness of Resource Distribution” (i.e. if a country indicates the specific area as the second top priority, then 2 is added to the sum; this means that, overall, the lower the score, the higher priority the corresponding area is). *Top 2* refers to the number of countries which indicated the specific area as being among the top two policy priorities. *Bottom 2* refers to the number of countries which indicated the specific area as being among the bottom two policy priorities.

**Table A.2 Results of priority-rating exercise, Issue 2 – Effectiveness of Resource Allocation**

Policy Area	Very High	High	Moderate	Low	Irrelevant	Average score	Ranking points	Top 2	Bottom 2
<b>2.1 The organisation of student learning time</b>	5	4	6	2	0	<b>2.71</b>	62	3	10
<b>2.2 Matching resources to individual student needs</b>	8	7	2	0	0	<b>3.35</b>	37	8	3
<b>2.3 Allocation of teacher resources to students</b>	5	11	1	0	0	<b>3.24</b>	33	10	2
<b>2.4 Effective teaching and learning environments</b>	6	10	1	0	0	<b>3.29</b>	38	10	3
<b>2.5 Use of school facilities and materials to improve teaching and learning environments</b>	1	6	8	2	0	<b>2.35</b>	70	1	14

Notes: *Average Score* is computed as a simple average when the following points are assigned to each possible answer: 4 to “Very High”, 3 to “High”, 2 to “Moderate”, 1 to “Low” and 0 to “Irrelevant”. *Ranking points* are the sum, across country responses, of the ranking attributed to each specific area within the Issue “Effectiveness of Resource Allocation” (i.e. if a country indicates the specific area as the second top priority, then 2 is added to the sum; this means that, overall, the lower the score, the higher priority the corresponding area is). *Top 2* refers to the number of countries which indicated the specific area as being among the top two policy priorities. *Bottom 2* refers to the number of countries which indicated the specific area as being among the bottom two policy priorities.

**Table A.3 Results of priority-rating exercise, Issue 3 – Effectiveness of Resource Management**

Policy Area	Very High	High	Moderate	Low	Irrelevant	Average score	Ranking points	Top 2	Bottom 2
<b>3.1 Sources of revenue for education</b>	4	4	7	2	0	<b>2.59</b>	81	2	8
<b>3.2 Distribution of responsibilities for resource management</b>	4	7	5	1	0	<b>2.82</b>	51	7	2
<b>3.3 Aspects of school system governance which impact the effective use of resources</b>	2	8	3	4	0	<b>2.47</b>	52	7	1
<b>3.4 Capacity for resource management</b>	5	8	2	2	0	<b>2.94</b>	64	4	4
<b>3.5 Planning and monitoring of resource use</b>	6	8	3	0	0	<b>3.18</b>	53	7	3
<b>3.6 Transparency and accountability of resource use</b>	4	9	4	0	0	<b>3.00</b>	63	5	5
<b>3.7 Stakeholder involvement</b>	1	12	3	1	0	<b>2.76</b>	84	0	9

Notes: *Average Score* is computed as a simple average when the following points are assigned to each possible answer: 4 to “Very High”, 3 to “High”, 2 to “Moderate”, 1 to “Low” and 0 to “Irrelevant”. *Ranking points* are the sum, across country responses, of the ranking attributed to each specific area within the Issue “Effectiveness of Resource Management” (i.e. if a country indicates the specific area as the second top priority, then 2 is added to the sum; this means that, overall, the lower the score, the higher priority the corresponding area is). *Top 2* refers to the number of countries which indicated the specific area as being among the top two policy priorities. *Bottom 2* refers to the number of countries which indicated the specific area as being among the bottom two policy priorities.

## ANNEX 2: PROVISIONAL TIMELINE FOR THE REVIEW<sup>2</sup>

### *January-June 2013*

- A launch meeting of the *OECD Review of Policies to Improve the Effectiveness of Resource Use in Schools (School Resources Review)* was convened on 27-28 March 2013 at OECD Conference Centre in Paris.
- The Secretariat continued the development of the conceptual framework to analyse the use of resources in schools and initiated its reviews of the relevant literature.

### *July-December 2013*

- Countries commence work on their Country Background Reports following Secretariat guidelines.
- The planning of Country Reviews begins. The schedule of the review visits is determined in consultation with countries.
- The Secretariat continues building the knowledge base for the Review through analysis and reviews of the literature.

### *January-June 2014*

- Country visits for countries opting for a Country Review take place. Review teams prepare Country Review reports based on their site visits.
- Countries deliver their Country Background Report to the Secretariat.
- Some literature reviews are published and a few other are initiated.
- A meeting of the Group of National Experts (GNE) discusses policy issues based on evidence collected and country experiences on specific issues.

### *July-December 2014*

- Other Country Reviews are organised.
- The Secretariat delivers Country Review reports.
- Additional countries deliver their Country Background Report.

### *2015-2016*

- The OECD Secretariat prepares the final synthesis report.
- Meetings of the GNE are organised.
- Further Country Reviews are organised.
- Dissemination activities are planned.
- The final synthesis report is published as an OECD official publication.
- Spotlight Reports are delivered to concerned countries.

---

<sup>2</sup> The timeline might need to be adjusted to account for the circumstances faced by the Review.

### **ANNEX 3: NATIONAL CO-ORDINATOR FOR COUNTRY REVIEWS**

OECD experience has shown that the national co-ordinator plays a critical role in ensuring the success of the review. For this reason, this annex sets out the role of the national co-ordinator and a typical profile of a national co-ordinator to assist countries in selecting an appropriate person.

#### ***Role***

The national co-ordinator would be responsible for: communications with the OECD Secretariat about the Review; communications within the country about the Review; ensuring that the Country Background Report is provided to the OECD Secretariat on schedule; liaising with the OECD Secretariat about the organisation of the review team visit; attending meetings of the Group of National Experts; co-ordinating country feedback on draft materials; and assisting with dissemination activities.

#### ***Typical profile***

The national co-ordinator should have some responsibility for the distribution, utilisation and management of school resources within either education ministries or education agencies. The national co-ordinator is also expected to have an in-depth knowledge of the use of school resources and be in a good position to co-ordinate the work across the different agencies with responsibilities for distributing, utilising and managing school resources. Preferably the national co-ordinator should have a good knowledge of international developments in the area of school resource use and some familiarity with OECD work.