Dear readers,

As education systems across the world have become more complex than ever, the importance of informed and evidence-based policy making is taking center stage nowadays. The value of timely, relevant and transparent data, as well as collecting, processing, and analyzing the many aspects of educational information is innumerable, whether it concerns teacher training, student retention rates, or school infrastructure. In this regard, Education Management Information Systems (EMIS) opens wider horizons for planning policies, monitoring and assessing the performance of the education systems and institutions, and acting on informed decision making.

In light of this, this edition will focus on EMIS and ICT-supported planning.

We hope you enjoy reading this edition!

Please let us know if you have any comments or suggestions.

**Highlights:**

**Using ICT in Policy Planning and Management for Lifelong Learning** (by UNESCO Bangkok, Education for Policy Reform/ICT in Education)

*This article provides an overview of EMIS that can be utilized for various purposes, including in the developing country contexts. It provides the strengths of developing and investing in EMIS, while acknowledging the challenges and barriers within education systems. It also provides UNESCO based projects and platforms that support its Member States in this regard.*

As the world faces rapid economic, political and social changes, the demand for education systems that are inclusive, equitable, efficient, and of quality is growing unprecedentedly. However, education is a complex endeavor, and planning and managing the
education sector can be a daunting task. If an inadequate policy decision is made, it can affect the entire generations for the rest of their lives, leaving a negative impact on the society at large.

Evidence-based policy planning and management is therefore crucial in improving access to and quality of education, while ensuring the provision of opportunities for lifelong learning for all. Timely, accurate, and relevant information related to students, teachers and schools is needed for making policy decisions based on evidence, and using ICT effectively can help this process greatly. When people hear about ICT in education, it is often associated with using ICT in the classrooms. Pictures of children using computers and/or tablets are some of the typical images of such use of ICT. However, the impact of using ICT to transform how the education is planned, monitored and managed is just as significant, if not more.

Education Management Information System, also known as EMIS, is probably one of the areas that benefited most from the recent advancement and availability of ICT. EMIS is as old as education systems themselves and had functioned without ICT. In the past, data collection for EMIS was done on paper – schools regularly submitted their data through different forms. It was easy to make mistakes, difficult to add-up and analyze, time-consuming and labor-intensive. With increased use of ICT, data on schools, students and teachers are now collected, stored, and shared electronically, often using spreadsheet applications, such as Microsoft Excel in most countries in the Asia-Pacific region. As Internet connectivity becomes more available throughout the region, some countries have even moved to web-based data collection. By using ICT throughout this process, policy makers gain access to more accurate and timely data for making informed policy decisions. Data from EMIS can also be analyzed using more complicated statistical techniques which are now widely available in software such as SPSS, STATA, and to some extent, Excel. EMIS data can also be easily connected to other databases such as household surveys, assessment results, and Geographic Information System (GIS) for further analysis. For instance, Lao PDR links EMIS with the data from GIS to analyze it by geographic location of schools, which allows them to develop plans and policies reflecting their contextual and geographical uniqueness. EMIS can also be linked to household surveys, for example, to identify out-of-school children, and help develop preventative measures and policies to combat this issue. In other words, EMIS can also be tailor made to specific focus areas that the governments are interested in prioritizing, pursuing or addressing in light of respective country contexts. Unfortunately, EMIS in many countries are observed as not robust enough to handle the large amount of data at different levels of schooling (pre-primary, primary and secondary) collected from different levels (central, regional and local). Realizing the growing demands on vigorous and coherent EMIS and significant benefits that such EMIS can bring to every aspect of education policy planning and monitoring, UNESCO has developed an open-source generic EMIS software, called OpenEMIS. The software is already equipped with basic administrative and education system structures, which can be quickly adjusted to the country’s specificities. It can be further customized by the national authorities and connected to existing national databases. Currently, UNESCO partners with Community Foundations System plan to deploy the system to the Member States, along with technical support, training and policy consultation. For more information, please refer to a special article by CFS in this issue.

Another way ICT is successfully used in education planning and management is through the development of simulation models. Often using a common software like Excel, a simulation model can be built and used for projecting the number of students over time, the number of teachers required, the number of classrooms to be built, and so on. These figures can then be used for calculating the costs of implementing certain policies, and facilitating policy dialogue for strategic prioritization. By using simulation models, policy makers can anticipate the impact of their policies more accurately, avoid the inadequate allocation of necessary resources, and therefore making detrimental policy decisions, or
being unprepared for the reality and its impacts. UNESCO has been using its education simulation model, Education Policy and Strategy Simulation model (EPSSim), to provide technical assistance to the Member States in the Asia-Pacific region and beyond. The organization has been supporting various countries using EPSSim and other similar costing models, including Cambodia, Uzbekistan, Myanmar and Bhutan.

ICT can also facilitate information sharing, hence enhancing transparency and accountability. For instance, Republic of Korea attaches great importance to transparency and accountability through information disclosure. Since 2007, all schools are obliged to regularly disclose their education-related information. This has not only improved accountability of the education service delivery, but also has positively influenced the validity of the information. Many countries now disclose their education-related information on their websites in forms of statistical yearbooks, reports, and score cards. Such information can be accessed by other policy makers, researchers, education practitioners, and parents.

Of course, ICT in itself is not the panacea to all challenges in education planning and management. Today, many countries are still struggling to ensure stable electricity and information networks. The availability and quality of data remain as challenges in many countries, not to mention the development of EMIS. Often, investment in ICT for sector planning and management is not high on the national agendas, compared to other pressing issues, such as ensuring access to education to all students and improving teacher qualifications and salaries. And even in cases where a large amount of data is collected, more often than not, such data are not properly analyzed for policy making purposes, and remain as just ‘data’. With the rise of international assessments such as PISA or TIMSS, countries face even more pressure to help students and teachers perform on an internationally “adequate” level. However, while these international assessments enable countries to collect a great deal of policy-relevant data, the use of such data for evidence-based policy making remains to be limited due to insufficient institutional capacity of countries to analyze such data and link results with policies. In light of this, UNESCO Bangkok recently launched “Learning Enablers for Asia and Pacific (LEAP),” a regional programme aiming at building capacity of the UNESCO Member States in education-related data for evidence-based policy making. To improve the quality of learning in the Asia-Pacific region, UNESCO Bangkok utilizes the Network on Education Quality Monitoring in the Asia-Pacific (NEQMAPP) platform through the use of student learning assessment to strengthen education systems. The programme’s specific focus is to collect, analyze and utilize international and national assessment data for policy development and implementation, and organize workshops to help develop capacity in terms of data analysis and policy design.

With all these challenges, however, evidence-based policy making through collecting, analyzing, using, and sharing education information has become an integral part of education planning and management, especially in the aim of achieving the new set of education goals emerging from the Sustainable Development Goals (SDGs), which were recently adopted at the UN Summit in New York. UNESCO Bangkok will continue its work in building national capacities in developing an integrated education information system using ICT, and linking data to policy making and good governance in education.

This newsletter will continue to highlight the value and potential of EMIS, through an additional expert article on the trends of EMIS in the Asia-Pacific region. The Programmes and Projects section features articles on the UNESCO Institute for Statistics database and education statistics, OpenEMIS, UNESCO EMIS project in Myanmar and LEAP programme, as well as UNICEF MICS. The News and Events section offers an overview of the World Teachers’ Day, a few conferences in New Zealand and UK, as well as an announcement about the UNESCO King Hamad Bin Isa Al-Khalifa Prize for the Use of ICTs in Education.
In Resources, readers can get acquainted with the OpenEMIS software, the World Bank data and PovcalNet, and the Child Equity Atlas by UNICEF. Finally, in the New Publications, readers can find reports on teachers in the Asia-Pacific region and transversal skills in TVET by UNESCO, redesigning schooling by OECD, as well as on sustainable development by World Bank.

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Trends in the Evolution of Education Management Information Systems (EMIS) throughout the Asia-Pacific Region (by James Shoobridge)

This article further explores the potential and use of EMIS within education systems, setting it within the Asia-Pacific context, while analyzing the increase in global investment and regional trends in terms of EMIS development.

James Shoobridge, has over 18 years’ experience in International Education Development, primarily in the development of Education Information Systems, Education Planning and related Monitoring and Evaluation systems. James has worked as both a team leader and consultant on a wide range of projects in the areas of education and public sector reform throughout Africa, South East Asia, Asia Pacific and Central Asia. In recent years James Shoobridge has been heavily involved in sector planning activities and project design in a number of Asian and African countries. James has also worked extensively in the commercial sector having built and managed an information systems company in Australia which supports both the public and private sectors and is now active in four countries.

James has worked as a lead advisor in the field of education planning on projects for development agencies including UNESCO, UNICEF, World Bank, DFID, AusAid, DFID, Asian Development Bank and the European Commission and for service providers including Cambridge Education, GOPA, the British Council, Cardno and CfBT.

In the pursuit of quality education for all, the significance of timely, cost effective and accurate data in evaluating education policy, determining education planning, and monitoring of the progress towards attainment of development goals is increasingly important. As countries progress towards universal basic education, there is a need to ensure that marginal and disadvantaged groups are properly targeted and have their needs addressed. There is also a strong need to focus on aspects of the quality of education and to monitor education outcomes. Both these objectives require robust and detailed information on the education system. In order to use Education Management Information Systems (EMIS) data, education managers need to have confidence that the data is robust, accurate and relevant.
The Asia Pacific region contains some of the world’s most advanced information-driven societies as well as those that are at the very early stages of development. Among the most developed countries with information policies are the People’s Republic of China, Japan, Singapore, Republic of Korea, and India. While Japan is moving towards ‘anything-anytime-anywhere’ access with complete assurance driven by the u-Japan Policy Package, Singapore’s Singapore ONE and Korea’s Informatization policies have a holistic coverage. In 2006, the Chinese government mapped The State Informatization Development Strategy 2006-2020 with meticulous care to set forth China’s goals, tasks, plans and policies in information development for the next 15 years (UNESCO 2015). In order to assess the progress towards policy goals, an effective EMIS is required.

Global investment in the development of EMIS has been relatively high in recent years. According to UNESCO survey report, over forty World Bank education projects over the last four years have had components related to the development of EMIS, but little is known about best practices and lessons learned from such investments (InfoDev 2005). There have been few studies relating to the efficiency, effectiveness and cost benefits of EMIS, nor what makes a good EMIS under different environments (Powell 2006), however this is now changing with the development of standards for assessment of EMIS and their gradual application globally (Abdul-Hamid 2014).

Throughout the Asia Pacific Region, there are examples of effective and functional EMIS. The Republic of Korea and Singapore have reliable education information systems. India has some states with excellent information systems and also operates a national census system called U-DISE which collects detailed information on the entire country for the purpose of resource allocation for lower secondary education Rashtriya Madhyamik Siksha Abhijan (RMSA) [1]. Fiji and Vanuatu both have highly detailed and decentralized information systems. Cambodia and Malaysia both have functional EMIS, however the reliability of data varies. In many cases, countries are hampered in conducting evidence-based policymaking in education because they lack reliable, relevant, and easily accessible information about schools, teachers, enrollments, and education outcomes.

A comprehensive EMIS is defined as not only including administrative and pupil data, but also financial, human resources, and learning data (Abdul-Hamid 2014). This information should be available both at the individual and aggregate level. The type of data entered into the system needs to follow logic, fixed methodology, and have a well-defined purpose. A successful EMIS typically adheres to three key principals, a) decentralised b) integrated and c) per unit coverage of individual teachers, students and financial transactions. Decentralisation of systems must follow decentralization of planning and administration of the education system (Shoobridge 2015). Decision makers at each level of government must have relevant information available from EMIS in order to make decisions effectively.

Regionally some countries are starting to support School Information Systems which provide real time and accurate data to centralized systems via the internet. EMIS in Fiji (FEMIS) provides an excellent example of an integrated system that captures data on individual teachers and students (Shoobridge 2014). Student data is entered at the school level, which contains information such as: student identification number, registered birth number, parent details, gender, ethnicity, date of birth, home situation (e.g., household income, electricity,), school attendance, record of school fees, and financial assistance. In addition, it captures health records of each student, including special needs data. FEMIS is also linked to the national teacher data system (FESA) and assessment data system (FANA). These links help answer a range of questions such as: which children with disabilities, in which settings, under what circumstances, are achieving what educational outcomes? Or, which teachers with what qualifications are creating environments that result in good learning outcomes?
In many countries, the collection and processing of education data is time consuming, cumbersome and unidirectional, and as a result limited data is used in planning. EMIS needs to evolve to include feedback loops that carry information back to the local level. While it is a good first step to establish a strong flow of data from schools to subnational levels and finally to the national level, including validation procedures at each stage, it is critical for an EMIS to institute feedback loops that carry information back down the chain to the local level. Often national publications of statistics are produced but are of limited use to school officials, local authorities and communities. Many countries have benefitted from generation of a school report card comparing schools to regional and national averages and targets for selected indicators. The presentation of information in an easy to understand graphical format is a useful communication tool for reports targeting school and community actors. Feedback loops increase utilization of data at the local level and improve the frequency and accuracy of source data. However other countries are much less advanced in terms of uniform data collection and processing.

There is a significant trend towards deployment of web-based systems which had significant performance, integration and cost benefits. This has been made possible by reductions in costs of internet access and increases in coverage, particularly for access via 3G. In several cases projects and programs had proved effective catalysts to spur development of systems, in other cases governments had undertaken development of their systems independently.

EMIS development also benefits from robust planning. To help achieve these principals, some countries such as Myanmar, Cambodia and Fiji are developing 3-5 year EMIS development plans which provide a clear strategy for development of systems including anticipated ongoing operational costs for systems.

Despite having regional forums for monitoring and planning of education, many countries develop their EMIS in isolation, and are unaware of the systems being developed in other countries. In larger countries such as India, sub-national regions (states) are developing their own systems independently from each other, and are unaware of developments taking place in other parts of India. There is a general lack of forums to enable collaboration on system development.

Development partners can take a lead role in the promotion of standards and best practices for development of EMIS. There is likely a need to have regular international forums dedicated to Education System Development where education heads and technical staff can share experiences concerning development systems. Best system practices and supporting policies need to be studied, documented and made accessible to a wider audience possibly through development of a dedicated website. Assistance should be given to governments to analyse their present monitoring system environment and to develop medium term information system plans to enable structured development of their systems.

References


[1] “Rashtriya Madhyamik Siksha Abhijan (RMSA), is a comprehensive and integrated programme of the Government of India(GOI) for providing quality and meaningful education to all children in the age group 14-16 years of age for Secondary Schools and 16-18 years of age for Higher Secondary Schools in Assam .RMSA has a vision to make secondary education available, accessible and affordable to all young persons.” (http://www.rmsaassam.in/)

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Note: The opinions expressed in the articles included in this newsletter are those of the authors and editors, and do not necessarily reflect the policies or views of UNESCO, nor of any particular Division or Office.

Programmes and Projects:

- **UNESCO Institute for Statistics and ICT in Education Statistics (by Peter Wallet, Programme Specialist, ICT in education statistics)**

  *This article provides an overview of the UNESCO Institute for Statistics (UIS) and its mandate, its data collection system and efforts for around 90 countries in the world.*

The **UNESCO Institute for Statistics (UIS)** is mandated to administer international data collections on the availability, use and impact of ICT in education. Through the establishment of internationally comparable and policy-relevant indicators, the UIS contributes towards benchmarking and monitoring the integration of and access to ICT in education, which are fundamental for policymakers to select priorities and adopt and develop effective policies. With available data, policymakers can make informed decisions regarding: i) curricula including promoting ICT skills, as well as using ICT to support instruction in other school subjects; ii) national capacity and/or infrastructure levels (e.g. electricity, Internet, by type) to permit the integration of ICT tools in more schools; ii) types of ICT currently being emphasised and/or neglected in relation to issues of suitability and affordability (e.g. radio- versus computer-assisted instruction); iii) national deployment patterns of ICTs in schools; iv) access rates among girls and boys; v) types of support mechanisms currently in place or lack thereof; and vi) the relative level of teacher training provided in relation to the demands placed on them to teach and/or use ICT in the classroom.
For the past 4 years UIS has been conducting regional data collections in Latin America and the Caribbean (2010), Arab States (2011), Asia (2012), Francophone and Lusophone Africa (2013), and Anglophone sub-Saharan Africa (2014). Surveys were administered to countries to collect baseline data as well as to gain insight on data collection issues in preparation of the first global data collection that will occur in the last quarter of 2015. Previous experience shows that ICT in education data are difficult to collect, particularly so in least developed economies where current data collection efforts reflect other priorities, including increasing enrolment, decreasing the proportion of out-of-school children, decreasing grade repetition, and ensuring an adequate number of trained teachers. In other words, countries that face the biggest challenges are typically least likely to systematically collect ICT in education data.

Among data collected by UIS, those on infrastructure have been the most forthcoming and facilitate the calculating of two core indicators: i) the pupil (learner) to computer ratio (PCR or LCR), and ii) the proportion of schools with Internet. Other core indicators on infrastructure with available data include the proportions of schools with radio and television for teaching and learning, while the proportion of schools with electricity exists as a key reference indicator shedding light on national capacity to support ICT-oriented teaching and learning practices in general.

Pupil participation rates in programmes with ICTs provide another important measurement for policymakers, yet are more difficult to collect. Meanwhile data on teachers’ training for ICT and usage in the classroom are amongst the most difficult.

Data can be accessed via the UIS Data Centre at the following link and clicking the tab (Information and communication technology (ICT) in education):

http://www.uis.unesco.org/DataCentre/Pages/BrowseCommunication.aspx. A glossary of terms can also be found at the following: http://www.uis.unesco.org/Pages/Glossary.aspx

Data are available for about 90 countries from various global regions. New data reflecting the 2016 global data collection will be available in the last quarter of 2016.

To contact the UIS, inquiries may be addressed to:

- Requests for publications: uis.publications@unesco.org
- Requests for UIS data: uis.datarequests@unesco.org
- Comments regarding the UIS website: uis.webmaster@unesco.org
- General inquiries: uis.information@unesco.org

OpenEMIS: An Open-Sourced Education Management Information Systems (EMIS)

This article features the OpenEMIS initiative, which was developed by UNESCO in response to the growing need for EMIS progress and needs among its Member States, through the strong technical support of the Community Systems Foundation (CSF).
As the global community refocuses its efforts toward Education 2030, the importance of quality education is more apparent than ever. Research clearly indicates that quality education draws learners to schools and helps keep them there. By definition, quality education is a relevant education, which means learners will be better positioned to leave schools ready to make contributions to the world around them.

Underlying quality education is quality data, defined by its relevance, timeliness and coverage. Quality data offers education planners the evidence needed for sound decision-making in education policy development, teacher deployment and resource allocation. Quality data is essential in ensuring a human rights based approach to education, providing rights holders with transparency and duty bearers with accountability within the education system.

The OpenEMIS Initiative responds to this growing demand for quality data towards quality education. OpenEMIS is part of UNESCO's response to increasing demand for support in the area of education system planning and management. It supports the building of a robust and reliable Education Management Information System (EMIS) and the strengthening of national capacities in the provision of reliable information for the planning, monitoring and evaluation of education systems.

The OpenEMIS initiative aims to drive the process toward better education outcomes through the availability of better, more timely, accurate and sub-national data for decision-making. The specific objectives are:

- To ensure that education data are made available for improved decision-making,
- To build capacity and transfer the latest free open source technology to be fully owned and managed by the government,
- To leverage technological mechanisms for education information visualization, analysis and dissemination (tables, graphs, maps, profiles, dashboards)

OpenEMIS is a suite of interrelated software solutions that collects and manages data into a data warehouse, and disseminates this data via visualizations, dashboards, and monitoring tools.
OpenEMIS Features

OpenEMIS has a number of independent and interconnected solutions to: (a) data capture on institutions, students, staff; (b) computation of standards-based education indicators in compliance with internationally recommended methodology; (c) consolidated data warehouse of all education data in the region; (d) advanced methods for data reporting, data visualization, and dissemination to all stakeholders, including ministry planners, principals, teachers, parents, students. OpenEMIS offers several products and services, including OpenEMIS Core that enables administrators to manage students across multiple schools, and OpenEMIS Dashboard that enables administrators to build custom dashboards to monitor indicators.

OpenEMIS provides capacity building through professional training and on-site technical missions to key government stakeholders in the operation and administration of OpenEMIS (see Figure 2). This capacity building approach focuses on the transfer of technology and know-how to create a self-sufficient and sustainable OpenEMIS team within the country.
This year the OpenEMIS initiative has been further expanded with new countries, new product development, and process strengthening. The Initiative is expanding the number of countries implementing the technology with both Belize and Jordan implementing the system in the 2015-2016 school year impacting the lives of over 1.5 million students.

The OpenEMIS system now offers any Ministry of Education around the world the ability to publish real-time, engaging visualizations of Key Performance Indicators (KPIs) about their schools, subnational regions, and countries. With the click of a button principals, teachers, and communities can visualize and share information in maps, tables, graphs, and charts. As a result, schools will not only produce data, but will also have access to, utilize, and see the impact of the information they produce.
The Ministry of Education, Youth, & Sports (MOEYs) conducted trainings across Belize in coordination with the OpenEMIS Support team. Officials in each District Education Centers were trained in school administration to provide support to principals across the country.

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- **Ministry of Education and UNESCO Strategic Plan for the Development of Myanmar EMIS**
  This meeting and project reflects the EMIS Strategic Plan, which was developed by UNESCO in close consultation with the MoE of Myanmar, a key programme in the National Education Sector Plan.

- **Learning Enablers for Asia and Pacific (LEAP) programme**
  UNESCO Bangkok’s regional programme LEAP aims to develop capacity building of the Member States through the utilization of the Network on Education Quality Monitoring in the Asia-Pacific (NEQMAP) platform, which enhances the use of student learning assessment.

- **Multiple Indicator Cluster Surveys (MICS)**
  This UNICEF programme aims to support governments in conducting household surveys, the findings of which are used for policy decisions and programme development, as well as shedding light on the current situation of children and women around the world.
News and Events:

- **World Teachers’ Day** (5 October 2015, Paris, France)
  World Teachers’ Day calls for the empowerment of teachers to build sustainable societies. “Empowering teachers, building sustainable societies” is the slogan for this year, reflecting the journey towards Education 2030.

- **UNESCO King Hamad Bin Isa Al-Khalifa Prize for the Use of ICTs in Education**
  The UNESCO King Hamad Bin Isa Al-Khalifa Prize for the Use of ICTs in Education rewards individuals, institutions, and NGOs for projects and activities that can serve as best practices in ICTs to enhance learning, teaching and educational performance. The theme of the 2015 Prize is “Pedagogical Innovation in the Use of ICT in Teaching and Learning.” Two prizewinners will be designated by UNESCO’s Director-General on the basis of the recommendations of an international jury. Each winner will receive a diploma and a monetary award (USD 25,000). Winners of the 2015 Prize will be announced and awarded during a ceremony at UNESCO Headquarters in Paris in early 2016.

- **DEANZ Conference 2016** (17-20 April 2016, the University of Waikato, Hamilton, New Zealand)
  With the theme of “There and Back: Charting flexible pathways in open, mobile, and distance education”, the conference will bring together practice and theory in the field of open, distance, flexible, and mobile learning in education to reflect on and discuss the possibilities of this theme. Final deadline for submission: 1 December 2015.

- **The European Conference on Technology in the Classroom 2016** (June 29-July 3, 2016, Brighton, UK)
  This conference invites academics and practitioners to share research and innovations in education, with the theme of “Convergence & Divergence”.

Resources:

- **OpenEMIS**
  This is a free platform developed by UNESCO as open source EMIS, which can be easily customized by the Member States and the specific needs of their education systems. This flexible tool allows for its use in various settings in developing countries.

- **The World Bank Data**
  This World Bank database is designed to make data easily available, according to country, topic, and indicator sections. The Country pages provide data for a single country throughout the years; topic pages focus on indicators for a given topic for all the countries and years; the indicator page provides data for all countries. The data can be downloaded as Excel sheets. Most of the data displayed on the website comes from the DataBank, which collects time series data, and can be used for slicing datasets, customizing queries, and creating charts.
**PovcalNet: an online analysis tool for global poverty monitoring**
This World Bank computational tool and software helps estimate the poverty in the world through the World Bank’s built-in database. It also allows for inclusion of different assumptions and estimates for the calculation of poverty.

**Child Equity Atlas: Pockets of Social Deprivation in Bangladesh**
The findings of the report highlight the need to target the most underprivileged communities in Bangladesh. The report analyzed the census data to identify social inequalities, and points for potential progress, focusing on out-of-school children.

**New Publications:**

**Teachers in Asia Pacific: Status and Rights**
This UNESCO report is a synthesis of research studies conducted in eight countries: Cambodia, Indonesia, Mongolia, Pakistan, Republic of Korea, Samoa, Sri Lanka and Uzbekistan. It examines the current trends and policies affecting teachers’ status, focusing on 10 areas: entry requirements; pre-service training; recruitment and deployment; workload; professional development; salaries; retirement; assessment; unions and school leadership.

**Transversal Skills in TVET: Policy Implications**
This publication focuses on transversal skills in TVET, concentrating on possible policies for the Asia-Pacific region. It looks at various definitions and concepts around these skills and aims to ensure their actual implementation in TVET.

**Schooling Redesigned: Towards Innovative Learning Systems**
This OECD publication explores the ways if transforming schools through innovation in practice, and how this innovation can take place.

**Transforming Our World - Aiming for Sustainable Development: Using Independent Evaluation to Transform Aspirations to Achievements**
The World Bank Group paper covers many areas related to the Sustainable Development Goals that have highlighted the importance of multi-sector approaches. As the challenges of the SDGs are complex, the solutions have to be contextualized and include multiple stakeholders.

**Next issue:** For November, ICT in Education will conduct a survey to gather readers' feedback, evaluate satisfaction, and identify new areas for further improvement of the e-newsletter.

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