

ICTs

# USING ICTs TO UPGRADE THE QUALITY AND REACH OF EDUCATION IN ASIA AND THE PACIFIC



United Nations Educational,  
Scientific and Cultural Organization  
UNESCO Bangkok

**Information and Communication Technologies for Education**  
Funded by **Japanese Funds-in-Trust**

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## USING ICTs TO UPGRADE THE QUALITY AND REACH OF EDUCATION IN ASIA AND THE PACIFIC



We live in exciting times. The dawn of the knowledge age has brought with it an unprecedented opportunity for delivering a higher quality of education, in more engaging ways, to a wider audience than ever before. Information and Communication Technologies (ICTs) have the potential to act as revolutionary tools, opening doors to anyone learning anywhere, anytime.

ICTs can also, however, exacerbate the deep divides that exist between and within countries, often blanketed under the term “digital divide”. Yet since the divides exist not only between technology-rich and technology-poor nations, the term seems somewhat simplistic considering the many socio-economic, gender, cultural, age, language and urban-rural disparities it seeks to encompass.

As our societies are complex and diverse, so must our response be – what works in economically more developed countries can not simply be transplanted to developing country environments.

While many nations lack communications infrastructure, all the bandwidth and computers in the world could not engender the kind of revolutionary transformation we require of our educational systems, and ultimately, of our world. Experience has shown that without integrated

policy development, sustainable professional development, curriculum development and close monitoring and evaluation, programmes will likely fail. In direct response to these challenges, as detailed in the Dakar Framework of Action for Education for All (EFA) 2000 and the Kyushu-Okinawa Summit Charter, UNESCO launched the Asia-Pacific programme on the use of ICTs in education, with funding support from the Japanese Funds-in-Trust (JFIT).

Within the context of the UNESCO mission, the innovative and appropriate use of ICTs can both help reach those excluded from learning and improve the quality of education for all. Through ICTs, disparities in educational access and quality can be reduced, while at the same time, education systems can enhance the knowledge and skills of their learners, promoting creativity, critical thinking, decision making, team work and learning how to learn.

The policies and programmes, models and materials, networks and indicators of this programme seek to realise this potential of ICTs to transform education, making the goals of Education for All in 2000, become the realities of 2015.

**Sheldon Shaeffer**  
Director  
UNESCO Asia and Pacific Regional Bureau for Education

# EDUCATIONAL CHALLENGES IN ASIA AND THE PACIFIC

## **Education for All (EFA)**

The Dakar Education for All 2000 assessment confirmed that, in spite of significant progress over the previous decade, there are still serious shortfalls. This is particularly true in ensuring a basic education of good quality to all children, including those out of school, and in providing relevant literacy and continuing education for youth and adults.

Clearly, this issue is especially pressing in Asia and the Pacific, with 625 million adult illiterates accounting for 71% of the world total. Of that number, 64% are reported to be girls and women. A large proportion of illiterate adults, youth and unschooled children of ethnic minorities and other disadvantaged groups live in rural and remote areas and in urban slums.

If current trends continue, and if we fail to introduce major changes in our education systems, the goal of "Literacy as Freedom" of the United Nations Literacy Decade 2003-2012 will continue to be an unreachable dream for millions of people.

The challenge is to deliver meaningful and relevant educational programmes to people living in the many different social, economic and political circumstances found in the region. If all are to have the opportunity to receive a basic education of good quality, education systems must be able to adapt to the individual needs of child, youth and adult learners, in formal and non-formal environments.

Improving the quality of education also requires access to appropriate learning resources. In turn, access depends largely on socio-economic and/or ethnic background, as well as on gender, age, educational background and geographical location.

## **Information explosion**

More new information has been produced within the last three decades than in the last five millennia. Those who have access to this information, can understand it, and have the skills to process it will become

empowered. Yet many countries in the region are behind in both producing relevant content and in creating the infrastructure and training so this information can be accessed, understood and effectively used.

## **Lifelong learning**

Not only has there been a paradigm shift in what constitutes education, but the quick changes in knowledge and skills needed in our rapidly developing societies require people to be continuously educated throughout their lives. People must be taught how to learn, how to solve problems, and how to synthesise and select from the vast information resources available.

## **New tools, new teachers?**

Teachers are key forces in tapping ICT-facilitated learning opportunities. Yet many lack the knowledge, skills and attitudes to effectively use ICTs as tools to enhance learning. Teachers require not only training in computer literacy. Coherent strategies are needed to enable teachers to fully integrate ICTs as pedagogical tools in the classroom.

## **Acceptance and use**

Many teachers regard technology as a threat to their authority as the main source of knowledge. In addition, pupils are often superior to their teachers in computer skills, further undermining the traditional authority of teachers. Meanwhile, cultural and political factors may impede acceptance and use of ICTs, or limit their use to traditionally privileged groups of society.

## **Cost**

Never has sustainability of new education development programmes been such a pressing issue, with ICT-in-education projects challenging the limited resources of poor countries and communities. However, technologies also offer solutions to defray costs without reducing quality.

# UNESCO VISION

## BREAKING DOWN BARRIERS, BUILDING BRIDGES

The UNESCO vision is for a system-wide reform at the macro-level and for change in teaching and learning processes at the micro-level. ICTs in themselves are not going to radically change education systems for the better and miraculously achieve the goals of Education for All. An overall view of what education should be seeking to achieve is needed for ICTs to be utilised to their full potential.

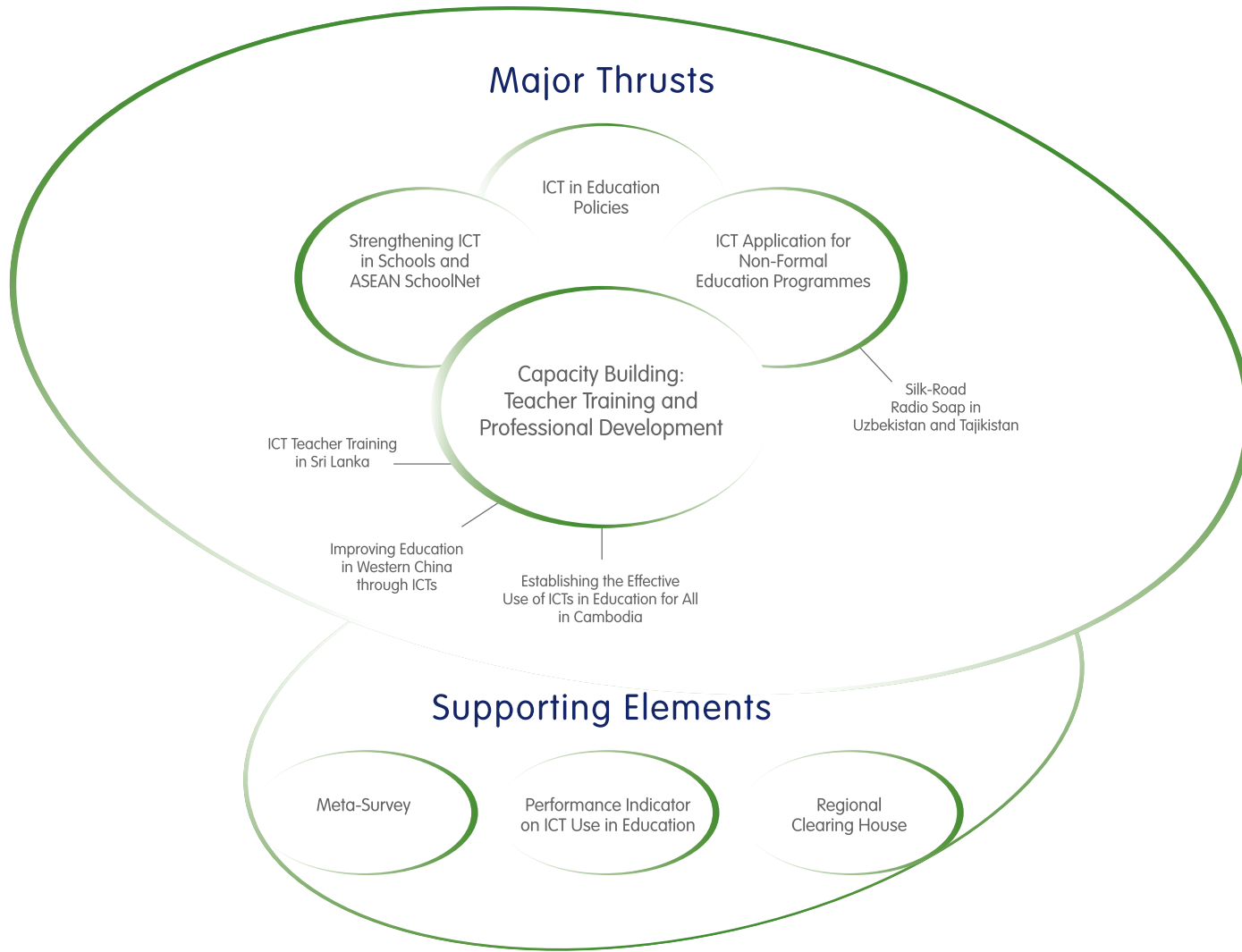
The UNESCO programme is based on the fact that the rapid development of ICTs presents development agencies with a unique opportunity to make a major - and multi-sectoral - contribution to the expansion and reform of education in Asia and the Pacific and therefore help to achieve the overarching goals of Education for All (EFA).

The programme's focus is on how to use ICTs to reduce disparities in both educational access and quality and, ultimately, bridge the digital divide. Its special concern for gender issues in ICT use in education will help promote the EFA Framework's call for gender equality in education by the year 2015.

UNESCO envisions that the ICT programme will result in an educational environment involving enriched curricula, resource sharing, quality multimedia material, and a cadre of teachers who are competent in facilitating better learning through ICTs.



# UNESCO PROJECTS IN ICT IN EDUCATION FUNDED BY JAPANESE FUNDS-IN-TRUST



## HOW WILL WE DO THIS? - FOUR MAJOR THRUSTS...

The programme involves sustainable ICT integration at all levels of the educational process. In the struggle to keep up with the demands of the knowledge age, many ICT-in-education programmes have been implemented without proper planning, often increasing rather than reducing disparities in the process. Thus, the policy component ensures that a firm strategy is in place to support the successful use of ICTs in education, towards system-wide curricular reform and educational change.

But the most successful ICT-in-education policy means nothing without the support of those at the heart of education, and so at the core of our programme, the teachers. Success here is all about integration – teachers need to be taught how they can integrate ICTs to genuinely transform learning.

Four projects focus primarily on developing the skills of teachers towards integrating ICTs into the curriculum – an overall project for the region and three projects that pin-point the training needs in specific disadvantaged regions.

The teacher training components are supported by the Strengthening ICT in Schools and ASEAN SchoolNet Project, focusing on ICT integration within schools and teacher-training content development, while facilitating increased communications between schools and professional staff through the SchoolNet network.

Yet as found in the Dakar framework, we must make provisions to reach those outside formal education, such as out-of-school youth and adults. The non-formal education project seeks to include this group, empowering rural populations through the use of ICTs, particularly in Community Learning Centres. Meanwhile, the Cambodia project combines all these elements – policy, formal education, non-formal education, teacher training, curriculum development – and draws from the other region-wide projects to develop a model of nation-wide educational reform through the use of ICTs.

Finally, there are three supporting elements: a meta-survey providing invaluable data on the current status of ICTs within education in the region, feeding into all projects; indicators development, which looks at establishing appropriate monitoring procedures; and a clearing house, which disseminates all information from the various project components and provides databases of information for these components.

Project summaries have been organised according to chief point of focus.

## 1. INTEGRATED ICT IN EDUCATION POLICIES



### ICT in Education Policies

This project promotes successful policy models and strategies of ICT integration. It places special emphasis on removing barriers to participation and the learning of girls and women, out-of-school youth, the disadvantaged, those with special needs and the poor.

The project aims at:

- Enhancing awareness, vision and commitment of decision makers for the judicious use of ICTs in education;
- Strengthening national capacities to develop appropriate ICTs in education visions, realistic policies, strategies and masterplans;
- Facilitating the integration and implementation of other JFIT project components at a policy level; e.g., the professional development of teachers and educators in ICT integration into teaching and learning;
- Ensuring UNESCO's involvement in international policy discussion and the integration of this initiative into networks of policy planners.

The project does this by:

- Assessing needs for different types of planning and management, reviewing good practices in policy orientation and definition, and summarizing this for decision makers; and
- Building on the first series of high level policy maker seminars, UNESCO will further assist Member States in developing or strengthening ICT visions and master plans.
- Developing policy maker tools, including:
  - The decision maker's essentials - a concise, stimulating publication on successful ICT policy orientation in different country contexts;
  - A set of interactive ICT-in-education policy guidelines, to assist countries first in the analysis of their current ICT-in-education situation, and, secondly, in the development of appropriate strategies and policies.
- Providing special technical assistance for countries with serious ICT-in-education policy needs.

## 2. CAPACITY BUILDING: TEACHER TRAINING AND PROFESSIONAL DEVELOPMENT





## Training and Professional Development of Teachers and Other Facilitators for Effective Use of ICTs in Improving Teaching and Learning

Run by the UNESCO Asia-Pacific Programme of Educational Innovation for Development (APEID), this project aims at:

- Improving the competencies of teachers and facilitators, through both pre-service education and in-service training, in integrating/infusing ICTs as pedagogical tools and educational resources and in facilitating interactive learning;
- Identifying, creating and disseminating country/locally specific ICT pedagogies and models of ICT use in different learning environments;
- Developing and putting into operation a regional online teacher resource base and off-line network of teacher training institutions to share teacher-developed education courseware and innovative practices.

The project achieves this by:

- Developing a regional guideline on curriculum framework and standards of ICT infusion by teachers;
- Creating prototype course materials for pre-service teacher education and training modules for in-service teacher training;
- Designing templates of ICT-integrated e-lesson plans and evaluation tools for teachers to assess their students' learning using ICTs;
- Training up to 500 teacher trainers through 'training of trainers' workshops at regional/sub-regional and national/local levels, who will in turn train much larger numbers of peer teachers in school-based training;
- Developing and pilot testing country-specific models and pedagogies in ICT integration by teachers, headmasters and education managers;
- Cultivating an online teacher resource base to support teachers and headmasters in integrating ICTs in classroom teaching and school-based management;
- Creating an off-line network of teacher training centres to share innovative practices;

- Sharing products outside the pilot countries to gather feedback, to identify and reward the most innovative e-lesson plans and ICT integration pedagogies, and for the inclusion of international resources.

## Bridging the Within-Country Digital Divide in Education: Improving Education in Western China through Innovative Use of ICTs



Affiliated to the larger project "Training and Professional Development of Teachers", this Joint Innovative Project (JIP) aims at bridging the within-country 'digital divide' in education between the under-developed western and the developed eastern regions of China. It also seeks to enhance equal access to basic education by disadvantaged groups and to improve the quality of education in poor and remote communities through capacity building, policy change and model development for the effective use of ICTs.

It will search for innovative, practical models and pedagogies that will work in disadvantaged schools/communities where infrastructure for ICT application remains under-developed.

The main strategies for action are in six activity areas:

- In-service training for teachers and headmasters;
- The renewal of school curriculum and the development of innovative locally relevant textbooks and teaching-learning materials;
- Active community participation and support;
- Research-based advisory services and new assessment of learning achievements in ICT-enabled environments;
- Dissemination of innovative experiences within and outside China; and
- Networking to share resources and expertise among schools in the project provinces and partner institutions in other regions.

### **Establishing the Effective Use of Information and Communication Technologies in Education for All in Cambodia**

With high illiteracy, a high incidence of poverty and a large number of out-of-school youth in Cambodia, this project has the central aim of reducing poverty, bridging the digital divide and promoting digital inclusion through the use of ICTs in education. The project is striving to:

- Increase access to learning opportunities anytime, anywhere in the national language (Khmer) and other languages, including for educationally deprived groups;



- Improve the quality of education by developing innovative models of ICT use and of ICT-based education, teaching-learning methods, and curriculum/materials development, distance education and communication;
- Enhance indirectly freedom of expression, efficiency in communication and the knowledge-based economy of the country;
- Assist the government in developing a national policy and strategy on ICTs in education as an integral component of the national Poverty Reduction Strategy and EFA Plan of Action;
- Experiment and adopt the best practices for the integration of ICTs in both formal and non-formal education programmes;
- Strengthen the training and professional development of teacher trainers, teachers and non-formal education facilitators in the integration of ICTs in education;
- Establish a National Clearing House linked to UNESCO Bangkok's Clearing House.

The project seeks to achieve this through:

- Undertaking a situational analysis and formulation of strategies for using ICTs for community development so that researchers really understand the needs of the community people;
- Capacity building using ICTs towards community empowerment;
- Supporting and upgrading the facilities that will enable community members to access ICTs for receiving information and knowledge on issues such as health, HIV/AIDS, etc;
- Building the capacity of community members to develop their own ICT programmes for community development and poverty alleviation;
- Improving the planning and management of Community Learning Centre (CLC) personnel through ICTs so they can integrate ICTs into learning and formulate, manage, and monitor ICT programmes in education;

- Information/experience sharing through ICTs to continuously document, compile and share the different experiences of utilizing NFE materials, training and management and innovative practices;
- Encouraging policy makers to engage in policy dialogue for developing an ICT-friendly policy in NFE and lifelong learning.

### **Training of Teachers in Information Technology (IT) to Meet the Emerging Needs of the New Learning Environment in Sri Lanka**

This project aims at helping to upgrade knowledge and skills of teachers and non-formal education facilitators in genuinely integrating educational technologies in their work. More broadly, it also aims at tapping the potential of new ICTs for more easily accessible and better teachers' education and professional development, reducing the gap between and within countries in terms of qualified teachers trained in new learning environments.

The project will:

- Identify the most appropriate use of ICTs in teacher/facilitator education and professional development;
- Strengthen national capacity for developing and implementing policies and programmes in the use of ICTs for such education and professional development;
- Enhance the ability of teachers/facilitators in using ICTs as tools, as a subject, and as an educational resource; and
- Develop a national online teacher training programme, in support to UNESCO Bangkok's regional online teacher resource centre, and an offline network of centres of excellence in teacher training in the effective use of ICTs in education.

## **3. INTEGRATION OF ICTs IN THE CLASSROOM**

### **Strengthening ICT Use in Schools and ASEAN SchoolNet**

Co-funded by the JFIT and ASEAN Foundation, this project is creating equal opportunities in education for the ASEAN countries by:

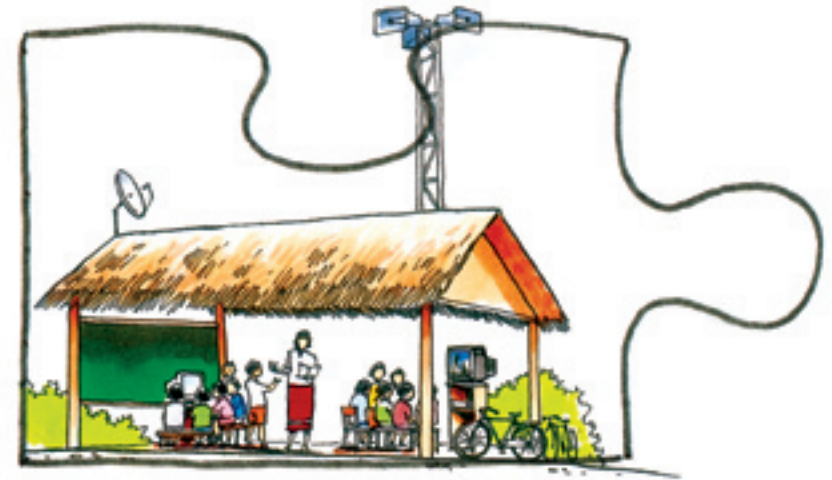


- Exploring and demonstrating how ICTs can be used in schools to improve the quality of education for all and better prepare youth for the demands of the knowledge society;
- Testing innovative models of ICT use and of ICT-based teacher education, teaching-learning methods, and curriculum/materials development in schools and in other places of learning;
- Improving connectivity and access to the wealth of educational resources through the establishment of SchoolNet in ASEAN countries.

The project will achieve this by:

- Collecting, documenting, sharing, and promoting the use of successful experiences/innovative practices of ASEAN countries in the use of ICTs in schools and the impact of SchoolNet on teaching/learning;
- Formulating and further improving policies and strategies for integrating the use of ICTs in national education curricula of ASEAN countries;
- Developing interactive educational software and ICT-based teaching/learning lessons and materials for integration into the teaching of science, mathematics and language;

- In collaboration with the ASEAN Foundation, enhancing the capacity of school teachers and administrators to integrate ICTs into teaching of science, mathematics and language and to mobilize SchoolNet resources to support ICT-based teaching activities;
- Piloting the instructional use of ICTs in secondary school education, specifically in the three selected subjects, in three selected schools in each of eight ASEAN countries;
- Promoting equal access to educational resources available on the Internet and those developed by ASEAN teachers and students - undertaking inter-country tele-collaboration through the establishment and operation of national SchoolNets and ASEAN SchoolNet;
- Exchanging experiences and best practices generated from the use of ICTs and SchoolNet in ASEAN countries.



## 4. EMPOWERED NON-FORMAL LEARNING

### ICT Application for Non-formal Education (NFE) Programmes

This project aims to improve the quality of life and alleviate poverty among disadvantaged rural populations through greater access to context-specific education programmes using ICTs, by:

- Conducting a situational analysis to identify community needs and to formulate concise strategies for the utilization of ICTs to meet these needs;
- Encouraging and assisting community members, particularly in disadvantaged groups, to empower themselves through learning and capacity building programmes in the application of ICTs;
- Supporting and upgrading the facilities that will enable community members to access information through ICTs on issues such as health, HIV/AIDS, the environment, population education, income generation, etc. to improve the quality of their lives;
- Building the capacity of community members to create their own ICT programmes for community development and poverty alleviation;

- Improving the planning and management of Community Learning Centres (CLCs) through ICTs by enhancing the capacity of CLC managers and facilitators and other NFE personnel to integrate ICTs into learning processes and to formulate, manage, and monitor ICT programmes in education;
- Facilitating information and experience sharing through ICTs to continuously document, compile and share the different experiences of utilizing NFE materials, training, management and innovative practices;
- Collating project experiences before encouraging policy makers to engage in policy dialogue for developing an ICT-friendly policy in NFE and lifelong learning.

### Silk Road Radio Project in Tajikistan and Uzbekistan

Using radio to reach large audiences in innovative and engaging ways, this project highlights contemporary issues and priorities through a twice-weekly radio drama series, produced and transmitted in both Uzbek and Tajik languages.

Building on the centuries' old tradition of story-telling in the region, the themes dealt with in the radio dramas can be grouped in three categories in accordance with the priority areas of the main funding agencies: family



and reproductive health, agricultural themes, and contemporary national issues, such as humane and considerate treatment of displaced and underprivileged groups in society, ethnic harmony and tolerance in society and the trafficking of women. New themes are constantly surfacing in the light of ongoing needs assessment, consultation with stakeholders and audience research. These are incorporated in the radio drama storylines and scripts through existing and developing characters and scenarios. In this way, the Silk Road Radio Project continues to be a medium for effective contemporary education, while also drawing attention to current, topical issues.

## SUPPORTING ELEMENTS

### Meta-Survey

To obtain an accurate picture of the current state of ICT use in education in Asia and the Pacific, UNESCO has launched a meta-survey. The **Meta-**

**Survey of the Asia-Pacific Programme on Promoting the Effective Use of Information and Communications Technologies in Education** maps and analyzes existing ICT initiatives in education, especially for disadvantaged groups and girls and women. The objective is to get information both on existing ICT applications and models that have proved to be efficient or promise to contribute substantially to achieving EFA goals, and on how these models can be adapted and improved for large-scale use. The survey covers national ICT policy environments, teacher and facilitator training initiatives, and educational software in order to understand and seize opportunities for change. The survey is helping to:

- Identify, analyse and summarise current applications and practices in the use of ICTs in formal and non-formal education;
- Provide valuable information for UNESCO's programme formulation, activity prioritisation, training strategy development and educational materials development;
- Begin or further the process of creating or strengthening regional networks on ICTs and education.

The research results are being disseminated to the international community, especially in the Asia and Pacific region, primarily to be used by UNESCO programmes.



### Regional clearing house

The **Regional Clearing House on ICT in Education for Asia and the Pacific** promotes digital inclusion by creating, collecting, analysing, and providing fast, free and equitable access to knowledge and information to support policy formulation, management and monitoring, teaching and learning, community outreach, networking, and programme implementation through a Web-based knowledge portal.



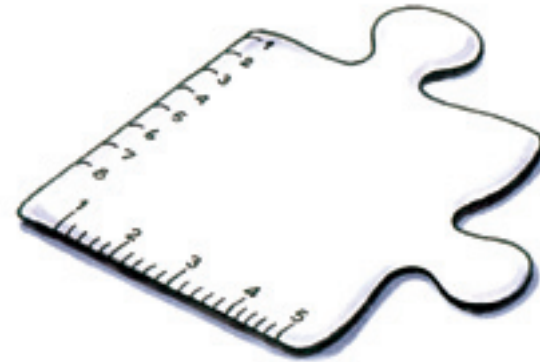
The project includes:

- The Web-based Clearing House, which is a platform for disseminating information generated from the JFIT-funded ICT and other related projects, for providing resources to support their project activities, and for disseminating to the countries in the region their lessons learned and best practices.
- Databases, that are being created to store information and knowledge generated from ICT projects and research studies on varied aspects of ICT use in education.
- Data from the databases will be processed, consolidated, and repackaged into appropriate formats from printed to electronic/digital to multimedia for use throughout the ICT programme and for various user groups in the region.
- Promoting dissemination of this collected and repackaged information through a website that includes a virtual library, online searchable databases, electronic information resources and e-Learning. In the future, the site will include a portal for teacher training with online courses, classrooms, collaborative projects, discussion forums and other software applications and tools.

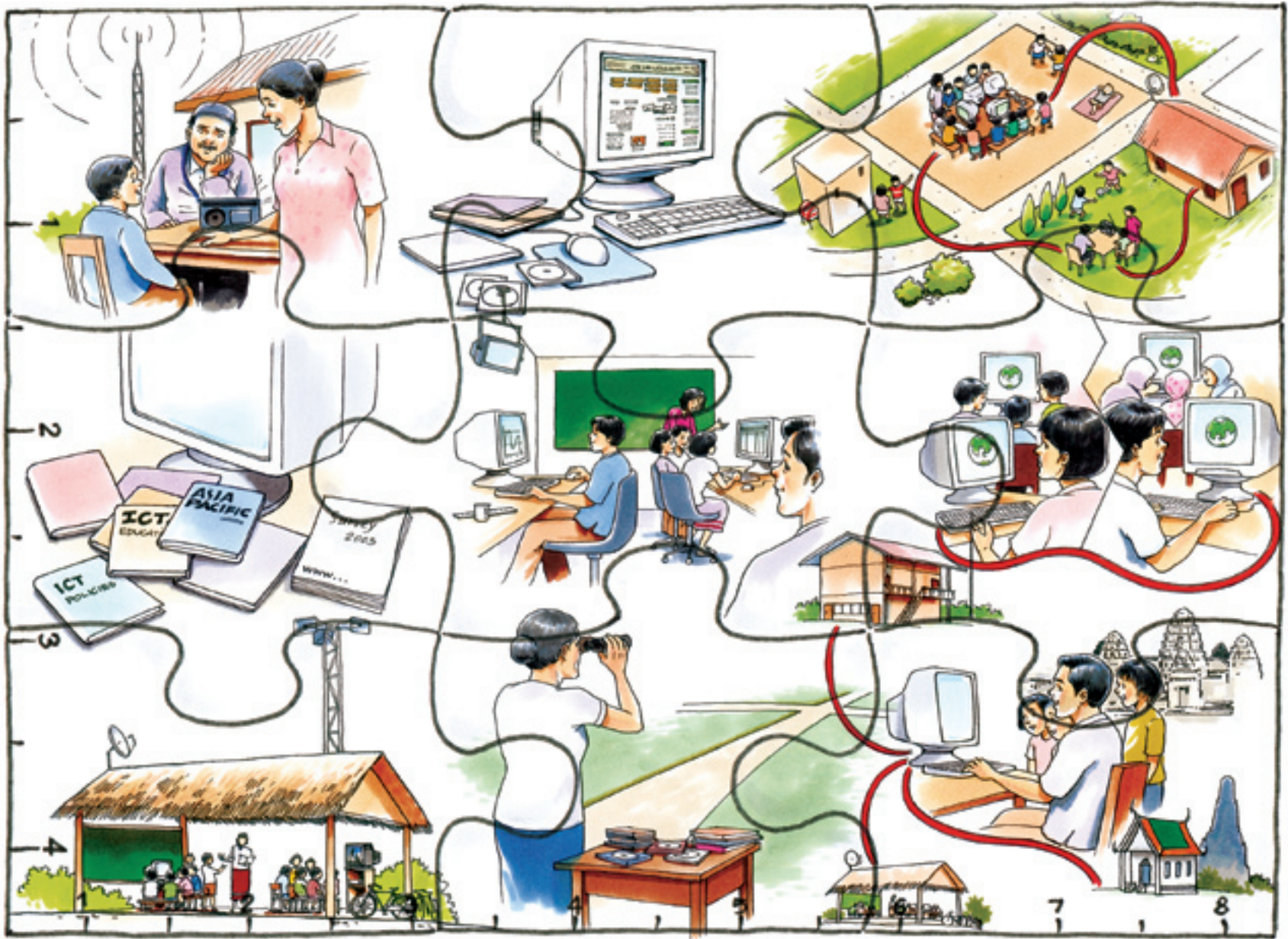
### Indicators - Monitoring and evaluation

#### Performance Indicators on ICT use in Education

The development and use of appropriate performance indicators and monitoring procedures related to ICT use in education involves:



- Developing a structure of indicators to measure ICT use in education and provide a basis for policy planning and programme improvements, showing if and how ICTs are raising standards in education; serving as a catalyst for educational change; and empowering teachers and learners.
- Undertaking a situational analysis to determine what indicators have been used to measure ICT use and then develop a set of indicators that can be applied in the region.
- Pilot testing the set of indicators in selected countries and then creating a database for country use and inter-country comparisons.
- Promoting the institutionalization/mainstreaming of this indicators system into the national educational management information system and ensuring that data are used for policy and programme improvements through research utilization workshops.
- Further disseminating information region-wide through the Clearing House repackaging programme, which generates fact sheets, policy briefs and ICT tools for policy makers, administrators and implementers both in hard copy and in electronic versions.



**For more information go to:**  
[www.unescobkk.org/education/ict](http://www.unescobkk.org/education/ict)



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