Towards the Quality and Quantity Improvement of Teacher Education in the Context of Asia and Pacific - Trends and Prospects of ICT Utilization in Education -

Presentation by
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Introduction

- Prologue
- Globalization and internationalization in the economy
- Change of education system
- What ICT can contribute to the quality and quantity issues in education

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Prologue

- What is 'Good' Teacher
  - He/she who creates and makes the sustained responsive environment coping with students' present and future learning contents; namely

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- He/she who can influence students by responding at any moment to
- 1. nature
- 2. students
- 3. colleagues
- 4. family, and
- 5. community.

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- In order to be a 'Good' teacher, he/she should try to collect and keep variety of his/her own examples and counter examples both in quality and quantity, which are closely related to his/her personal experiences showing students its process, and talk them to students in confidence by his/her own words keeping their present environment including the future related higher order concepts in mind.

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ICTs and education

- ICTs are tool, which are designed to be used as interactive media to process and expand our idea and knowledge.
- ICTs have a capability to ensure the quality and quantity of education only when in properly use responding to the educational objectives and its carefully arranged environment.

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Change in the world of Economy

Globalization in economy

brings the commercial sectors to
1. stronger economical competitions
2. merge or integration

and consequently requires
3. change of education system

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Internationalization

made it clear
1. each state has its education standard at higher or lower level, and especially
2. for the states with higher education standards the creativity and flexibility had less importance.

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Change of the society

Change of society
requires
schools to consider its needs

Unstable society marked by drugs and HIV/AIDS etc
requires
schools to change the education contents, and …..

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the change of teaching-learning style

from text-oriented classroom activities to active participation of students; students will become involved into the learning process responding to their own learning styles coping with families and communities

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Summing up

- Upgrading the education standard
- Learners should be related to the process which schools encountered
- Educational equality and equity
  - Improvement in gender issues, geographical issues, social unbalance issues, etc.
- Promote the participation of parents to management of school
- Decision making will be shift to local authorities as an example of decentralization

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Definition of Multimedia and ICTs

- "Integrated media which are seamlessly unified with such symbol as Text, Graphic, Sound, Video images and Animation, all of which are stimuli to human being, and easily controlled and coordinated in digital manner with WebPages, so that the users interact with them by not only passive observation but also active participation in searching, editing, reconstructing and finally control other media and/or expressing/presenting the information with their design and layout skills by their own interests."

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Outstanding Features of Multimedia

- Integration of several types of media/ message
- Interaction between media and learner
- Non-structured information from the learner's point of view
- Expanding information concerned by their interest

The educational meaning of ICTs and multimedia

- Convenience way for accumulating and utilizing information
- An instrument for delivering thoughts and for promoting divergent thinking skill
- Applicability of individualized or personalized lessons
- Clarifying the approach to the educational process

Can we develop teacher education with the use of ICTs and multimedia?

- Teacher education development in
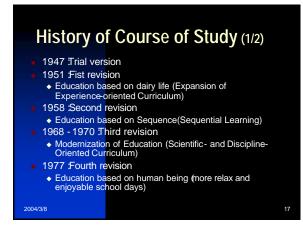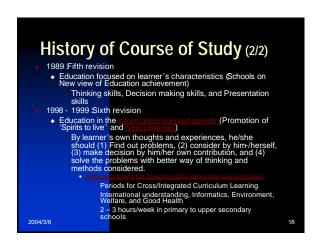 - Quality
    - Teaching, learning, teachers, learners, materials, management of classroom activities, management of administrative affaires, teaching/learning environment such as equity, equality, and expansion of opportunity
  - Quantity
    - Number of students, number of teachers, number of courses, number of learning place, number of teaching place, number of knowledge,

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Can we develop teacher education with the use of ICTs and multimedia?

- Characteristics of present and future ICTs
  - Interactivity
  - Networking
  - CT, DT and HT

History of Course of Study (1/2)

- 1947 Trial version
- 1951 Fist revision
  - Education based on dairy life (Expansion of Experience-oriented Curriculum)
- 1958 Second revision
  - Education based on Sequence(Sequential Learning)
- 1968 - 1970 Third revision
  - Modernization of Education (Scientific- and Discipline-Oriented Curriculum)
- 1977 Fourth revision
  - Education based on human being more relax and enjoyable school days)

History of Course of Study (2/2)

- 1989 Fifth revision
  - Education focused on learner's characteristics Schools on New view of Education achievement)
    - Thinking skills, Decision making skills, and Presentation skills
- 1998 - 1999 Sixth revision
  - Education in the information-oriented society (Promotion of 'Spirits to live' and New Learning)
    - By learner's own thoughts and experiences, he/she should (1) Find out problems, (2) consider by him-/herself, (3) make decision by him/her own contribution, and (4) solve the problems with better way of thinking and methods considered.
      - School periods for Integrated/Comprehensive Activities
        - Periods for Cross/Integrated Curriculum Learning
        - International understanding, Informatics, Environment, Welfare, and Good Health
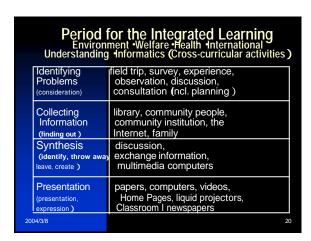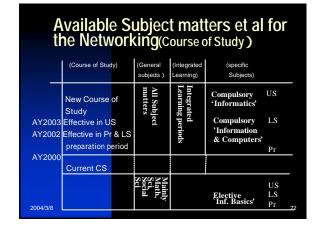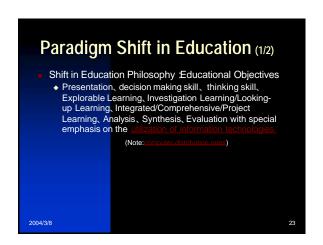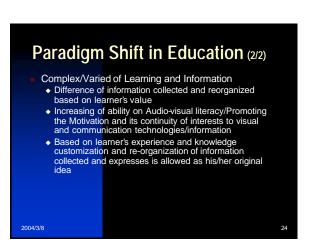   - 2 – 3 hours/week in primary to upper secondary schools

Period for the Integrated Learning

Responding to and considering the real situation of school, students and communities, each school have to carry out education activities derived by the cross-curricular and integrated learning and the learning based on students' interests.

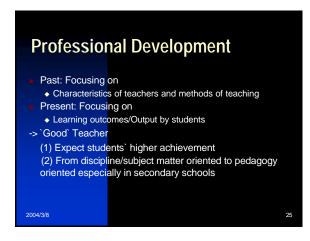The name of the activities will be decided by school itself.

Period for the Integrated Learning
Environment Welfare Health International Understanding Informatics Cross-curricular activities

Identifying Problems (consideration)	field trip, survey, experience, observation, discussion, consultation Incl. planning
Collecting Information finding out	library, community people, community institution, the Internet, family
Synthesis identify, throw away leave, create	discussion, exchange information, multimedia computers
Presentation (presentation expression	papers, computers, videos, **Home Pages, liquid projectors, Classroom newspapers**

Total Number of School hours for the Integrated Learning

	Grades	Integrated learning		Total hrs
Elementary	3rd	105		910
	4th	105		945
	5th	110		945
	6th	110		945
Lower Secondary	7th	70	100	980
	8th	70	105	980
	9th	70	130	980
	Upper Sec	105	210	

Available Subject matters et al for the Networking (Course of Study)

	(Course of Study)	(General subjects)	(Integrated Learning)	(specific Subjects)	
	New Course of Study	All Subject matters	Integrated Learning periods	Compulsory 'Informatics'	US
AY2003	Effective in US			Compulsory 'Information & Computers'	LS
AY2002	Effective in Pr & LS preparation period				Pr
AY2000					
	Current CS	Mainly Sci, Math, Social Sci		Elective 'Inf. Basics'	US LS Pr

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Paradigm Shift in Education (1/2)

- Shift in Education Philosophy Educational Objectives
  - Presentation decision making skill   thinking skill Explorable Learning Investigation Learning/Looking-up Learning Integrated/Comprehensive/Project Learning Analysis Synthesis Evaluation with special emphasis on the utilization of information technologies

    (Note:computer distribution rates)

Paradigm Shift in Education (2/2)

- Complex/Varied of Learning and Information
  - Difference of information collected and reorganized based on learner's value
  - Increasing of ability on Audio-visual literacy/Promoting the Motivation and its continuity of interests to visual and communication technologies/information
  - Based on learner's experience and knowledge customization and re-organization of information collected and expresses is allowed as his/her original idea

Professional Development

- Past: Focusing on
    - Characteristics of teachers and methods of teaching
- Present: Focusing on
    - Learning outcomes/Output by students
- -> `Good` Teacher
    - (1) Expect students` higher achievement
    - (2) From discipline/subject matter oriented to pedagogy oriented especially in secondary schools

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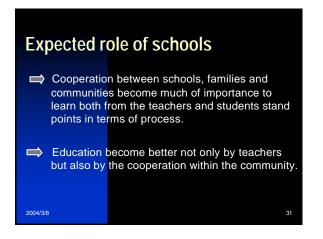
Professional Development

- Shift from Knowledge in the subject matters transfer to those beyond its traditional framework responding to the social and student's needs of learning
    - Rigid framework such as humanities, technical and vocational areas become flexible
    - Many people wish to learn higher level of education, which most advantaged class of people have been enjoying so far
- Need to assistance for them to learn effectively considering less drop-outs
- Create new learning environments considering multi - cultural and multi -linguistics

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Problems and Issues

- In order to upgrade the education standard, is the professional development effective or not?
    - Very few experimental results
        - In what extent is the quality of teaching effective the learning outcomes of students?
        - What kinds of factors in professional development affect the teachers` competencies?

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Education reform
-Two major goals of education -

- Learner's Higher Achievement
- Flexible way of thinking both for teachers and students
    - Improvement of human relations, solving problems, and effective communication skills
- ⇒ Four pillars of learning
- ⇒ What ICT can contribute these two major aspects?

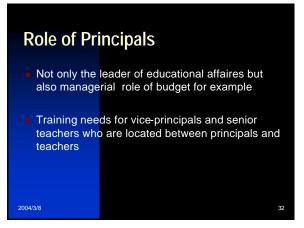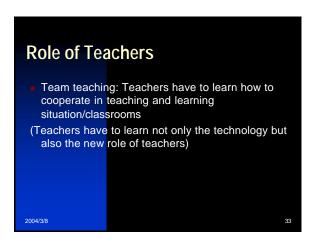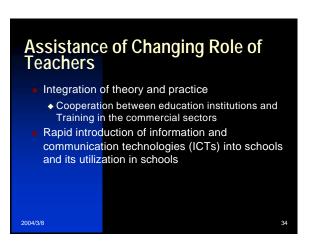2004/3/8   28

Life-long learning society

- What learned in the university will become a part of technologies and competencies for their rest of life
- No repetitive jobs and less hierarchical and unstable organization
- ⇒ Needs of flexible way of thinking
- ⇒ What ICT can contribute these two major aspects?

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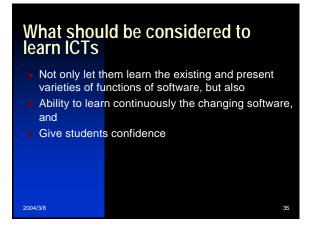
Expected role of schools

- Responsibilities in students intellectual development and social and moral-related developments
- Society become demanding schools the role and leadership in teaching moral and value education
- Schools become realized the better life of students depending on their educational functions: Students who have anxieties get less achievements in schools especially in lower secondary schools
- Development and improvement of human relationship in terms of students better life, which is not yet realized even in society, become the new role of schools
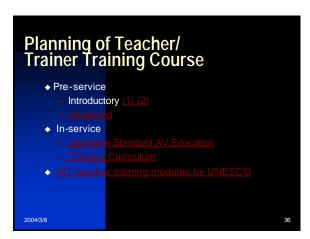
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Expected role of schools

⇒ Cooperation between schools, families and communities become much of importance to learn both from the teachers and students stand points in terms of process.

⇒ Education become better not only by teachers but also by the cooperation within the community.

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Role of Principals

■ Not only the leader of educational affaires but also managerial role of budget for example

■ Training needs for vice-principals and senior teachers who are located between principals and teachers

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Role of Teachers

■ Team teaching: Teachers have to learn how to cooperate in teaching and learning situation/classrooms

(Teachers have to learn not only the technology but also the new role of teachers)

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Assistance of Changing Role of Teachers

■ Integration of theory and practice
  ◆ Cooperation between education institutions and Training in the commercial sectors
■ Rapid introduction of information and communication technologies (ICTs) into schools and its utilization in schools

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What should be considered to learn ICTs

■ Not only let them learn the existing and present varieties of functions of software, but also
■ Ability to learn continuously the changing software, and
■ Give students confidence

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Planning of Teacher/ Trainer Training Course

◆ Pre-service
  - Introductory (1) (2)
  - Advanced
◆ In-service
  - Japanese Standard AV Education
  - Training Curriculum
◆ ICT teacher training modules by UNESCO

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What should be considered in Open and Distance Education (ODL) systems development

- E-learning system, expert system and/or Knowledge Base learning system, whatever you call it, need the Diagnostic Mechanism within the system such as friendly interfaces, conversational system component, user's modeling for induction and inference/deduction techniques,…

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What should be considered in Open and Distance Education (ODL) systems development

- for example in order to meet, accommodate and respond in the intelligent manner to the user's time to time/continuously changing conditions and at the same time to expand their own knowledge framework for them to feel challengeable, self-satisfactory and confident, the system or the knowledge base is not merely the gathering the homepages and different kinds of databases.

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Two major theories of the development of multimedia and ICTs

- Follow the traditional design of instruction to create CAI with several symbol systems
    - -> Courseware
- Follow the outstanding features of multimedia
    - ->Objectives should be less specified
    - ->Start with image:-Comprehensive

New Trends of Software Development

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Software supporting ICTs Material Development and Utilization in Schools

- Authoring Software
    - ◆ CAI
        - Tutorial mode – Explanation/Problems ->response->Evaluation->Branching/Control
            - • Author control/teachers oriented
        - Simulation mode
        - Information retrieval mode
- Authoring Tools
    - ◆ Presentation:
        - Learner's control based on audio-visual information designed, layout and organized
- Homepage creation Software

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Instructional design for courseware applicable to e-learning

- Instructional Design Models
- Nature of Learner Interaction
- Adaptation of Instruction to the Learner or the Content
- Level of Intelligence Exhibited by the Courseware
- Motivational Aspects of the Design

=> Interactive Designs and Adaptive Designs
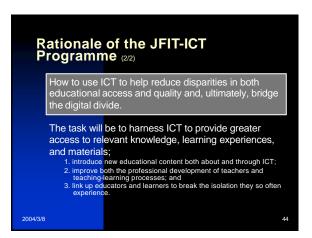
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Discussion

- Not only let them learn the existing and present varieties of functions of software, but also
- Give them ability and motivation to learn continuously the changing software, and
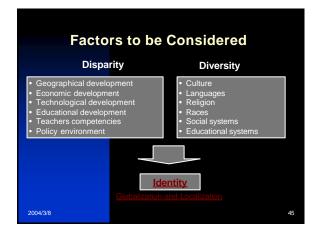- Give students confidence.

Keeping minds with

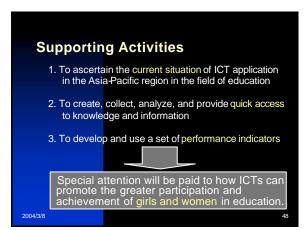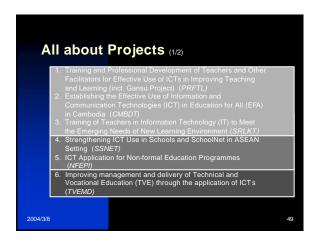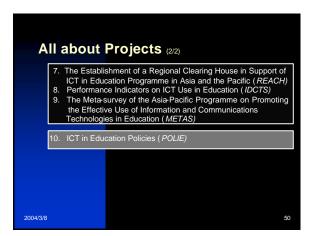- What are changing, what are not changing, and what should not be changed

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Rationale of the JFIT-ICT Programme (1/2)

Programme:
Japanese Trust Fund for the "**Promotion of the Effective Use of Information and Communication Technologies in Education**": established in October 24 2001, and started to implement in May 2002

Rationale/Background:
1. Education for All
2. EFA Framework for Action, Dakar, April 2000
3. 31C/4, 31C/5 ("Digital Divide")

Then this programme will focus on ……

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Rationale of the JFIT-ICT Programme (2/2)

How to use ICT to help reduce disparities in both educational access and quality and, ultimately, bridge the digital divide.

The task will be to harness ICT to provide greater access to relevant knowledge, learning experiences, and materials;
1. introduce new educational content both about and through ICT;
2. improve both the professional development of teachers and teaching-learning processes; and
3. link up educators and learners to break the isolation they so often experience.

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Factors to be Considered

Disparity
- Geographical development
- Economic development
- Technological development
- Educational development
- Teachers competencies
- Policy environment

Diversity
- Culture
- Languages
- Religion
- Races
- Social systems
- Educational systems

Identity
Globalization and Localization

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General Objectives

To contribute to Bridging and Tapping the "digital divide" and promoting "digital inclusion":

1. By exploring and demonstrating how ICT can be used to reach those excluded from learning and to improve the quality of education for all, and

2. By developing 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.

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Specific Objectives

1. To help create an enabling and supportive policy environment

2. To promote the integration of ICT in both formal and non-formal education programmes

3. To strengthen the training and professional development of teachers and non-formal education facilitators

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Supporting Activities

1. To ascertain the current situation of ICT application in the Asia-Pacific region in the field of education

2. To create, collect, analyze, and provide quick access to knowledge and information

3. To develop and use a set of performance indicators

Special attention will be paid to how ICTs can promote the greater participation and achievement of girls and women in education.

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All about Projects (1/2)

1. Training and Professional Development of Teachers and Other Facilitators for Effective Use of ICTs in Improving Teaching and Learning (incl. Gansu Project) (*PRFTL*)
2. Establishing the Effective Use of Information and Communication Technologies (ICT) in Education for All (EFA) in Cambodia (*CMBDT*)
3. Training of Teachers in Information Technology (IT) to Meet the Emerging Needs of New Learning Environment (*SRLKT*)
4. Strengthening ICT Use in Schools and SchoolNet in ASEAN Setting (*SSNET*)
5. ICT Application for Non-formal Education Programmes (*NFEPI*)
6. Improving management and delivery of Technical and Vocational Education (TVE) through the application of ICTs (*TVEMD*)

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All about Projects (2/2)

7. The Establishment of a Regional Clearing House in Support of ICT in Education Programme in Asia and the Pacific (*REACH*)
8. Performance Indicators on ICT Use in Education (*IDCTS*)
9. The Meta-survey of the Asia-Pacific Programme on Promoting the Effective Use of Information and Communications Technologies in Education (*METAS*)

10. ICT in Education Policies (*POLIE*)

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Conclusions with possible actions (1/10)

- Within the framework and regulations of UNESCO and authorities concerned:

  - Need to consider the short -term and long-term objectives coping with rapid developments in both ICTs with its related technologies and learner-oriented education environment which includes communities and other stakeholders like commercial sectors to ensure success of implementation.
  - With regard to the short-term objectives, those possible of achievement and its spirit be highly considered to work out.

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Conclusions with possible actions (2/10)

- Within the framework and regulations of UNESCO and authorities concerned:

  - Clear cut national policy for the management and delivery system coping with the privacy and security issues be developed and implemented and the necessary political will be solicited to ensure success of implementation.
  - Issues on gender, ethnic groups and the disadvantaged with special needs be important focus areas in the implementation.

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Conclusions with possible actions (3/10)

- Within the framework and regulations of UNESCO and authorities concerned:

  - Mechanisms assessing for management and delivery system coping with privacy and security issues be looked into at the national level and the regional level.
  - Human-networking mechanisms be developed in order to encourage technical support for the implementation by universities and related systems involved in the organization of the management and delivery system.

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Conclusions with possible actions (4/10)

- Within the framework and regulations of UNESCO and authorities concerned:

  - The management and delivery system be research-based so that outcomes can be the basis for review and further development to create a model.
  - The instruments for evaluating quality management and delivery system be considered to give impact on other areas.

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Conclusions with possible actions (5/10)

- Within the framework and regulations of UNESCO and its concerned:

  Quality Intelligent Database Management system with capabilities to link to the Internet and its kinds be essential and needed, which has built-in mechanism to sharply and immediately respond to any kinds of misuse and ill-use operations by any users and which includes databases about best practices and success stories to assist teachers and stakeholders in creating quality lesson-plans, quality materials, quality education data processing in classrooms, schools, related resource centers, universities and other related institutions within communities, and quality in- and pre-service teacher education so as to ensure its longer utilization and sustainable education development as well.

Conclusions with possible actions (6/10)

Both UNESCO New Delhi and those who are in charge of this project as member of the 'nodal agency' in Sri Lanka are expected to make this project different, more challengeable and more innovative from other nine projects; for example, *by keeping the UNESCO regulation in mind,*

(1) several numbers of digital camera will be purchased to be distributed to different types of schools and to see how students enjoy themselves with teachers in creating their personal and school home pages for example, and/or

(2) with the use of ICT the involvement of the communities for making the school as one of the core place for the members will also be encouraged.

(Source: Mission report on Sri Lankan project, 27 January 2004)

Conclusions with possible actions (7/10)

- (1) As being innovators teachers should have the basic scientific and technological knowledge and way of thinking,
- (2) Needs survey and research and development in conjunction with the results found should be carried out,
- (3) A sufficient and large number of quality teachers/capacity building with professional development activities and teaching and learning materials should be needed,

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Conclusions with possible actions (8/10)

- (4) Formation of the several groups of varieties of teachers and personnel from outside like companies and universities to carry out research in competitive as well as cooperative way should be encouraged,
- (5) Teachers who carry out best teaching and learning activities should be for example promoted or receive higher salary, and
- (6) Institutions should be encouraged in well equipped by their own benefit.

Conclusions with possible actions (9/10)

- (7) Before creating and developing e-learning systems, database for utilizing by teachers as a basics for improvement of their teaching and learning environments, database for lesson-plans, which include principles of several types of teaching/learning styles, should be developed.

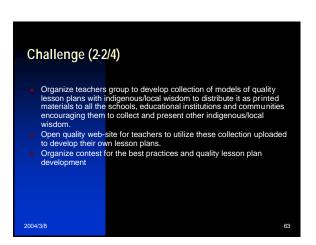## Conclusions with possible actions (10/10)

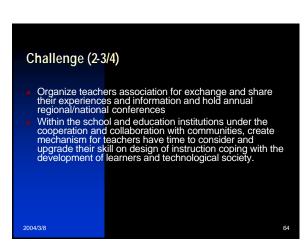- Moreover the following tasks will be appreciated:
- (1) Make families realize the social and economical values of education
- (2) Make parents understand the significance of learning in schools
- (3) Raise income for many parents to give more funds to education activities

Challenge (1/4)

To make innovative and challengeable, cooperation and collaboration with several authorities like Ministry of Finance, Ministry of Energy, Ministry of Environment, Ministry of Post and Tele-communication, Ministry of Transportation, Ministry of Promotion of School library etc., whatever you call it, and with families and communities to bridge and tap the digital dived in the rural area where there is no electricity notebook computers will be utilised by the establishment of 'Battery Recharge Station' in the community *by keeping the UNESCO and its related authorities regulation in mind*,

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Challenge (2-1/4)

- Organize the task force to collect Indigenous/local wisdom to develop databases with utilizing MS-Word, (low cost and easy to develop and utilize by everybody).
- Encourage them to develop (1) *personal* Indigenous/local wisdom database, and to expand to (2) *classroom* Indigenous/local wisdom database, (3) *school* Indigenous/local wisdom database, and finally (4) *community* Indigenous/local wisdom database. And *family* Indigenous/local wisdom database will also be considered.
- Organize students groups to develop prototype of concept mapping based on the collected indigenous/local wisdom.

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Challenge (2-2/4)

- Organize teachers group to develop collection of models of quality lesson plans with indigenous/local wisdom to distribute it as printed materials to all the schools, educational institutions and communities encouraging them to collect and present other indigenous/local wisdom.
- Open quality web-site for teachers to utilize these collection uploaded to develop their own lesson plans.
- Organize contest for the best practices and quality lesson plan development

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Challenge (2-3/4)

- Organize teachers association for exchange and share their experiences and information and hold annual regional/national conferences
- Within the school and education institutions under the cooperation and collaboration with communities, create mechanism for teachers have time to consider and upgrade their skill on design of instruction coping with the development of learners and technological society.

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Indigenous/Local wisdom

- Visible and invisible phenomena and/or sayings, which directly or indirectly relate and contribute to the formation of identity of the people who wish to live in safe, sound and cultural life and make people comfortable. It comes from the deep understanding of, thoughtfulness and respect to both human beings and nature so as to lead them to the four pillars of learning.

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