

***The Challenge of Knowledge Economy  
for Education and Training in China:  
Developing the Architecture for an  
Effective Life Long Learning System***

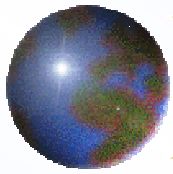
*Carl Dahlman*

*World Bank*

*Life Long Learning International Forum*

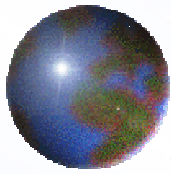
*Shanghai, Pudong, China*

*December 15-17, 2004*



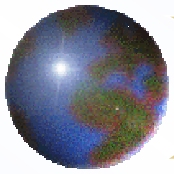
# *Structure of Presentation*

1. The Knowledge Revolution and Global Trends in Education and Training
2. Challenges for China
3. Broad Overview of Education and Learning System in China
4. Key Challenges of Life Long Learning for China
5. Changing Role of Government
6. Moving Forward



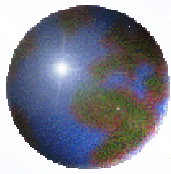
# ***1. The Knowledge Revolution***

- ⊕ The creation and dissemination of knowledge has speeded up as result of advances in science and information technologies**
- ⊕ This is leading to greater globalization and international competition**
- ⊕ The ability to create, access and use knowledge is becoming fundamental determinant of global competitiveness**
- ⊕ Education and training are becoming increasingly important to make effective use of rapidly growing new knowledge and all countries are having to invest more in education and skills**



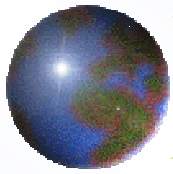
# ***Implications of KR for Education and Training in China***

- ❑ Risk of knowledge divide across across and within countries
- ❑ Constant need for new skills for people out of school and in labor force
- ❑ Higher levels of education necessary to use, adapt, and create new knowledge



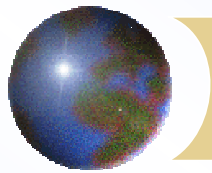
# ***Global Trends in Education and Training***

- Increasing educational attainment
- Continued high returns to higher levels of education until very recently
- Increasing contribution of education to GDP growth
- Increasing globalization of education
- Increasing tendency for adults to go back to school or to get new skills
- Growing amount of training provided on the job or by going back to formal education
- Increasing private provision of education
- Increased need to approach education and training as life long process from cradle to grave



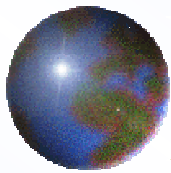
# *Key Elements of System of Lifelong Learning*

- New skills and competencies
- New pathways to learning
- Governance challenges
- Financing challenges
- [These four areas will be developed in more detail by Jamil Salmi and other speakers]



## **2. Challenges for China**

- ⊕ Increasing International Competition**
- ⊕ Limited Natural Resources**
- ⊕ Need for a more knowledge intensive growth strategy**
- ⊕ Increasing Unemployment**
- ⊕ Increasing Inequality**
- ⊕ Need to turn abundant human resources into strategic advantage**



# 3. Overview of Education and Training System

**GOVERNANCE/ AND MANAGEMENT OF SYSTEM**

- Implies new role for government
- Requires cooperation with non-government partners

**FORMAL EDUCATION**

- (K-12 + Adult Learners)
- Public
- Private
- Non-government

**PROVIDERS (SUPPLY)**

**TRAINING**

- Public (adult learners)
- Private Sector/Corporate (credentials & qualifications)
- Industry training ('certified')
- Career Development
- Non-Formal
- Other

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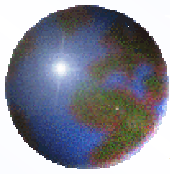
**SOCIAL NEEDS**

- National Identity
- Public Goods

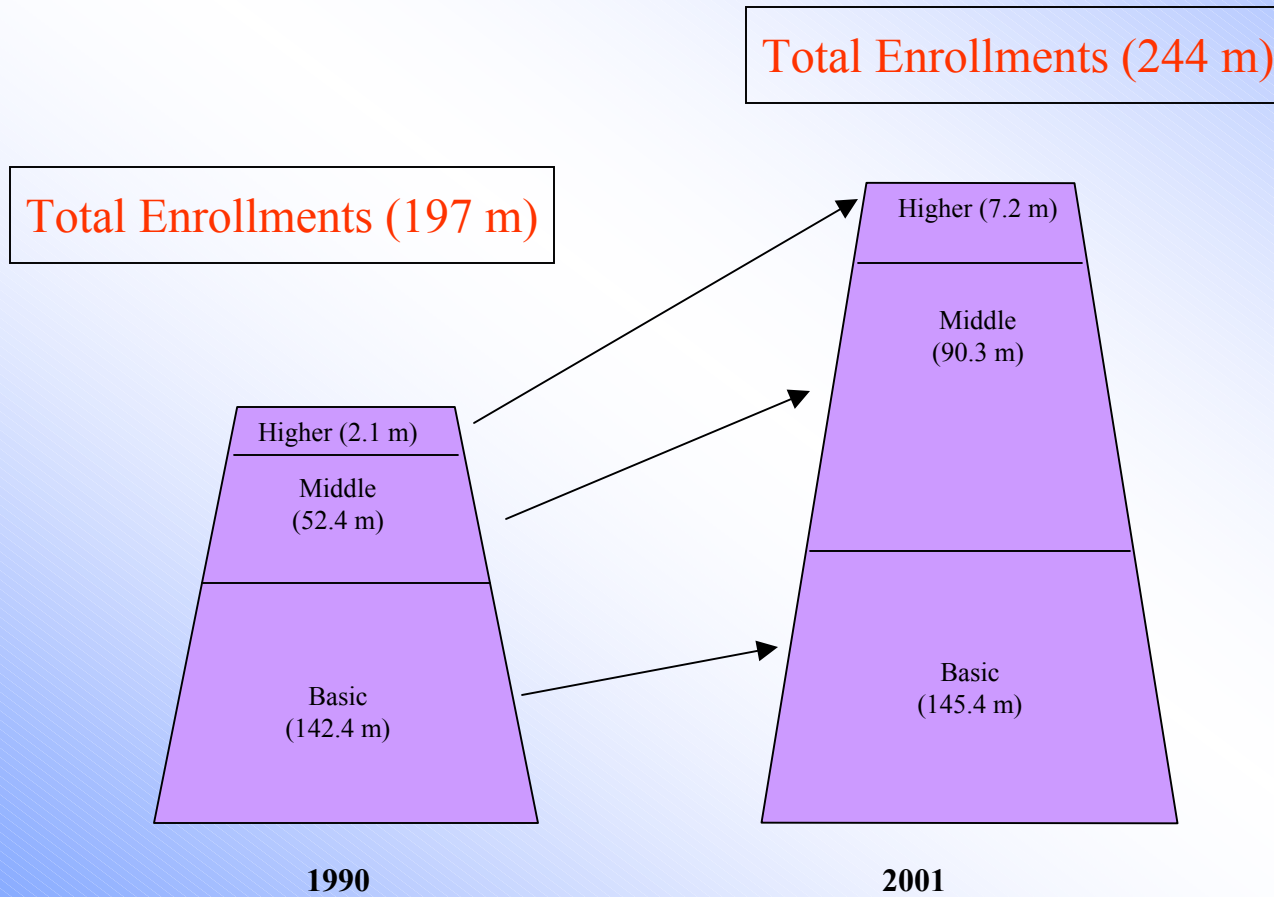
**NEEDS (DEMAND)**

**MARKET NEEDS**

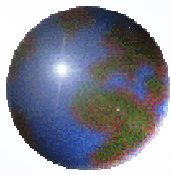
- Literacy/numeracy
- Science, technology/ICT and int'l languages
- New general skills:
  - Problem solving skills
  - Communications
  - Working in groups
  - Creativity
  - Learning to learn
- New occupational and functional skill requirements



# Overview of China's Formal Education

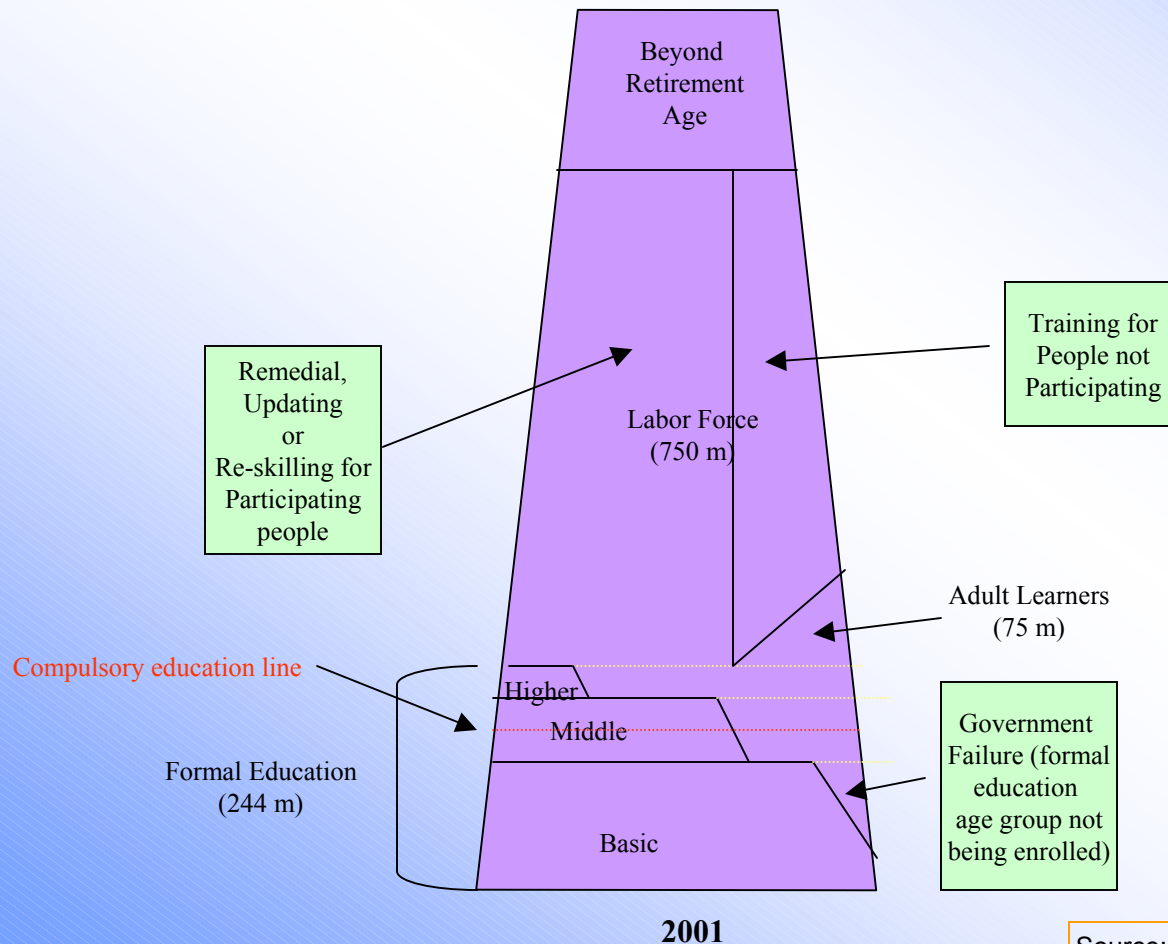


Source: Made by Douglas Zeng at WBI, based on MOE statistics.

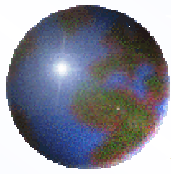


# China's Learning Needs Beyond Formal Education

Total Population (1.3 b)

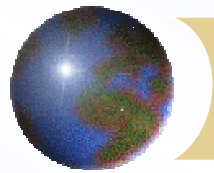


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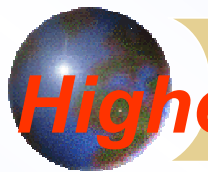
## *Three Challenges for Education and Training in China*

- ❖ **Stock Challenge**— upgrading skills of people already out of the formal school system
- ❖ **Flow Challenge**-- expanding formal educational enrolments and increasing quality
- ❖ **Dynamic Challenge**—adjusting education and training to rapidly and constantly changing needs



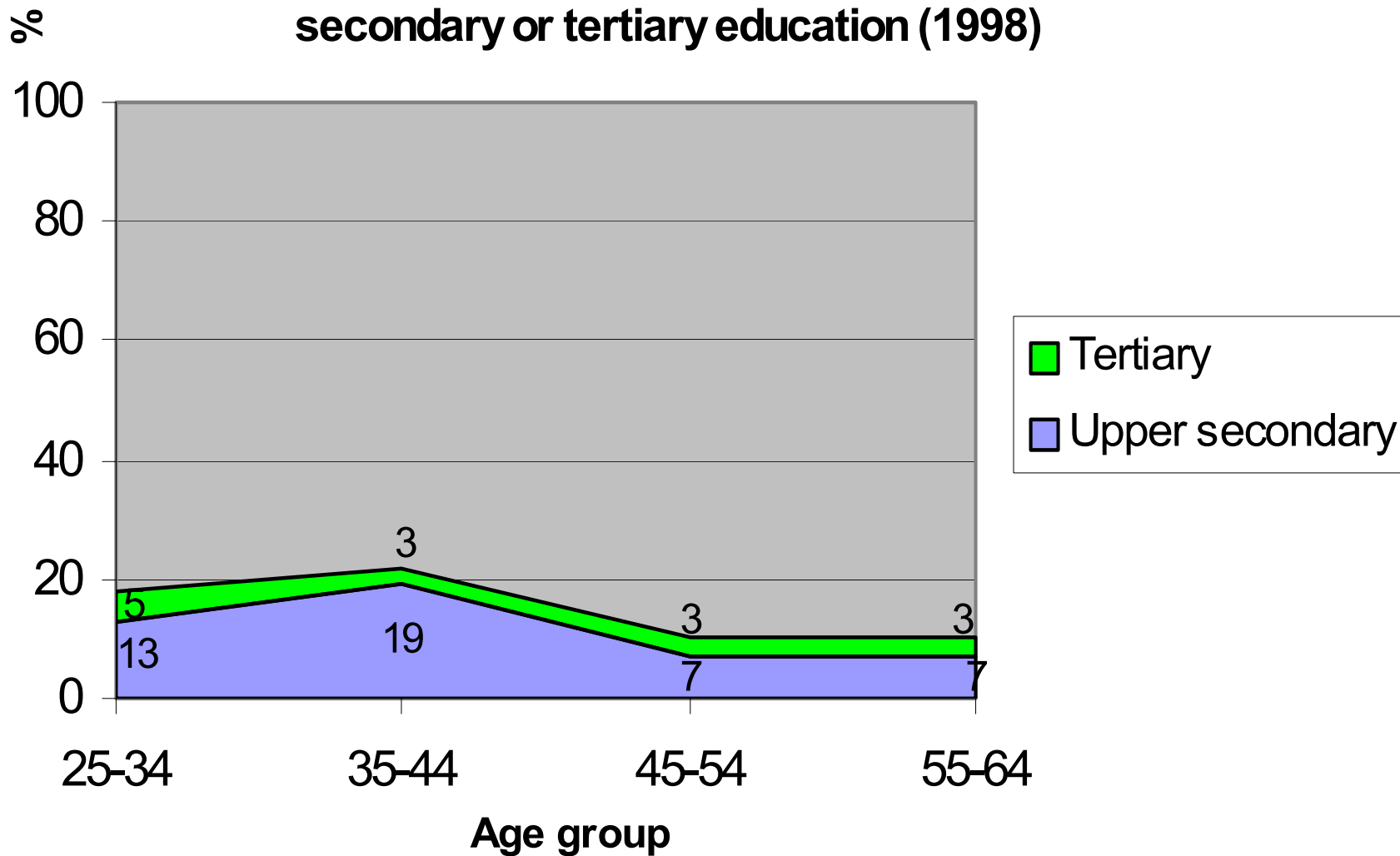
# Stock Challenge in China

- Rapid creation and diffusion of knowledge means adults constantly have to learn. China has to upgrade the skills of 750 million workers
  - Improve training to millions of rural migrants
  - Retrain millions of laid off workers
  - Upgrade skills of hundreds of millions of employed persons
  - Provide education and training to hundreds of millions of adults outside the labor force
- China needs
  - Multiple mechanisms for continuous training beyond formal education system
  - Effective system for skills assessment and certification
  - To exploit potential of information and communications technologies to expand training opportunities

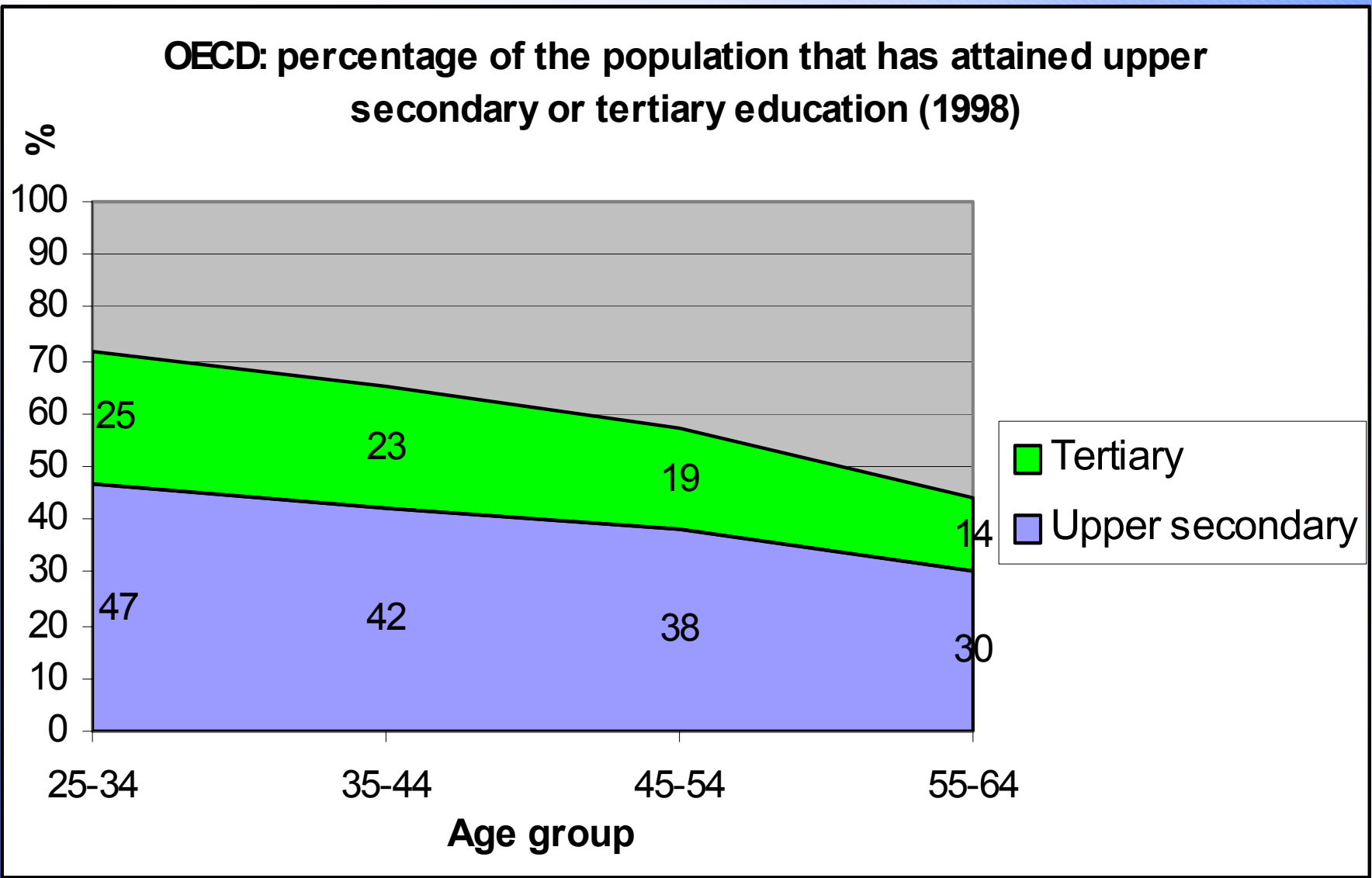


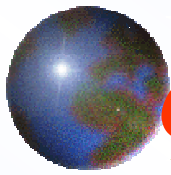
# Higher Secondary & Tertiary Attainment: China

China: percentage of the population that has attained upper secondary or tertiary education (1998)



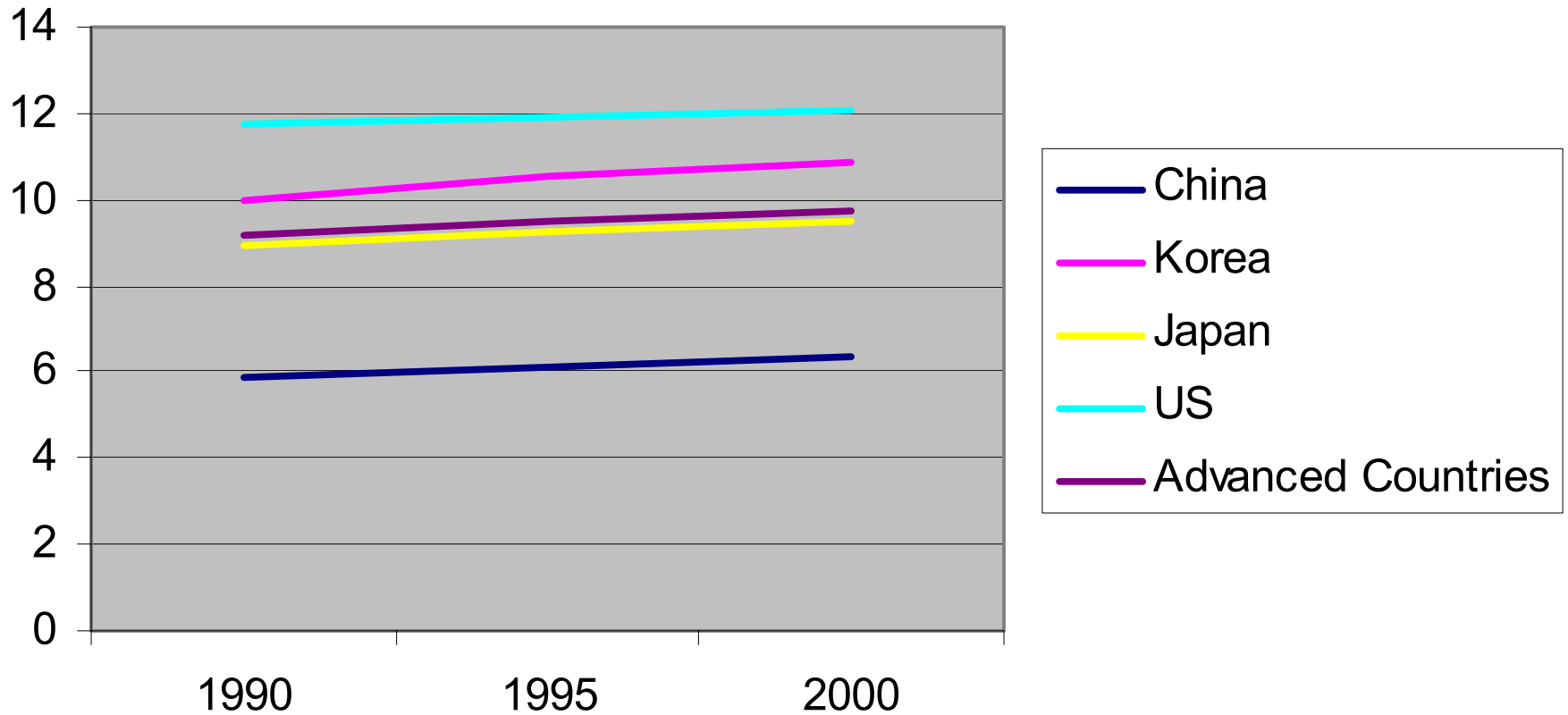
# Higher Secondary & Tertiary Attainment: OECD



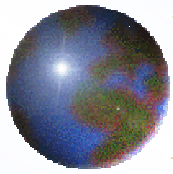


# Overall Educational Attainments

## Av. Years of Schooling of Population (1900-2000)

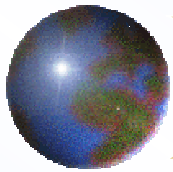


Source: Barro-Lee.



## *Flow Challenge in China*

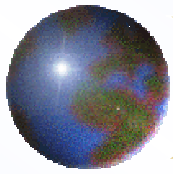
- China needs to continue to expand access and improve the quality of its formal education systems which has more than 240 million students
- Education system must teach students how to learn through their lifetime regardless of when they leave it: implies need for
  - Better teaching and learning pedagogies for core skills
  - Broader interdisciplinary approaches
  - Financing mechanisms to expand access and improve quality
- **China need to address both stock and flow challenges, though severely financially constrained**



## Secondary and Tertiary Enrollments

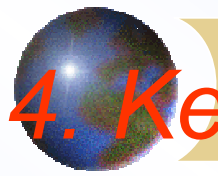
	Secondary		Tertiary	
	1990	2001	1990	2001
China	48.7	68.2	3.0	12.7
Korea	89.8	94.2	38.6	82.0
Japan	97.1	102.5	29.6	47.7
USA	93.1	94.1	75.2	70.7

Source: World Bank Edstats Database



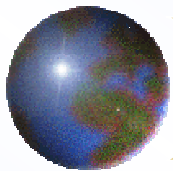
# *Dynamic Challenge in China*

- ❖ In designing system need to take into account the changing population structure
  - ❑ Because of one child policy, school age population is already starting to decrease at primary school level
  - ❑ But still need to expand enrollments at higher level
  - ❑ And need to plan for different mix of students—more adult learners at higher level
- ❖ Need to take into account changing economic structure resulting from rapid growth
  - ❑ Decrease in agriculture, increase in industry and especially in services
  - ❑ Changing occupational structure and skill requirements—especially of higher value knowledge skills in service sector
- ❖ Need to update the content of curriculum and training to be relevant to changing needs

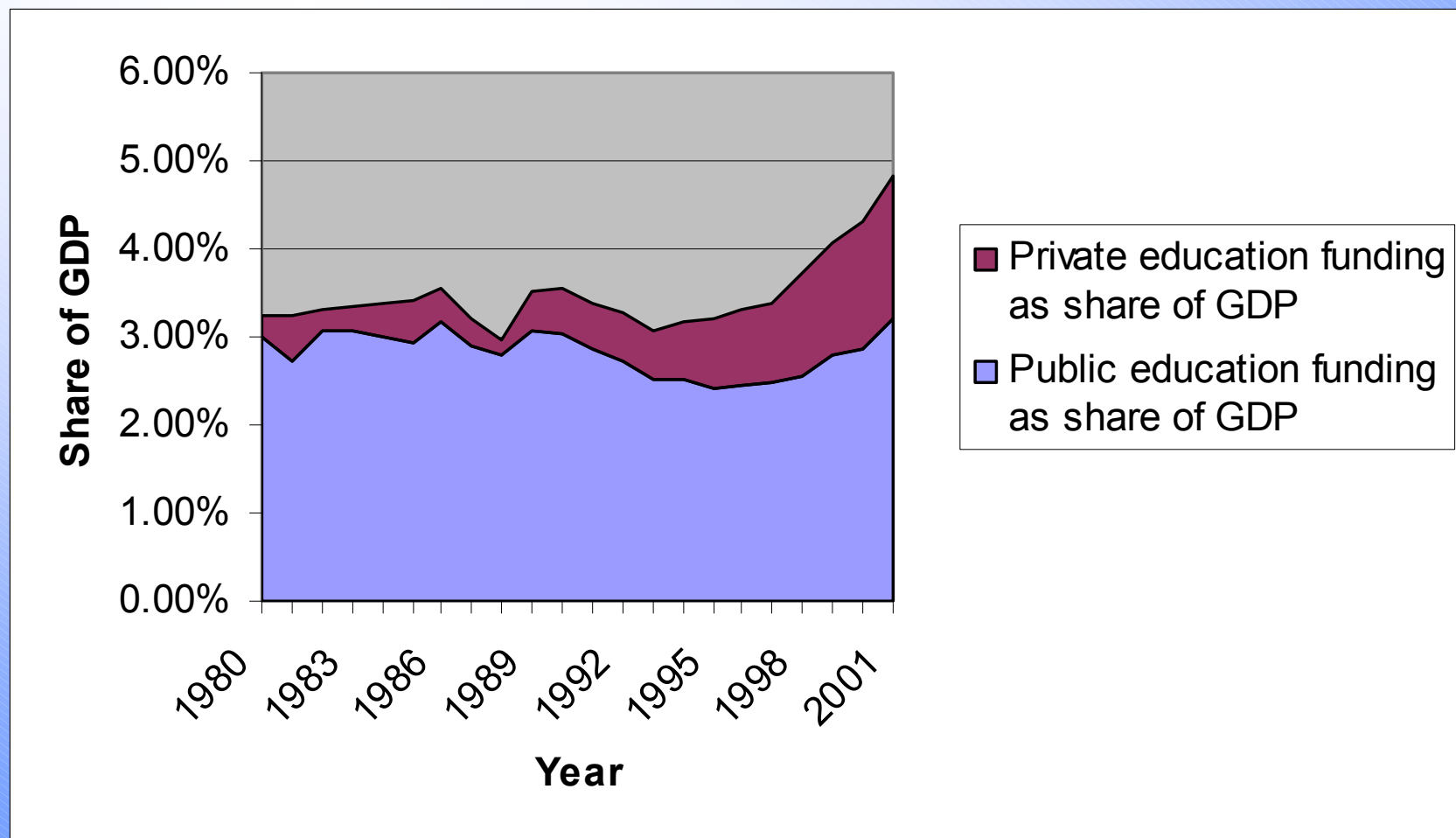


## 4. Key Challenges for LLL for China – (1)

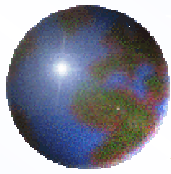
- Fragmentation and Lack of Coordination of System
  - Many ministries involved controlling different parts
  - Growing private universities and training programs
- Need for a More Integrated and Coordinated Approach
  - Need system that allows for multiple providers and multiple pathways to different levels of education and skills
  - This requires broad set of general rules and standards and coordination and mutual recognition among multiple systems
- Great Needs, Limited Finance, Imply Need for Innovative Approaches
  - Govt cannot afford to finance increase in access and quality
  - Need to tap potential for private financing



# Education expenditures from public and private sources as share of GDP (1980-2001)

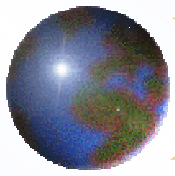


Source: Angang Hu 2003



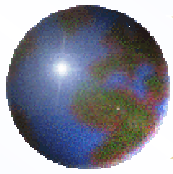
# ***Financing Challenge of LLL: Increasing Resources for and Productivity of Education***

- Increase public resources for education
- Increase students contributions to cost of delivering public education, including loans
- Increase private provision of education and training
- Develop student loan and education finance market
- Improve the productivity of education
  - Improve the incentive regime and management of education systems
  - Improve knowledge management in the education sector
  - Reduce the time it takes to get different levels of education
  - Improve the pedagogy of education
  - Use new ICT technologies more extensively



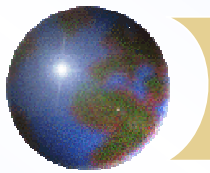
# *Meeting the Financing Challenge of LLL: Increasing Equity*

- Share of private financing of education in developing countries is already higher than in developed
- It is likely to have to increase because of limited government budgets
- As more toward more private financing already serious problems of inequality will be increased
- Government will have to pay more attention to addressing the equity problem
  - Across regions
  - Across individuals-support for capable poor students



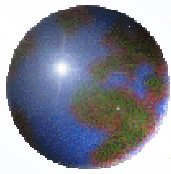
# Key Issues in LLL for China – (2)

- **Poor Demand Supply Links of Education and Training to Labor Market**
  - Mismatch between skills supplied and needs of market
  - Poor information on career options, income streams, quality of different providers
- **Need for Massive Upgrading of Skills**
  - Require innovative ways to reduce skills gaps of population already in labor force
  - Need to put in place system to continuously upgrade skills
- **Need to Improve Quality and Content**
  - Quality at all levels low
  - Need to improve assessments
  - Need to reform curriculum and teaching pedagogies



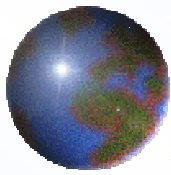
# *Increasing Quality*

- On most international standardized tests, developing countries like China do worse than average for OECD countries
  - In part due to lower expenditures, and less complementary resources such as less educated teachers, fewer books and facilities
  - But also due to more antiquated teaching pedagogy, less effective incentive regimes and governance structures
  - And generally more regulated sector
- Need not only to improve resources, but also to improve pedagogy and institutional incentive regime for public and private providers



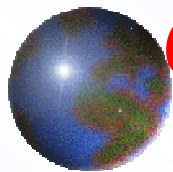
## ***Key Issues in LLL for China – (3)***

- **Need to Realize Potential of ICT Technologies to Expand Access and Quality of education and training**
  - Need to develop more providers
  - Need to help create more content
- **Need for Accreditation, Vocational Qualification and Certification**
  - Need better accreditation of education and training providers
  - Need effective system for assessing and certifying vocational qualifications (and not necessarily just by government)



## *5. Need for a New Role of Government /Private Sector in Education*

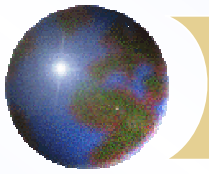
- Key government role as architect and coordinator of life long learning system
  - Legislation
  - Regulations and standards
  - Quality assurance
  - Equity
  - Finance
  - Information on needs of dynamic and rapidly growing system quality of different education and training providers, and qualifications and competencies of people
  - Encouragement for development of specialized intermediary institutions to fill gaps
- Four key functional roles
  - Substituting for the market-basic education
  - Regulating the market-standards, accreditation, certification
  - Complementing the market-grants for equity, special educ.
  - Developing the market—student loans, finance, information



# Current Role of Government in China vs New Role in the Knowledge Economy

Policy Issue	Current Role	Role in the Knowledge Economy
Integration/coordination at the national level	Compartmentalized in different ministries including education, labor, personnel and various line ministries such as agriculture, post and communications, etc.	Need a coordinated multi-sectoral approach where have multiple pathways to learning and flexible system of recognizing learning and linking to labor market needs.
Administration and regulation	Provides rules and regulations. Controls number of students who can receive degrees.	Creates incentives; facilitates diverse providers, encourages more self regulation by fostering more timely and transparent information on changing needs, performance of students and education and training providers, career counseling; and accountability to parents, students, employers, and society.
Coordination across vertical levels	One way control and regulation form top-down, little flexibility for experimentation	Two way mutual support and partnerships. Willingness to pilot and experiment with new approaches.
Government as an enabler	Control and regulator. Strong bias towards being the main provider of formal education and training, little recognition of private providers.	Create choices, provide information and incentives, facilitate cooperation and provision including by non-governmental partners.
Linkage between education and the labor market/society	Supply is institution driven, little adjustment by the public sector to changing demands, some adjustment by spontaneous rise of private providers. Major preoccupation with training millions of agricultural migrants and re-training workers laid off from SOE, much less focus on gigantic task of re-skilling employed workers for new skill requirements.	Demand is market and learner driven. Moving towards a new tri-modal system. <ul style="list-style-type: none"> <li>• Strong basic public education and core skills, including learning how to learn throughout life-time,</li> <li>• Diversified public and private upper secondary and higher education institutions</li> <li>• Just in time specialized learning depending on changing needs.</li> </ul>
Qualifications assurance system	National standards linked with curriculum and student assessments. Not sufficient linkage to market and social needs.	Diverse system of recognition and quality control including linkages between different levels of vocational and academic qualifications that recognize formal and informal education and training; and integrate learning, qualifications and labor market needs.

Source: Adapted and expanded from WB, LLL, 2003, table 4.2 p.59



## 6. *Moving Forward*

- Will require developing greater awareness of key groups of what is at stake, the role of different players, and the need for coordination among government actors and with others
- Can't just replicate what traditionally has been done
  - Need to learn about cost effective new approaches, tools and techniques to leapfrog to catch up
  - Need to move to how-- implementation of new policies and more public and private partnerships and investment
- Will require further background work as well as orchestrated process to move forward
- Some critical next steps
  - Create awareness among key policy makers to get top down endorsement for change
  - Create greater awareness at working level institutions of what needs to be done, why, and how by sponsoring conferences, workshops, and training
  - Implement pilot projects and concrete new initiatives with multiple stakeholders
  - Tie in key policy changes and investment in next five year plan