

Date: 2nd November, 2007

Dear Mr. Prime Minister,

Our success in the knowledge economy hinges to a large extent on upgrading the quality of, and enhancing the access to, education. One of the most effective ways of achieving this would be to stimulate the development and dissemination of quality Open Access (OA) materials and Open Educational Resources (OER) through broadband internet connectivity. This would facilitate easy and widespread access to high quality educational resources and drastically improve the teaching paradigm for all our students. As a part of our consultative process, we constituted a working group of experts, including distinguished members from the academia, government, private sector and users to suggest necessary measures to improve the quality of Open Access in India. A list of the members of the working group is set out in the Annexure. Our consultations with stakeholders have helped identify a few key reform proposals which are elaborated as follows:

1. Support the production of quality content by a select set of Indian institutions. A set of key institutions should be selected and experts representing diverse knowledge areas like agriculture, engineering, medicine, arts, humanities, science, education, etc. should be asked to develop standards-based content, which can be customised to diverse user needs. This should be made available not only to Indian institutions but also for global use. The efforts made through the project of Ministry of Human Resources Development – National Programme on Technology Enhanced Learning (NPTEL) for creation of OER in the areas of Engineering and Technology should be applied in other areas of education also. The content in the repositories should be multi-media, interactive and available in different regional languages. These projects should cover a wide range of subjects mentioned above. To speed up the creation, adaptation, and utilization of OER, it is necessary to launch a ‘National *E-content* and *Curriculum* Initiative’.

2. Leverage global open educational resources. Sustainable development of quality content relevant to India is a difficult and expensive proposition, given the diverse needs of various sectors in our emerging knowledge economy. Emerging international and national initiatives are offering quality educational content as open resources. It is vital for India to leverage these initiatives as they are readily available for adoption and adaptation and to serve as a model for further indigenous content production. We found that there are already 200-300 free knowledge repositories available across the world. The National Knowledge Commission (NKC) is separately disseminating this information through its website.

3. Encourage Open Access. Open access material stimulates research and helps students, teachers and researchers across the world, as discussed in the attached report. Therefore at a policy level, all research articles published by Indian authors receiving substantial government or public funding must be made available under Open Access and should be archived in the standard OA format at least on his/her website. As a next step, a national academic OA portal should be developed. The government should allocate resources to increase the current digitization efforts of books and periodicals which are outside copyright protection. Separate funding should be allocated to develop a new high quality OCR software package so that new and old fonts in many different Indian languages can be converted into ISCI/ASCII code and OA portals and servers could be upgraded regularly. Appropriate financial resources should be earmarked for these endeavours. This will also facilitate machine translation of these valuable resources.

4. Develop network-enabled delivery infrastructure. Along with the national initiative for content development, we must develop a network-enabled delivery infrastructure with a focus on two primary areas: access and delivery. For access to the network, high bandwidth connections across institutions and a national backbone that provides advanced networking capabilities are major requirements. Additionally, connectivity to global networks is essential. Delivery of the OER content would be done through distributed repositories of educational resources.

5. Create a Faculty and Institutional Development Programme. Faculty development and teacher training is the primary area that needs to be addressed in order to realize the benefits of extended access and improved quality through OER. The training programme must develop domain competencies and teaching skills using new educational technologies. The training will also help developers of new OER and in contextualizing existing educational resources. Centres at specific institutions should be identified so that the faculty of these institutions will eventually own, modify, and expand OER repositories. These must be integrated into university curricula and organizational structures. The availability of learning management systems and other quizzing, authoring and collaborating tools should be increased. The evaluation system should be based on the use of the content and the pedagogy in OER.

To implement and monitor the above recommendations urgently and efficiently, the Government of India may designate a suitable organisation or establish a new institution with necessary mandate to achieve the above objectives. This institute may serve the following functions:

- Provide leadership and coordination of network-based open education resources
- Select institutional collaborations for developing content
- Develop adoption support strategies
- Recommend and monitor standards for content development and adoption
- Advise on policy implications vis-à-vis licensing, intellectual property rights, etc.
- Identify and set benchmarks based on global best practices
- Establish relationships with global OA and OER initiatives

We look forward to being engaged in the implementation of these recommendations.

Thank you and warm personal regards,

Sam Pitroda
Chairman
National Knowledge Commission

CC: Sh. Arjun Singh, Minister, Human Resource Development
Dr. Montek Singh Ahluwalia, Deputy Chairman, Planning Commission

Annexure

Members of the NKC Working Group on Open Access and Open Courseware

1. Dr. V Balaji
Head, KMS (Knowledge Management and Sharing) Group
ICRISAT (International Crops Research Institute for the Semi-Arid Tropics)
2. Dr. K Mangala Sunder
Webcourses Coordinator
NPTEL (National Programme on Technology Enhanced Learning)
IIT (Indian Institute of Technology) Madras
3. Dr. Rajan Welukar
Vice Chancellor
Yashwantrao Chavan Maharashtra Open University
4. Dr. HP Dikshit
NBHM Professor
PDPM- Indian Institute of Information Technology
5. Anand Patwardhan
Executive Director
TIFAC (Technology Information Forecasting and Assessment Council)
6. Dr. Subbiah Arunachalam
MS Swaminathan Foundation
7. Dr Vijay Kumar, Co-convener
Asst. Provost and Director of Academic Computing, MIT
8. Dr. AS Kolaskar, Convener
Advisor, National Knowledge Commission