

## The S&T Collaborium Initiative: On-site Training and Projects

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### Abstract

The Science & Technology (S&T) Collaborium initiative focuses on the transfer of knowledge and Open Source technology using the state-of-the art on Information and Communications Technologies (ICT) to Universities, Research Centers, private Corporations and Governments from developing countries to help sustain economic competitiveness and scientific and social progress. It runs thanks to the volunteers experts on ICT working on scientific environments. See <http://www.collaborium.org>

### Overview

On January 1st, 2000 the S&T Collaborium started as a spin-off initiative of the Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, in collaboration with the International Institute of Theoretical and Applied Physics (IITAP), Iowa (USA). Since then, the S&T Collaborium initiative runs thanks to volunteers, a world-wide team of experts on ICT working for and within scientific environments.

On-site Capacity Building via workshops, training and seminars are one of the fundamental goals of the Collaborium to help professionals to transfer knowledge, findings and ideas. During the first year of activities, e.g., in Spring 2000, the IITAP NUMAPS 2000 Workshop based on Linux O.S. was carried on-site at the University of Jos, Nigeria with the help of members of the Collaborium. During November 2000, there was a planned participation within the Andean ITS Workshop organized by the Association of Latin-American Physical Societies, in Lima, Peru. One year later, in 2001, training activities were carried out in Merida, Venezuela as well as in Bucharest, Romania. In 2002 some of our members lectured to a workshop on Networking for Development in the Republic of Benin, co-organized by the S&T Collaborium.

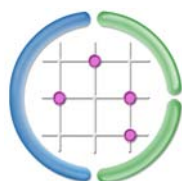


Fig. 1: S&T Collaborium logo

[Most recently, 2-6 June 2003, another training activity was held in Abuja, Nigeria, entitled African Workshop on "Open Source & Web Technologies for Development". This was organized by the Nigerian National Information Technology Development Agency \(NITDA\) in collaboration with the International Centre for Theoretical Physics \(ICTP\) Trieste, Italy and the S&T Collaborium Initiative. The workshop aimed at train-the-trainers in order to build human capacity in Africa in the field of Open Source and Web Technologies to support the networks and to allow Africans to collaborate with other professionals around the world.](#)

[The focus of the workshop included:](#)

- [- The use of Open Source software and applications in order to reduce the costs of](#)

software implementations to optimize the limited bandwidth available in developing countries and adapt applications to local needs.

- The focus was also on supporting computer literacy of the academic community, government departments as well as corporate organizations to understand the potential of the Internet as a tool for spreading information, promoting collaboration and enhancing knowledge transfer from- to- and among- developing countries.

- Advanced Web Technology tools to put and search scientific information on a Multicultural Web.

The Nigerian Workshop had 45 participants comprising 12 females and 33 males drawn from private and public sectors, Academic/Scientific Institutions and other Training Institute as well as NGOs. About 9 NITDA staff also participated in the workshop. The one week workshop was manned by Eight (8) professional volunteer resource persons from the S&T Collaborium in Italy, Ghana and Nigeria.

## On-site Training

A typical on-site workshop consists of theoretical lectures, laboratory sessions and demos with lectures starting from 9.00am to 8.00pm every day. There are usually optional Open Lab sessions (from 18:30 to 20:00) to discuss and analyze deeper some of the topics. The background of the participants selected includes *low-to-medium*-level computer familiarity with Open Sources technologies.

The trainers from scientific and academic institutions are instructed about the *state-of-the-art* of free technologies, new standards, services and developments specifically tailored to the diffusion of scientific contents and the transfer of scientific data using the Internet.

For example, the following topics were covered during the Nigerian workshop both on Open Source and Web Technologies as follows:

- Open Formats and Contents for Information Transfer.
- Free and Open Source Software Concepts.
- Linux Basics and Task.
- Linux (Mandrake) Installations.
- Introduction to Networking, Basic concepts from the theory.
- Overview of IP Routing & Subnetting.
- Introduction to Common Network Protocols & Services.
- Advanced Linux/Unix Commands for Sysadmin, Webmin.
- Security Aspects in Linux: Overview, iptables, firewall.
- Linux (Mandrake 9.1) Installation Exercise.
- www4mail & electronic Journals Delivery Service.
- Service setup and Administration.
- Web Server: Apache, Web management, webalizer, SSI, SSL, https, webDAV.
- Email server, email clients.
- Emailing lists, webmail.
- Open Source in Africa.

- Basic HTML.
- Web programming overview: java servlets, PHP, cgi,-bin.
- Proxy/Caching Server: Squid.
- Web-Database Integration.
- Web portals for e-Learning and e-Commerce.
- Open Source Cybercafe.
- Linux at home/Desktop.
- Overview of wireless networking.
- Backup issues.
- Web streaming.

At the end of the Nigerian workshop, about forty questionnaires were distributed and thirty two returned. The analysis of the questionnaires is as follows:

### Pie Chart Showing Participants Rating/Satisfaction of the Workshop

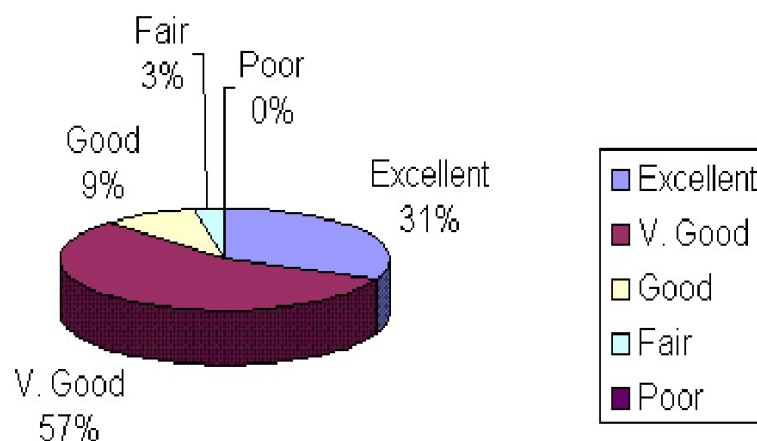


Fig.2: Rating of the African workshop - by the participants.

A set of 3 CDROMs containing the Linux Mandrake 9.1 and the fourth CD containing all the presentations with some other useful materials were also given to all participants at the end of the workshop.

### Science and Technology at the Collaborium

But organization and participation to such these workshops and training schools aren't the only activities performed by the Collaborium team. Development and implementation of electronic Collaboration Tools for Low & Medium Bandwidth Campus Services in conjunction with Research & Development via Demo Projects, Articles and Reports are the greatest promises via the Collaborium for benefiting communities in remote areas. For example The Collaborium Web server offers free services like "*www4mail - Web Navigation & Database Search by E-Mail*". This is a free software which has evolved since 1998 to enable researchers in developing countries, where full access to the Internet is often unavailable or extremely expensive, to access on-line databases and any other Web based information resources they need to carry out advanced research.

The S&T Collaborium gives also emphasis in offering technical expertise, support,

high-end computer training and research, consulting and ICT services for open distance learning, wireless & VSAT communications, networking, scientific and cultural documentation on-line, Internet services, multimedia solutions, data & video conferencing on the desktop, data mining and database interfaces, virtual labs setups and web/cache enabling technologies, among others.

A "Web Portal for Development" has been implemented to join independent sources for the work being done in relation to collaborative research and education efforts world-wide. The portal is constructed of distributed content from anywhere on the net which is cached to the central Collaborium location for access by all. This mechanism provides a manner to create a common portal to related works by collaborating teams from remote regions.

Along with the evaluation, guidelines and training materials relevant to their use in developing country situations, the Collaborium members offers technical assistance and the administration of ad-hoc mailing lists.

## Remarks

The hope of this S&T Collaborium effort is to enlarge over the years to become an important partner in the pursuit of shared North-South and South-South opportunities.

It is due to sponsors and donors that, in large part, will make all new activities and services of Collaborium a reality. Such contributions will help to continuing carrying out the Collaborium mission.