<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>Country report : Sri Lanka.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author(s)</strong></td>
<td>Jayaratne, K. P. S. C.</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>1997</td>
</tr>
<tr>
<td><strong>URL</strong></td>
<td><a href="http://hdl.handle.net/10220/2649">http://hdl.handle.net/10220/2649</a></td>
</tr>
<tr>
<td><strong>Rights</strong></td>
<td></td>
</tr>
</tbody>
</table>
Expert Group Meeting on Scientific and Technological Culture
Singapore, 28-31 May 1997

SRI LANKA - COUNTRY REPORT
by
Dr. K. P. S. C. Jayaratne, Department of Physics, University of Colombo,
Colombo-03, Sri Lanka

Education in Sri Lanka is free to all children up to the university level. Up to the collegiate level (Advance level) even the text books and clothing for school uniforms are given free of charge form the Government. The population of the country is 18 million and the school system has about 4.4 million pupils and 193000 teachers. There are about 10600 schools at present and only about 500 schools have the GCE Advance Level (A/L) science education facilities. Out of that, 217 are belong to the National schools category consisting of all streams viz. science, comers and arts. About 3500 schools taught science as a subject at GCE Ordinary Level (O/L). According to the published data (Ministry of Education School Census, 1991), in 1991 only 5.1% of the schools in Sri Lanka had GCE (A/L) classes with science education facilities and urban-rural disparities in provision are wide at this level with 50.4% of urban schools and only 13.6% of rural schools having such facilities. One major reason for this urban-rural disparity is the lack of qualified applicants in some districts (lack of qualified teachers, insufficient number of students and classes to provide such laboratory facilities). The other main reason is the Central Schools which pioneered secondary education in the rural sector five decades ago, languish through neglect, while the National Schools on which attention was focused in the 1980s are chiefly the urban prestigious schools.

1. The structure of school education

Sri Lankan school system is categorised under number of years spent on education at school level instead of former grade system. For example a pupil is said to be in YEAR 12 when he enters to the GCE (A/L) class. (According to the former system that is called GRADE 11). The structure of school education is as follows:

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>YEAR (GRADE)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>Year 1 - 5 (up to grade 4)</td>
<td>Admission at 5 years +</td>
</tr>
<tr>
<td>Junior Secondary</td>
<td>Year 6 - 8 (grade 5 -7)</td>
<td></td>
</tr>
<tr>
<td>Senior Secondary</td>
<td>Year 9 - 11 (grade 8 - 10)</td>
<td>GCE (O/L); Grade 9 - 10</td>
</tr>
<tr>
<td>Collegiate</td>
<td>Year 12-13 (grade 11 - 12)</td>
<td>GCE (A/L)</td>
</tr>
</tbody>
</table>

The percentage of each age group that is enrolled at the primary, secondary and tertiary levels are 100%, 74% and 4%, respectively.
2. Beginning of the science education at primary level and the approach

The science education begins at Year 4 (i.e. at grade 3)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MODALITY</th>
<th>APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - 5</td>
<td>Beginning science</td>
<td>Investigations</td>
</tr>
<tr>
<td>6 - 11</td>
<td>Integrated science</td>
<td>Local environmental &amp; agricultural studies are included in addition to the simple physics, chemistry, biology and astronomy studies. Agriculture component goes under life skills from year 6-8 and as a separate subject from year 9-11.</td>
</tr>
</tbody>
</table>
| 12 - 13| Subject wise | Physics, Chemistry, Zoology, Botany, Pure Maths, Applied Maths, Agriculture Only 4 subjects are allowed with following subject combinations:
  a. Physics, Chemistry, Applied Maths, Pure Maths
  b. Physics, Chemistry, Zoology, Botany
  c. Chemistry, Zoology, Botany, Agriculture
  d. Physics, Chemistry, Zoology, Mathematics |

3. Beginning of secondary education

The secondary education begins at the age 10 years + and the details are as follows.

a. Proportion of the age cohort (separately for boys and girls):
   No distinction between boys and girls. all starts at age 10+.
   However there are more boys than girls

b. Compulsory sciences included and the level (with age group)
   Basic science of interactive and experimental nature starts at junior secondary level at the age of 11 years+ and it continues up to age 16 years+ (i.e. up to GCE O/L).

c. The age/ level of specialisation begins.
   The specialisation begins (subject wise) at the collegiate level when a student enters into GCE Advance Level at the age of 17+.

d. Option to take mathematics with science subjects
   Up to GCE (O/L) mathematics is compulsory and after that in GCE (A/L) the students have the option to drop mathematics. There are two main streams viz. Bio-science and Physical science at collegiate level. The bio-science students do have no mathematics component. Though, the bio-science students have the option to take mathematics instead of Botany, the fraction goes for this combination is negligible.
e. **Availability of vocational science courses at school level**
   There are no separate vocational courses. However, the Life Skills subject in years 6-8 has certain activities which are of science based.

### 4. School and community

**A. Parents in and out of school**

- Parents are extremely keen for their children to study science. In Sri Lanka science has the first priority followed by comers and arts.
- The parents are also keen for their children to do well in science as it leads to the university education in medicine and engineering.
- When consider the help given by parents for their children to learn science, almost every parent helps by means of sending their children to private tuition classes after the school hours. The competition to enter the university is so high that this tuition classes have now become a problem with no spare time given for students to engage in extra curricular activities.

**B. Local community**

The school links with the local community is very rare and there is very few links between science education in schools with local industry, local agriculture and ways of living etc.

**C. Cultural relevance**

- The content of the science curriculum fits well with the local environment and interests (at least up to GCE Ordinary Level). Though the curriculum was formulated in such a manner, it is not taught in that way at school level as the education is more oriented toward examinations due to the high competition for enter into higher education (Note: only 4% enters into the university).
- The science curriculum can attracts both boys and girls. However, at collegiate level more girls tend to go for bio-science stream leaving the physical science consisting of mathematics.

**D. Political anxieties and movements for change**

Parents are not worried about science education due to political anxieties. The parents, politicians and policy makers all want changes and reforms towards the betterment of science education. However, with Sri Lanka stepping towards a newly industrialised country, more and more students wants to learn comers and management due the large job market open for such sectors.
5. Popularisation of science

(i). Programmes aimed at popularising science amongst masses.

There are several such programmes mainly aimed at popularising science among school children. Some of them are listed below.

a. Activities of the Committee for the Popularisation of Science(CPS) of the Sri Lanka Association for the Advancement of Science(SLAAS).

The CPS, for the past several years, has very successfully concentrated on the less privileged sections of the community, particularly outstation school children, in the quest to disseminate scientific knowledge. To achieve its objective, the CPS organises annually the following activities: Schools Science day Programmes (One day programme at district level consists of a science quiz contest, lectures and discussions on science related topics by experts in the field, and an oratorical contest.), Schools Nature Diaries Programme (Over a period of 3-4 months, students record the various changes in the flora and fauna of the selected segment, animal behaviour or astronomy related project. Their observations are maintained in a diary with diagrams, pictures and explanations. The best projects will be selected by visiting scientists and awards are given at the year end.), popular Science lectures, Science Quiz Programmes over TV/Radio, Publication of a science magazine, Special educational programmes for employers and managers of institutions, conducting of press conferences/interviews, Awards for science reporting/communication, and organising educational tours for schools children.

b. Media Resource Service(MRS)

A Media Resource Service was formed recently attached to the Sri Lanka Association for the Advancement of Science with the assistance of the UNDP and SIPI( Scientists Institute for Public Information) of USA in 1994. This was done as we have identified the inadequate coverage of S & T in the mass media as one of the key reasons behind the lower levels of scientific literacy. The lack of good communication between scientists and media personnel perhaps may have contributed towards the situation. The MRS is basically consisting of a computer data base with information about almost all scientists in Sri Lanka. When a journalist wants to quarry about something or when scientists want to inform the public about their findings, they can contact the Director/MRS over the phone and MRS will find the most suitable persons and will arrange the contact. Conducting press conferences on timely issues (e.g. appearance of Comet Hale Bopp) is another function of the MRS. The MRS is found to be very popular among the journalists.

c. Outreach programme on popularisation of astronomy

The above programme was initiated by the Arthur C. Clarke Centre for Modern technologies, Katubedda, Moratuwa where the biggest telescope (45 cm reflector) in Sri Lanka is located. Considering the fact that astronomy is a subject consisting of all
the sciences such as physics, chemistry, zoology, botany and that the night sky is the best laboratory that anybody can easily access for exploration at his/her wish, this project was started in January, 1997. The project consists of establishing astronomical societies at school level, linking them to a parent society called ACCMT Schools Astronomical Society, conducting night observational camps at school level, lectures and video presentations and printing of an astronomical magazine once in every two months for all island circulation. It was found that there is a tremendous interest among students to study astronomy and thereby the project has created young population an interest towards the science and technology.

d. 'Mobile Science and Technology Exhibition' housed in four railway carriages
This is a unique project originated by SLAAS in association with the Ministry of Science, Technology and Human Resources Development to take Science and Technology to the rural areas as well as urban areas. The Bank of Ceylon sponsors and run the exhibition. The exhibits are of an interactive nature similar to an exploratorium requiring the visitors to experiment and learn the specific principles, thus invoking active participation. The exhibition consists of 64 hands-on type exhibits and it stops at every railway station for two weeks. It is extremely popular among the school children and the public with more than 1000 visitors per day. This mobile exhibition with exploratorium type exhibits would probably be the first of its kind in the world and would complement the Science Centre project of the SLAAS where a permanent exploratorium would be set up.

(ii). Programmes on popularising science among women.

There are no such specific programmes aimed only at women other than community medicine and family planning programmes organised by various NGOs at smaller scale.

(iii). Non-formal science education programmes

There are several of small scale non-formal science education programmes. The Institute of Workers Education of the University of Colombo is having a community development programme involving both the men and women, where a part of it concentrates on non-formal science education aimed at health care and use of raw materials available in different areas for small scale industries/handicraft etc. However, this programme concentrate only about two under developed villages in remote areas per year, and therefore the access is limited.
The CPS of the SLAAS is conducting lectures for farmers all over the country on topics such as safe use of pesticides.
The TV and radio is the best media to reach the remote areas and there are some programmes on informal science education such as Vidyalokaya half hour weekly radio programme of SLBC where two scientists will be interviewed by another scientist on various topics of interest. These programmes are very popular among the public.

*** *** *** ***