

# Memorandum requesting Freedom of Knowledge and usage of Free Software at CSIR

“Our scientists should become civic scientists and contribute towards societal transformation. Civic means concerning or affecting the community or the people. In the new capacity, scientists step beyond their campuses, laboratories, ministries and institutes and move into the centre of their communities to engage in active dialogue and action with their fellow citizens. They should ask themselves a question, how their knowledge can make an impact on the common man’s life. Our civil servants and others in the service sector should become fearlessly people-friendly, have a positive attitude, and provide responsive, proactive, transparent and unbiased administration and service to the billion people.”

- from the Address to the Nation by the President of India  
Dr. A.P.J. Abdul Kalam on the eve of the 55th Republic Day, 2004

The CSIR does valuable research, and its output is of direct use to our industries, academic community and research scholars. This memorandum is to request CSIR to adopt using free software, and its philosophy, enabling greater freedom in accessing the research works of CSIR, to ensure affluence for our people and greater profits and glory for our country.

## 1 Freedom of Knowledge

The current policy at CSIR centres around publishing research findings in journals that allow access only to subscribers. This memorandum seeks to reverse this policy and enable free access to the research generated through the institutes under the CSIR. This is particularly relevant today when there is a strong movement towards open access. Even private commercial publishers have started subscribing to the open access paradigm. In the case of the CSIR, there are compelling reasons, for instance:

1. The CSIR is funded by the Government, and therefore, its research findings and publications ought to be made freely and openly available to the public, for free access by all citizens, including industries and the academic community.
2. Duplication of research would be greatly avoided when the research findings are made public and open, and further, advancement of science is possible only when the academic community has free access to the research publications.
3. Unlike scarce conserved resources like land or other material wealth, software and all kinds of knowledge can be freely shared without restrictions. Artificial bounds on knowledge only pamper the greed of a few individuals at the cost of the majority. Making the publications free (in the sense of freedom) would hardly eat into the turnover in the form of subscriptions since most people who read the journals regularly would anyway prefer to read a hard copy. On the other hand, this would permit people who are not regular readers of a particular journal to get access to specific papers in that journal that they may be interested in. Though this may reduce the income of CSIR through subscriptions or licensing fees, the society as a whole would benefit and more than compensate for the loss of revenue of the CSIR.

4. Sharing of knowledge and wealth is inherent in our culture and traditions as is evident from the evolution of vedic wisdom, mathematics, grammar, epistemology, and knowledge touching every part of our lives that became possible because of active debates on the freely accessible texts and works of scholars. Copyrights and patents put brakes on the growth of our veritable base of knowledge and wisdom, and easing access to research resources would spur development to greater heights. In the free software community, tools evolve through debates, and bad ideas are rejected, leaving behind solid and robust code. Our own rich traditions, and the success of the free software movement prove and establish the scientific superiority of freely sharing information. As long as the patent regime exists, traditional Indian wisdom may be protected from abuse but ought to remain free as ever for all to know, share, use and develop.
5. Opening up a free access to science and research activities would strengthen our roots and help us grow stonger. Our knowledge of science needs to be constantly updated and made available to all, to infuse scientific attitude and aptitude in all. Dr. Digumarti Bhaskara Rao has observed:

“The study of science imparts training in scientific method and develops scientific attitude and scientific aptitude in the learners. These qualities, viz., scientific attitude and scientific aptitude, are the major aspect to qualify an individual to live as truly efficient citizen in the present day scientific society.” (Ref. 3)

Therefore, please ensure that all have the freedom to freely access and use the valuable research output from CSIR, which is required to ensure a free society based on science and knowledge.

## **2 Software Freedom**

In the early days of computers, users used to write programs for whatever computation they wanted done. And they used to share with their colleagues the programs they had written. Writing software was a community activity. As the application of computers increased, various groups started realising the potential of software and the benefit they have in controlling the software. These groups started copyrighting software and keeping the ‘source code’ secret. Many programmers felt that this went against their basic community ethics and against the interests of society. It was as a consequence of this that people like Richard M. Stallman got together and started a new movement. The objective of the movement was to create software that could be copied, modified and redistributed by users, all the time ensuring that the rights were passed on to subsequent users.

Due to efforts of thousands of people around the world we now have free software (Ref 1) which we can share. Such software is often easier to use, highly stable and secure. Today many organisations the world over, including commercial establishments, are moving to free software. Free Software means software that gives the user freedom to use, to study, to modify and to distribute (Ref. 1). Here, the word “free” stands for freedom. We could more appropriately call it ‘Swatantra Software’ in Indian languages.

The research institutes in India have been largely using proprietary software including operating systems, office tools and applications for scientific data analysis and presentation. While such software has been widely available and has been popular among most users, the impact on society of using such software that denied the users freedom, was not well recognised. The work done by Richard Stallman and others and the Free Software Foundation have helped to show clearly how society is kept dependent and divided by the proprietary software paradigm. In addition,



considerable amounts are spent on purchasing licences for using such software. Today, the cost of an operating system and an office suite of the popular brand is equivalent to that of a modern computer.

It therefore becomes imperative that our society looks for alternatives to such software that denies us freedom, keeps us dependent and pumps out our money. Today, Free Software is a very viable alternative that provides applications for almost all kinds of purposes – office suites, Internet browsers, email clients, development environments for programmers, editing applications for images, sound, and movies, library automation systems and accounting packages. Most of these applications are at least as good as the proprietary ones available in the market. Moreover, free software is known to be ethically and technologically better than available proprietary softwares. It is time that our society reject proprietary software and start using free software. And it is only appropriate that our science and technology establishment take lead in this matter.

Free software has several strengths (Ref. 2), and its adoption would aid CSIR in many ways, as follows:

1. **Freedom:** Freedom coming with free software empowers us. We are free to share the software with others for commercial or non commercial purposes. We are not denied the right to understand how the software works. We are able to make changes to suit our needs. This freedom enables local development of local solutions. Our research organisations will not be restricted by any proprietary interest groups. This philosophy goes well with the ideals of any scientific research, the spirit of understanding. It is also important to note that most of the free software comes from academic institutions where the aim is to further human knowledge base.
2. **Cost advantage:** As there is no proprietary interest in free software, they can be obtained even for zero cost. Free software is part of commons of the humanity. This is of great advantage to research organisations around the world. Research organisations can save their meagre resources by using free software. CSIR will be able to better utilise their funds this way.
3. **Public Standards:** Free software predominantly uses internationally accepted free standards such as XML and  $\text{\LaTeX}$  that are public and not owned by any private entities. Currently, at CSIR, research submissions are to be made only in Microsoft Word document format. Being a proprietary format, other word processors are unable to exactly recreate the document. Thus users are, in a way, forced to purchase and use this proprietary software. This, in a way, amounts to promoting the software of that particular company. If a format like that of Open Office (which is an open format) is used, that would give freedom to users. Moreover, any user can freely install this office suite if (s)he needs to open documents created using the application or needs to create documents in that format.
4. **Security:** Free software is robust and secure, because the system configuration and software can be modified only by users authorised by the administrator and not anyone else. Programs that are received through email cannot run automatically, which makes viruses virtually non-existent in the free software world.
5. **Stability:** Free software is inherently very stable, and system crashes are virtually unheard of. The web servers that have set records for longest continuous runs without rebooting are generally based on Free Software. This stability means lower lost working time and more working comfort, which translates into greater productivity.

Therefore, using free software and its philosophy at CSIR would pave the way for stronger scientific research and development and substantial progress for all of us.



We therefore request that:

1. CSIR adopt a policy of making available in the public domain all the knowledge the institutes under the Council generate through their research. This can be done by placing their research publications and findings on the Internet for free access and download by anyone. The Council should declare this as a policy and ensure that the journals where research results are published agree to placing these papers on the website of the Council or the respective institute. The CSIR should also promote open access journals such as PLoS Biology, which permit anyone to download articles published in them. Through these measures, it would be possible to create a scientific culture in which knowledge would be freely available and will not be restricted.
2. CSIR should take the initiative to develop a model for public patents so that the benefit of patents will be available to everyone. This is particularly important in fields like medicine, where a demand for public patents has been raised even in a country like the USA (Ref. 4).
3. All software developed in the institutes under the Council should be designed for use in a free operating system like GNU/Linux and should be released under the GNU General Public Licence, or a similar free software licence, so that the benefits from the software are available to everyone.
4. All institutes under the CSIR move all their computers from proprietary operating systems to a free operating system like GNU/Linux in a specified time frame. The Council should provide leadership and support for this and, if necessary, provide help for training employees in the free operating system and applications.
5. Restrictions should be brought on the purchase of proprietary software, and in sanctioning such software under projects supported by the CSIR. Such restrictions may be brought gradually, over a period of time, so that users get the time to adjust themselves to using Free Software. Restrictions may be imposed in stages, starting with simple applications like office suites.
6. CSIR should accept material for publications in non-proprietary open formats like XML, plain text and LaTeX. Open Office, a powerful Free office suite that has versions that run in GNU/Linux, MS Windows and other operating systems, could be adopted as the standard format for documents, spreadsheets and presentations.
7. CSIR should take the initiative to generate, with assistance from scientists in research centres under it and teachers in university departments and colleges in India, Free textbooks and study material that can be freely downloaded from a website, modified and distributed. It may be pointed out here that institutions like the Massachusetts Institute of Technology have already put on their website much of their course material.

The Free Software Foundation will always be willing and happy to offer its assistance to the CSIR in using free software, and in making knowledge freely available through the World Wide Web.



## **References:**

- (1) "Free as in Freedom" <http://www.gnu.org/philosophy>
- (2) "Why Free Software?" <http://www.hbcse.tifr.res.in/Data/Objects/freeSW>
- (3) Digumarti Bhaskara Rao, in Prof. Marlow Ediger, Editor, *Scientific Attitude vis-a-vis Scientific Aptitude*, 1996, Discovery Publishing House, New Delhi-110002, p.8
- (4) Dennis J. Kucinich, The Case for Public Patents, *The Nation*, July 7, 2003.

