THE UNION BUDGET & SCIENCE

It is again that time of the year when the excitement surrounding the Union Budget is building up. Newspapers regularly carry pictures of the Finance Minister meeting delegations of industrialists, economists and other worthies for suggestions to be incorporated (or not incorporated as the case may be!) in the Budget. The excitement keeps increasing till the last day of February when the Finance Minister presents the Budget to the Lok Sabha. The stock market watches in anticipation, the captains of the industry try and guess the effect of this all important policy announcement on their businesses and of course, the next day's newspapers carry umpteen commentaries on this statement of income and expenditure of the Central Government. All in all, the Budget is certainly an event of great significance for the country's economy, unmatched in its importance except by the arrival of the South West monsoon.

The Budget document is not merely an accounting device; it is indicative of the policies of the government. Concessions, increased budgetary allocations, or in some cases a freezing of allocations are all supposedly part of the larger vision which the government has for the nation. Since in our country, contrary to the developed nations, public investment crowds in private investment, the level of investment and consequently activity in any field is in some sense determined by the budgetary allocation.

The importance of the Budget is more so for areas where the government is the only player. These include the all important Science and Technology (S&T) sector, where there is almost no private activity. The total allocations for S&T are traditionally divided into six heads: Department of Science and Technology (DST), Department of Scientific and Industrial Research(DSIR), Dept. Of Bio-technology (DBT), Dept. Of Atomic Energy (DAE), Dept. Of Electronics (DOE) and the Dept. Of Space. Virtually all civilian S&T activity in the country is covered by these agencies. Over and above all these, there is the Defence Research and Development Organization (DRDO) which caters to the Defence related S&T. These agencies fund research projects in either institutes run by themselves (the CSIR laboratories run by the DSIR) or give money to projects in other institutions (DST funding research projects in universities and technical institutions).

Let us look at some figures to get an idea of the levels of investments we are talking about (all figures for the year 1998-99): The total expenditure of the Ministries and the Departments of the Govt. Of India in the 1998-99 Budget was Rs. 268107.05 crores. The GDP of the country in the same year was estimated to be Rs. 1612911 crores . Looking at the head Science and Technology, we see that for DST, DSIR, DBT and DOE , the allocation was Rs. 1591.7 crores, while for Atomic Energy it was Rs. 2608 crores and the Space program, Rs. 1602 crores. The total allocation for S&T under these heads (including Rs. 107 crores for ocean development) works out to Rs. 5910 crores or about 0.3% of the GDP (2% of the total expenditure) . Compare this with a spending of 2.9% of the GDP on Defence. Even out of this paltry spending on S&T, the bulk (64%) is taken up by Atomic Energy and Space departments. In fact, in every year except 1997-98, these two departments have been taking up more than 60% of the S&T funding.

First of all, it is clear that for a country of India's size, the amount of money spent on S&T is very small. We certainly need increased allocations in the S&T budget. But once this is granted, we need to ask a more important question, i.e. what the money that has been spent on S&T achieved? Given that the State has been promoting S&T since independence, what do we have to show for ourselves in scientific or technological progress? Yes, we do have a large infrastructure in the form of scientific laboratories, research institutes and the Atomic Energy and Space setups which employ hundreds of thousands of S&T workers. We also have the bomb now as well as launch vehicle for it. But can we say that the level of scientific competence in the country is concomitant with the resources spent on it?

This is not just a matter of nit-picking; a truthful answer to this question will have a profound effect on future policy and funding. In my opinion, the huge behemoth that we have created in terms of

scientific infrastructure is not worth the money spent on it. There are many reasons for this: a huge demotivated class of scientific workers, a top heavy scientific bureaucracy and so on. But there is another fundamental reason for the malaise .

This is the complete isolation of the S&T laboratories from the other institutions in the country. In the case of the Atomic Energy and Space establishments, this could be justified. But why on earth is there such little interaction between the CSIR laboratories and the universities? The state of science teaching in the Universities is pathetic. Poor infrastructure, lack of motivation on the part of students and teachers are all part of the science teaching scenario in the universities. Since the universities provide the human resources for S&T institutions, it follows that the quality of science teaching in the country has a direct effect on research. An increased interaction between the CSIR labs and the universities will have a beneficial effect on both.

The point being made is simple: increasing the S&T funding for the research institutions is not going to achieve the desired results if the universities are going to be starved for funding. The total budgetary allocation for education was Rs. 7046 crores. This includes primary, secondary and tertiary sectors. I do not have disaggregated figures, but it is a safe bet that a large fraction of this money is spent on salaries and administration, leaving little for improvement and building of new infrastructure. Unless the government recognizes the fact that a qualitative improvement in the state of teaching institutions is needed urgently, scientific research will suffer. Of course, one could argue that given the state of primary education in the country, increasing spending on the tertiary sector is criminal. This is certainly true. I think, what is needed is a major shift in funding towards primary and secondary education and an increase in the university funding . But a massive funding increase by itself will not necessarily achieve the goals. What is needed is an identification of the problem areas and targeted funding. A major surgery is needed by the education and S&T sectors. Without it, not much is going to be achieved concretely, except catchy slogans like JAI VIGYAN.