Research Methodology
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Lecture - 66
Writing Grant Proposals Part 02

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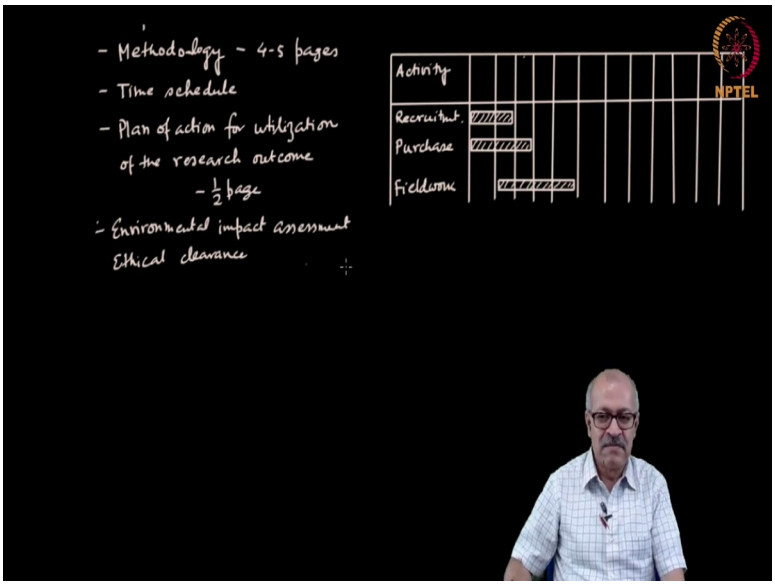

You have to write the plan for utilization. Plan of action for utilization of the research outcome. Now, you have stated earlier what are the deliverables, what you will ultimately deliver. Now, the deliverable may be the development of a specific material or a specific process or it could be obtaining knowledge about a particular question.

Say, I will survey that area of the sky using a telescope and I will locate the Cepheid variables, a kind of variable stars. So that, ultimately you will produce a list of the Cepheid variables in that part of the sky. So, it is a deliverable. Other people can use that. So, the result, deliverable, can be in the form of research papers, in the form of a material or a process, or a new invention, whatever.

But, ultimately what you deliver that has to be utilized. So, what is the plan of action for utilization -- that has to be stated. If it is simply to write paper that has to be stated. If it is an industrially applicable invention that you are looking at, then which industries might be interested? You might say that “I will contact these industries for commercialization of that process or product”.

If it is a drug that you are trying to propose, then it has to go through various processes of drug testing and naturally you will have to contact the appropriate agencies. So, it is not a very long thing; it is about half a page. The time schedule, this chart, it is about a page.

Then some projects may have some environmental impact. For example, if your project envisages using some radioactive materials then it might have environmental impact. So, you have to write that carefully. In some cases, you might need ethical clearance. If your project involves dealing with animals or if it involves having such human subjects then you will need an ethical clearance.

So, whether or not the project is such that it requires a environmental clearance or an ethical clearance, that has to be stated here. Because when the project is approved, the money will be released only when these clearances are obtained. So, you have to be very specific as to whether the project needs this kind of clearances.

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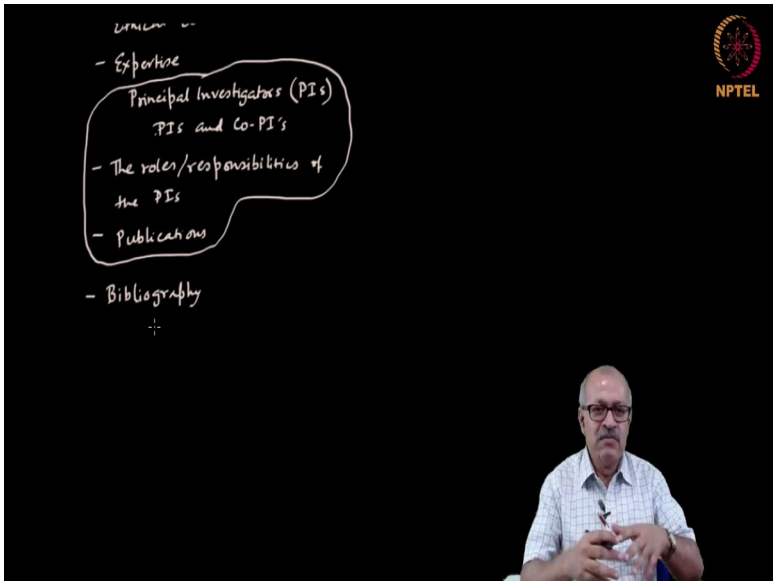

As I said, you have to convince the reviewers that you have the expertise, the group has the expertise to undertake this project. So, you have to write the expertise. Now, the person who is proposing it might not be alone. It might be a group that is proposing a project. So, there is a number of people and they are called the principal investigators, in short the PIs everybody who are the investigators are called PIs.

So, it is not that somebody is a principal investigator the others are only investigators. Not like that. Everybody is called the PIs and normally the leading person is called the principal investigator, PI, and the other people are called the co-principal investigators co-PIs, So, PIs and co-PIs.

Every PI will have some expertise. A project is well conducted if the PIs have complementary expertise: I am expert in this area, you are expert in that area, and both are needed in order to get this project to success. So, we put our expertise together in order to execute the project. In that case you have to specifically write what is PI number 1's expertise, what is the PI number 2's expertise and so on and so forth, so that the reviewer can clearly see that, put together, the group has the expertise to undertake the project.

The expertise also should include the biodata of the PIs. It should include the list of publication of the PIs, from which the reviewers will get an idea of what the earlier research carried out by the individual PIs, which will talk about their expertise.

So, these are the components of the 'expertise'. And you also have to say the roles to be played by or responsibilities of all the PIs. Who will do what? That way, you specify that this is my expertise and I will do this. Somebody will go to the field, collect the samples. Somebody will do the analysis; he is expert in doing that analysis. That way ultimately the whole result will be something that is a proper deliverable. Here you also have to write the publications of each PI. All these are parts of the item 'expertise', something that convinces the reviewers that you have the expertise.

After that, you have to state the bibliography because you have done a literature survey. You have to state the references.

Now, you might have other ongoing projects, you might have submitted other project proposals to other funding agencies and the funding agency to which you are now submitting the project proposal -- that agency would like to know how burdened are you with various project proposals.

Are you chewing more than you can swallow, or are you properly even out? This is something that is also seen. Therefore, you have to write the list of ongoing projects and proposals submitted. This is for all the investigators.

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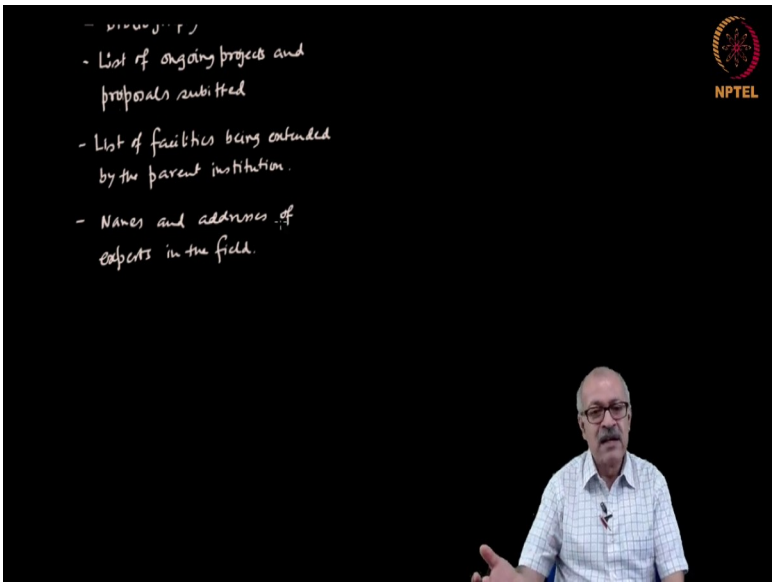

You have to assume that the reviewers are knowledgeable enough to figure out if one of the investigators has a lot of projects, but another does not. It will be assumed that the other person will carry the bull-work of the project. So, that is possible. But you have to state the list of ongoing projects as well as the ones that are now submitted to other funding agencies or maybe even this funding agency, that is to be clearly specified.

Now, the agency will assume that the parent institution will make certain facilities available. Which facilities exist in the parent institution -- that has to be specified. This item is ‘list of facilities being extended by parent institution’. For example, if the project requires additional space to house the equipment that will come from the project. Then the institute has to commit to providing that space. The institute has to provide electricity, has to provide air conditioning, has to provide computational facilities and things like that.

Apart from that, it may be that the project requires some high-end equipment and that equipment does exist already in the institution. You are asking for some other equipment, but you will need the use of another equipment that exists in the institution. You have to list that: that this equipment does exist in my institution and I will get access to that.

Finally, you have to write the names and addresses of experts in the field. They may or may not be the reviewers. The agency might choose to have them as reviewers, might independently choose the reviewers. But, you have to specify who are the people

knowledgeable in that field from within India. These are all written in the ‘other technical details’ part.

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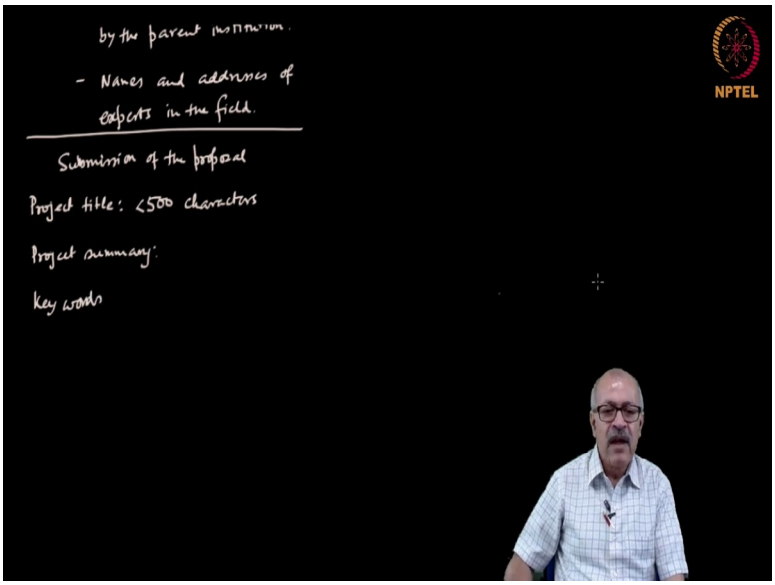

Now, when you submit the proposal, there are certain things that you will have to fill in the text boxes. The most important is the project title. What are you trying to do, just in a few words. The way you have learnt how to give a title to a paper, in a similar way you have to also give the title to a project. It is to be brief, if possible catchy, and it should convey the essence of the problem that we are trying to tackle in a maximum of 500 characters. It has to be less than 500 characters.

Then there has to be a summary. Basically what you have written in the project details: its summary. What are you trying to do, what will it take, what actually will you do and things like that.

Then there has to be the keywords. A few keywords using which the agency might search for other people who are working in the same field. So, you have to provide the keywords of the problem that you are attacking.

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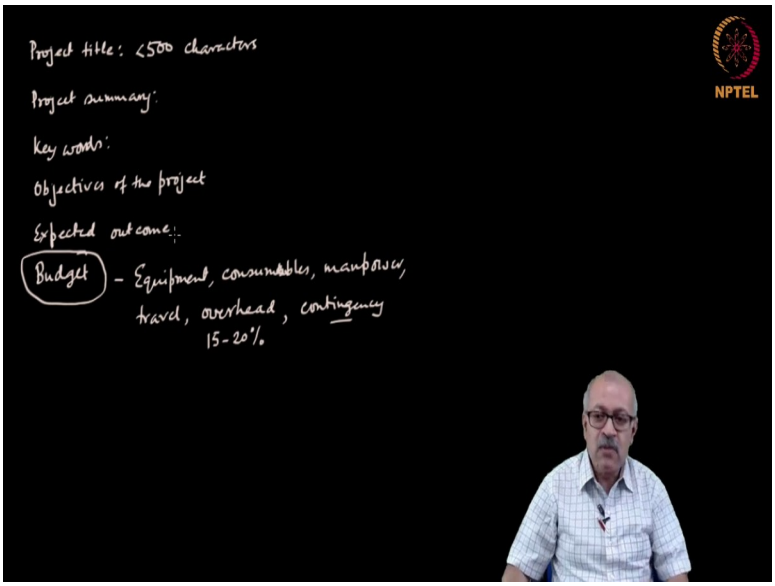

Then you have to write the objectives of the project. In this part whatever you submit are to be written in the text boxes and it will specify how long can it be or within what length should it be. Objectives of the project: normally it is very briefly stated, about 1500 words or something like that.

You do not need to give the technical details because that is already given in the 'Other technical details' PDF file. Here you only have to briefly state what you are trying to achieve and the expected outcome, what are the deliverables of the project. So, these are the things that have to be filled up in the text boxes.

Finally, the budget. This is a very important component of the project proposal because you have to estimate what can be the expenditures in equipment, the consumables, the manpower, etc. So, that contains the following things: equipment, consumables, manpower, travel, overhead, contingency etc. Now, the estimated expenditure on the equipment should not be vaguely stated. You have to actually get the budgetary quotations from prospective suppliers, and based on that, you have to estimate the cost of the equipment.

Consumables: Similarly you have to estimate how much consumables or reagents and other things you will need and accordingly you have to budget it. So, these two budgetary estimates should be very carefully specified.

There are certain things that you cannot really estimate: unforeseen expenditures that is not large, but some amount can be kept for that and that comes under the ‘Contingency’ head.

Manpower: You will be able to either recruit JRFs (junior research fellows) or the senior research fellows. Normally we recruit junior research fellows so that they can work for some time and after 2 years they become senior research fellows. Accordingly their salaries have to be calculated and manpower budget has to take that into account.

Travel: You are not allowed to travel abroad with any project money and so, this only contains the travel within the country, maybe one airfare per year or something like that; that you have to specify.

Overhead is taken by the institute because the institute is providing some facilities and for that the institute does charge. That normally varies from institute to institute, but normally it is 15 to 20 percent of the total project value. So, this is taken by the institute as ‘Institute overhead’.

All that put together is the budget. You have to specify the budget and you have to defend the budget. Remember the people sitting in the Board will be knowledgeable in that field, they would know that each equipment can do what and whether what you want to do can be done by the equipment that you want to buy or not.

Every equipment has some optional attachments. Whether you need certain optional attachments in order to do what you want to do, or whether you really know what you need to do or not -- that they will be able to check. So, these have to be very carefully specified including the optional attachments.

So, after you submit the project, this whole thing along with that PDF file has to be uploaded. So, that is a submission.

It goes to the reviewers. If you are shortlisted, you are called for defending the project. You defend it, get the money, then the project starts. When the project starts, you have to do what you have committed to do: recruiting the manpower, getting the equipment, setting up the lab, getting the consumables, starting the work, doing the research, writing the papers -- all that has to be done. But after every year you have to submit a report.

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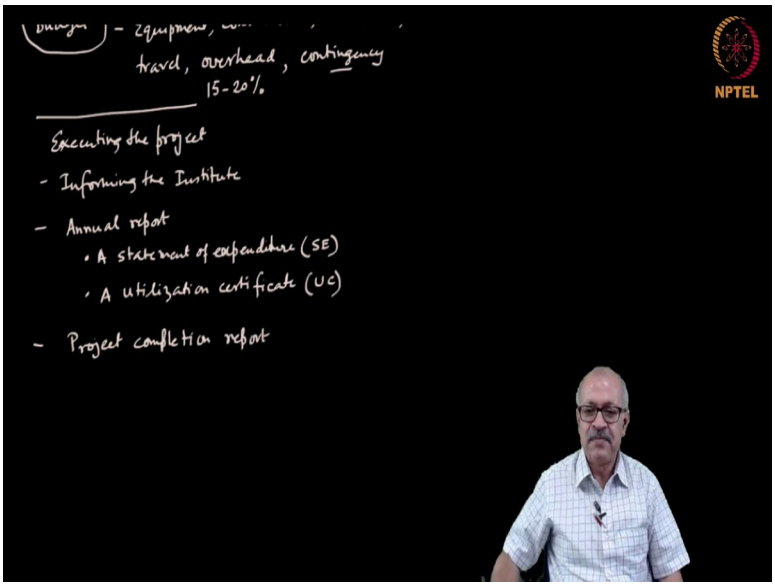

Executing the project involves informing the Institute first, Institute or the University. They will then assign a project number, they will keep the accounts of the project. So, naturally you have to inform about the project; a project number is assigned, the project formally starts on a particular date and then you have to do the things that you wanted to do.

Every year you have to submit the annual report: What has been done this year, what have been the outcomes of this year, that has to be done. Every agency has a format for the annual report you have to submit, but there are two things that are common to all agencies. Along with the technical report, you have to submit a ‘statement of expenditure’, this is called SE, and a utilization certificate (UC). A certificate signed by you and the institutional head this is called UC.

Unless these two are submitted every year, the next year’s money will not be granted. So, normally the money comes every year. First year you execute whatever you wanted to do; on that basis you submit the SE and UC and the technical report, and on that basis the second year’s money comes, on that basis the third year’s money comes and so on and so forth.

Finally, you have to submit a project completion report. Normally, projects are evaluated. The progress of the project is evaluated periodically by the funding agency. Sometimes you will be called to defend what has been done. And finally, after the

project completion report is submitted, you will have to defend that you have delivered what was the deliverable from the project.

So, this is how a project is done and finally, on the basis of the project completion report you are marked. Whether you performed excellently or you were just satisfactory or you under-performed. Whatever you wanted to do, whatever you have committed to do, you did not do, so the money was not well spent. If the funding agency sees that the money that they gave you was well spent, that builds the reputation of the scientist.

Whatever score you get on the basis of the project completion report, that will remain with you and if it is very good, it is excellent, then the probability of getting the next project is high. If you have not performed well in one project, you are practically doomed. It means that you will not get the second project most probably, unless you make a very serious attempt to improve yourself.

So, this is how a scientist builds reputation by writing project proposals, executing project proposals in a way that will be seen as money well spent by the funding agency. That way one builds reputation and then it becomes very easy to get projects. If you do not perform well in the first few projects then your scientific reputation suffers and as a result your possibility of getting projects in the future also suffers.

This is how we actually do our research by getting money and by spending the money to do our research.