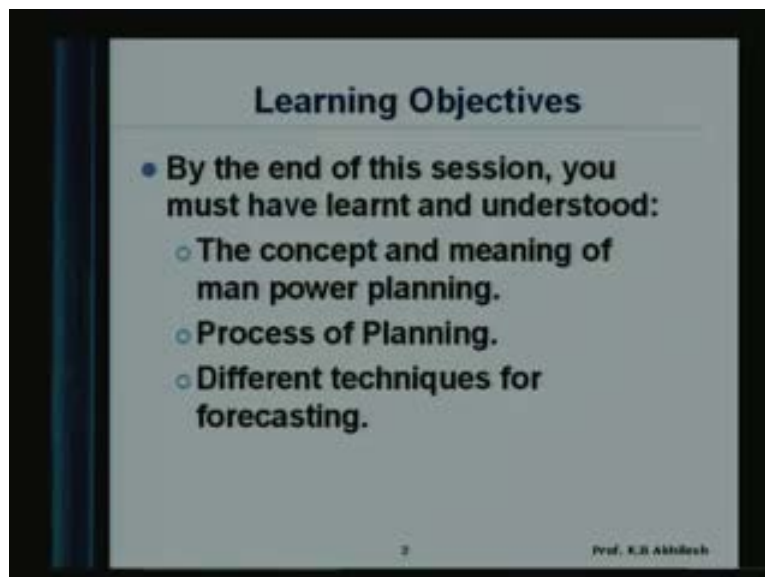


Concept of Management and Evolution of Management thought
Prof. K. B. Akhilesh
Department of Management Studies
Indian Institute of Science, Bangalore

Lecture - 19
Manpower Planning

Hello, in our last lecture we were trying to describe the major human resource function the scope of personnel management and also the definition of personnel management, various activities what one can include under the personnel management. Today, we will expand on manpower planning, as you know manpower planning is one of the important activities of human resource management, personnel management understanding the requirements of the organization, understanding the future task and defining a plan of action to meet those expectations has been a major task of personnel management in the 80's and the 90's issues were coming around technology but in the late, you know the particularly the last 10, 15 years, the issues are coming around attrition, aspirations, changing life styles of people, issues of retention.

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Learning Objectives

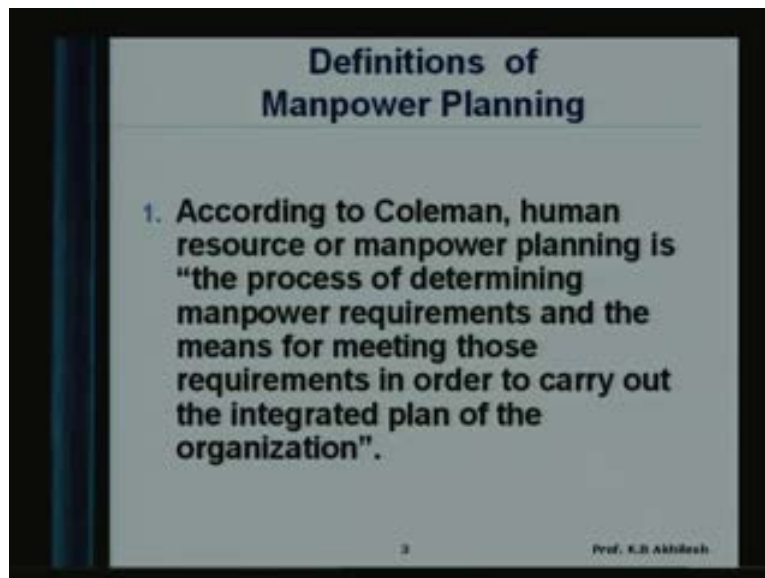
- **By the end of this session, you must have learnt and understood:**
 - **The concept and meaning of man power planning.**
 - **Process of Planning.**
 - **Different techniques for forecasting.**

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So let us try to understand what is this man power planning and how can we go about it. Man power planning has been defined by different people but in the nutshell. Let us understand what

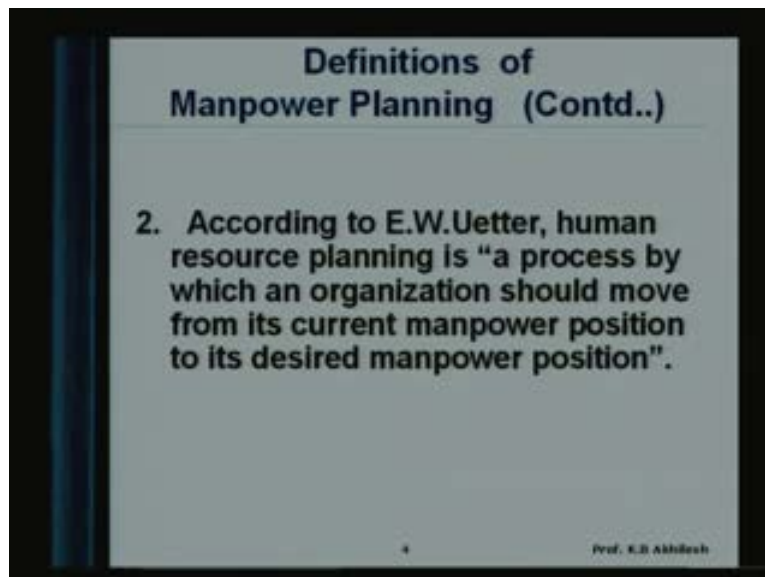
is that they are trying to talk about and what is that they are trying to explain but by the end of this session, you must have learnt and understood the following. The concept and meaning of manpower planning the process of planning and different techniques for forecasting. We have already talked about little bit about planning and forecasting in my previous lecture, so that I will limit the scope of planning and forecasting with respect to human resource management.

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So the the the major definitions not that every definition is useful or acceptable but look at some of these definitions. According to Coleman human resource or manpower planning is the process of determining manpower requirements and the means of meeting those requirements in order to carry out the integrated plan of the organization that is we are thinking manpower planning in terms of a demand plan and a supply plan, demand of what is required by the organization and a means to meet those expectation through a supply plan and similarly, if you see the according to EW Uetter human resource planning is defined as a process by which an organization should move from the current man power position to its desired man power position both in terms of the quantity and quality.

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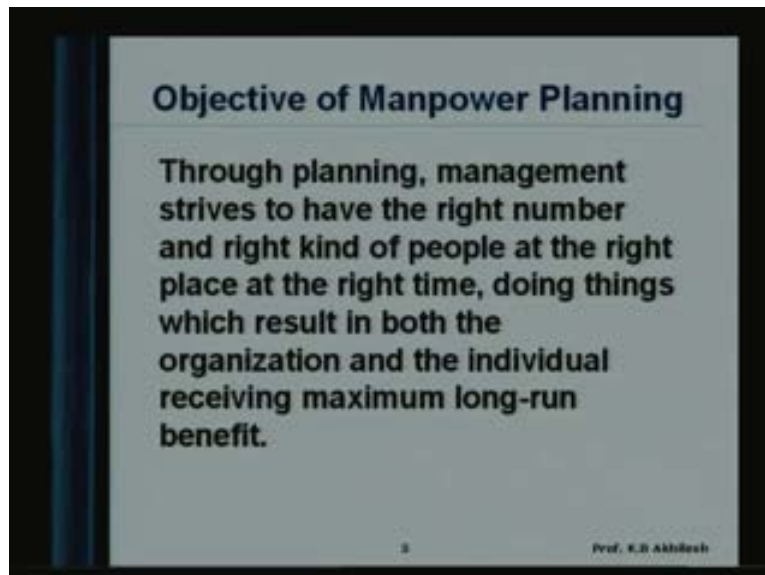


Definitions of Manpower Planning (Contd.)

2. According to E.W.Uetter, human resource planning is "a process by which an organization should move from its current manpower position to its desired manpower position".

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Objective of Manpower Planning

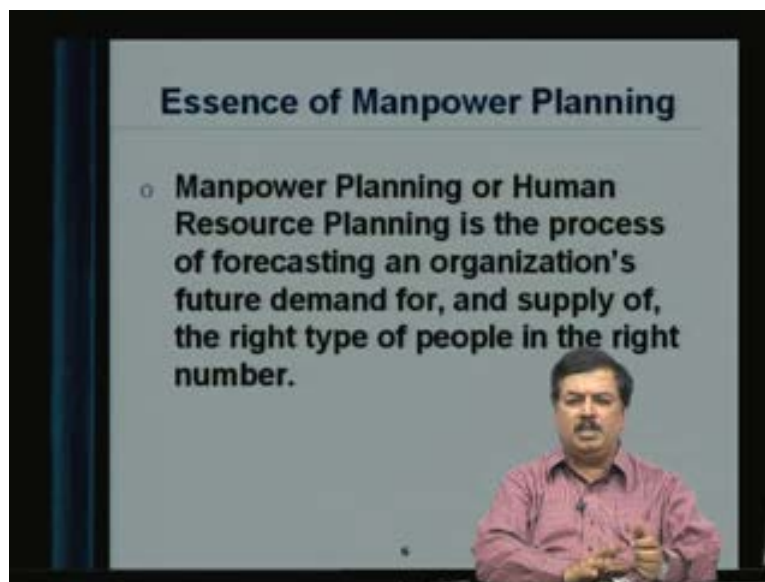
Through planning, management strives to have the right number and right kind of people at the right place at the right time, doing things which result in both the organization and the individual receiving maximum long-run benefit.

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So the planning is considered as a kind of a process that means you continuously make changes corrections within the organizational activities and practices and you meet the future requirements. So systematically you evolve the required focus. So in other words, one is a matching process between demand and the supply, the second one is an evolving process. So

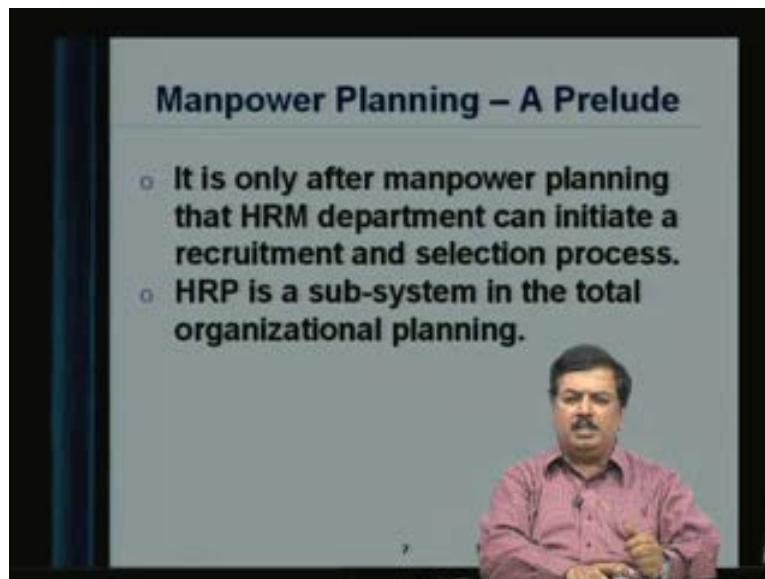
through planning management strives to have the right number and the right kind of people at the right place and the right time doing things which result in both the organization and the individual receiving maximum long term benefit. I think this is the essence of manpower planning, the right number, the right kind of people and also they are at the right place and they are also available at the right time and they do the things which result in which result in the maximum gain for the organization as well as for the individual.

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So man power planning is essentially the process of forecasting an organization's future demand and making sure there is a supply of the right type of people and also in the right numbers. I think this being the core of manpower planning its only after the manpower planning that human resource management department and others can initiate other processes like recruitment and selection. So according to many human resource planning is considered as a sub system in the total organizational planning and overall human resource management and when you see this the why we require a human resource planning every organization has one or more of these needs. The shortage of certain categories of employees or a variety of skills despite the presence of general category employees for example, in a machine tool manufacturing company the paint technologies are in short supply, earlier days the systems analyst where in short supply.

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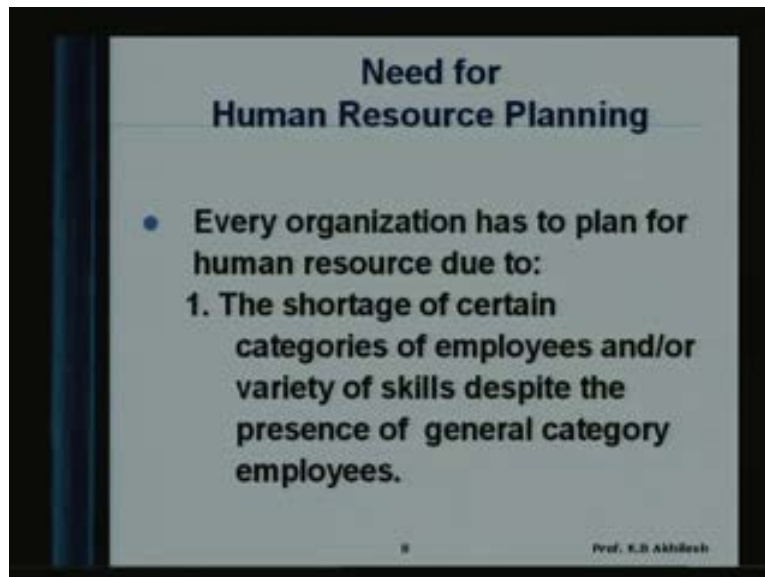
Manpower Planning – A Prelude

- It is only after manpower planning that HRM department can initiate a recruitment and selection process.
- HRP is a sub-system in the total organizational planning.

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Need for Human Resource Planning

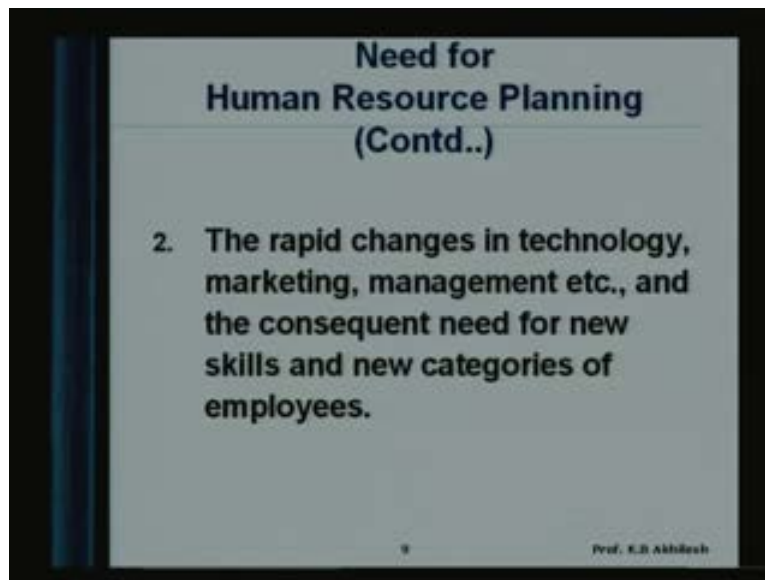
- Every organization has to plan for human resource due to:
 1. The shortage of certain categories of employees and/or variety of skills despite the presence of general category employees.

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Today, the secretarial staff particularly, the personnel secretaries to CEO there are not enough good people. In other words, you may have number of people in the organization but to meet some specific roles either with because of the technology or because of the demands or because of the technology intensities. So there are could be many issues which makes shortage of certain

categories of employees. So the human resource planning aids in terms of meeting and getting those specific skills at the right time, another important thing is the changes and technology, marketing, management practices etcetera.

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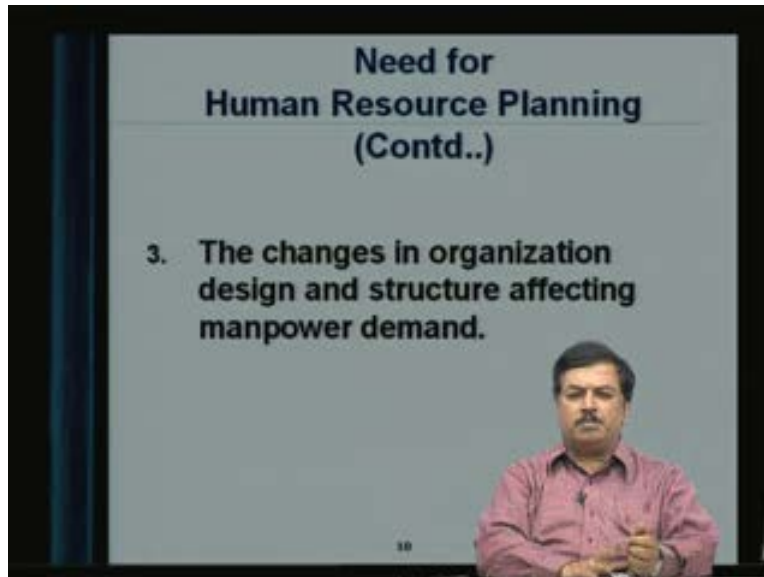


So the consequent is need for new skills and new categories of employees. We have seen some organizations recruited large number of mechanical engineers but suddenly the focus changed from mechanical engineering to electronics. So that means you require people with electronics background, marketing have changed, earlier the marketing was a kind of a specialist job but today you one who manufactures also must support explain the same concepts to the customer.

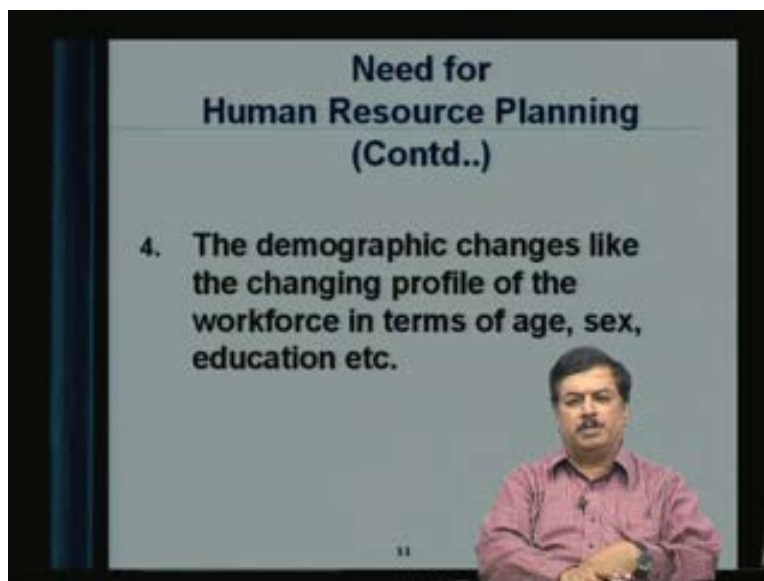
So that means you require people with technical background will also having sufficient product knowledge otherwise the marketing efforts are not very successful. So that is the reason why the changes and technology and the conditions required new breed of people new skills and a good manpower planning meets understands this some of these expectations. The changes in organization design and structure affecting manpower demand this is because of a, the promotional paths where people acquire new skills and there is lot of delegation of power. So any of such things would lead to that there are short supplies and certain levels and then one need

to also to see how to create more opportunities for people at the lower levels and those of you promote must occupy some specific roles.

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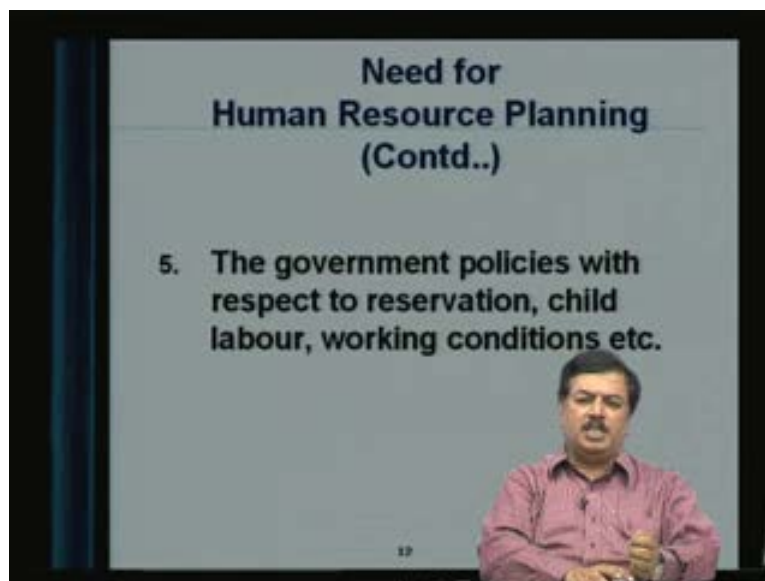
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So that they can contribute all these changes again demand either induction of certain skill sets at certain levels or planning a process where you fill in all the positions over a period of time in a systematic or through a systematic induction and developmental improvements. The other important factor is the demographic changes like the changing profile of the workforce in terms of the age, gender, education etcetera

So as you try and see people acquire more qualifications and they move out of this some of the roles because they want to contribute, they want to make a difference using some of their background and the experience and we feel at points that there are shortage of people or you do have excess of people who should be redeployed or sometimes you have to reeducate the people because you want to create an inclusive kind of a group at different levels. So that means you have to pick some right people educate them at the lower levels to build a capacity in them to move up to at higher level positions, all these initiatives would puts its own kind of a demand on man power planning.

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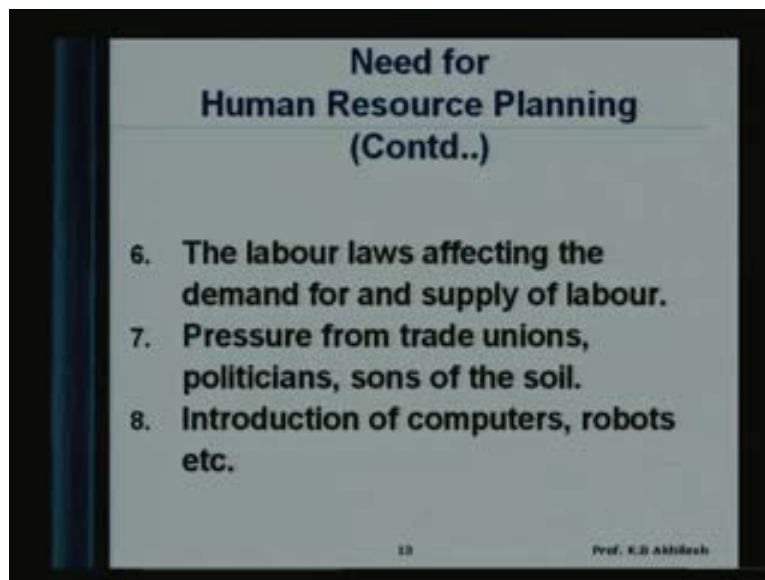


Similarly, the government policies with respect to reservation, so if you do not have some people you.... you have to ...some people to maintain the rosters and also making sure that there is a

fair play and similarly the child labor where you if you think that suddenly today, we making sure that nowhere or this kinds of a things are acceptable and similarly, in improve the working conditions and you require somebody to enforce, somebody to supervise set of standards.

So that means you create newer roles and then make sure that there are people in the organization to monitor the compliance and we also see the labor laws affecting the demand for and a supply of labor. Suddenly, you see this the the the control on the shift hours and also the where the individuals are not prepared to go beyond or cannot go or extend their number of hours and similarly, pressures from trade unions where they negotiate for not only the number of hours of work but as well as for the premium rate for the extra hours done.

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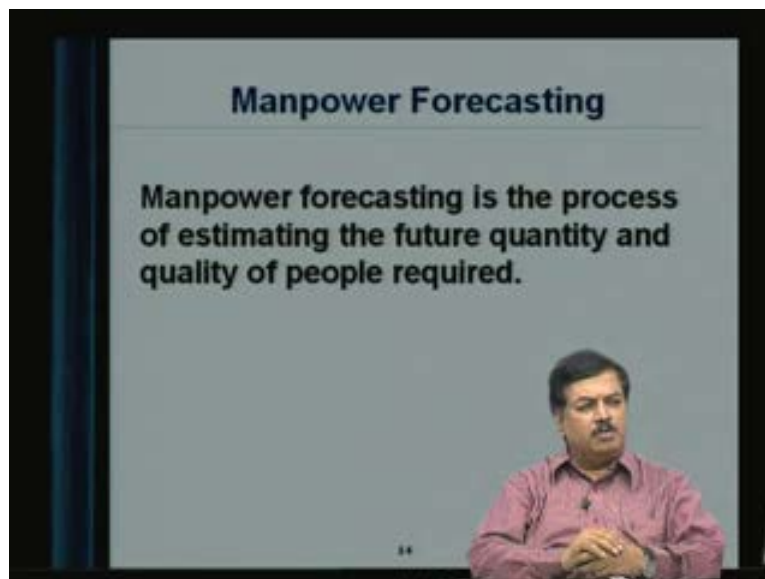


So some trade unions are very cooperative for the existing employees to stretch some hours and there are many may not support such initiatives, then the politicians, **politicians** and the kind of pressure which they can put for some of the sons of the soil or asking people to be supporting some of the social movements or it could be the general number of working days available to an organization through the politic, you know whatever is happening around this political climate

and the next important factor is introduction of a computers and the work place automation, robots.

As we were seeing more and more manufacturing activities, more and more service activities are influenced by the technology. The technologies which contributes for volumes, technologies which contribute for the speed of the organization. Hence, the manpower planning becomes extremely an important activity and we are talking about the manpower forecasting, manpower forecasting is the process of estimating the future quantity and quality of people required.

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So the manpower forecasting starts with organizational long term and the short term plans, organizational long term and short term plans need to be understood and then that need to be converted in to the annual budget and then it should be translated into activity levels for each function and department and then, you see the increased function, increased responsibilities have different departments can be met with the existing people or you need to get more people.

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**Manpower Forecasting
(Contd..)**

The basis of the forecast must be the annual budget and long-term corporate plan, translated into activity levels for each function and department.

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Need for Manpower Forecasting

1. Quantify the jobs necessary for producing a given number of goods or offering a given amount of services.

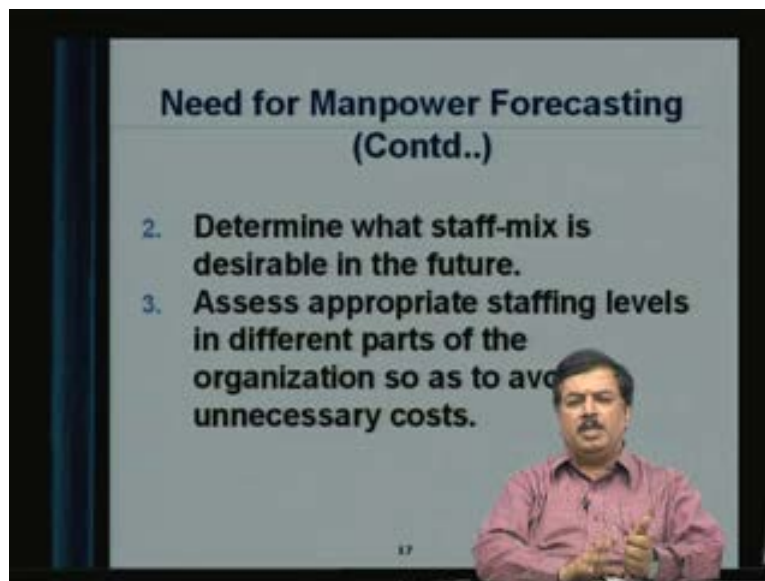
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So the good forecasting is the first step, so it is basically to quantify the jobs necessary for producing a given number of goods or offering a given amount of service. So that means we go by a detailed analysis of how the existing people can meet the requirements of the organization. Similarly, a determine what staff-mix is desirable in the future. So we if do the forecasting and to

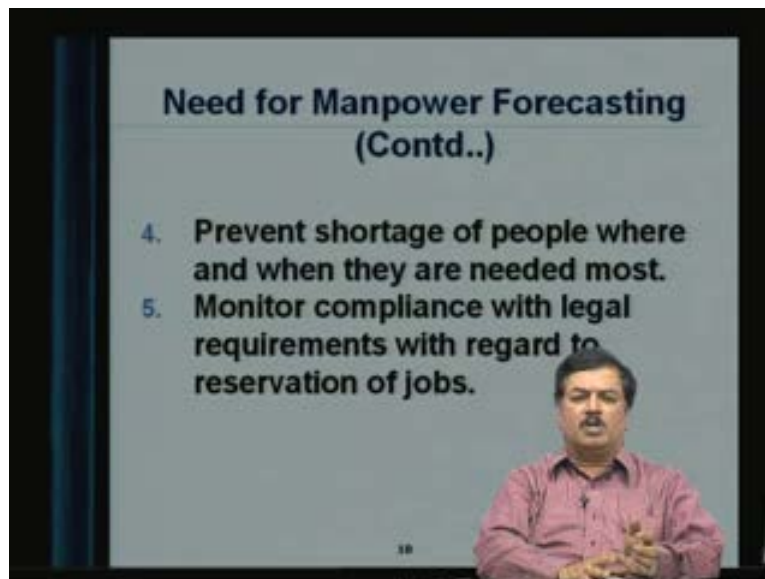
see what would happen to these people in the coming years then you know, you will see what are the probability of people remaining at the same level, what is the probability of people we have to move up to the next level with the responsibilities how is that they will continue in the few positions based on their potential as well as their contribution.

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So we need to assess appropriate staffing levels in different parts of the organizations. So as to avoid unnecessary cost, so that means who are the people who can take more responsibilities where are the issues of short supply, where are the skill sets, where you think there are heavy work load. So all these things will help in understanding the future structure, future aspects of the organization and a good forecasting would help doing such things particularly, prevent shortage of people where and when they are needed most certain task, certain activities demand that some x number of work experience unless they have an exposure, unless they have some experience, it is not easy to do the such kind of a task it could be the gear box assembly. So it may about 8,10 years of work experience with the senior and then only they will be able to do and similarly, the consultants who implement some of the IT solutions or the people who do the some kind of a work of architecture.

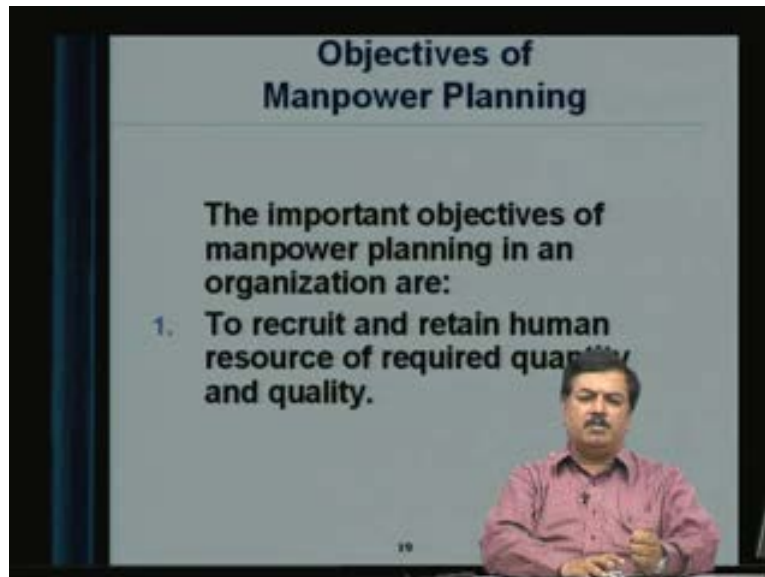
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So all these people had to have that necessary experience and the number of years of experience and the kind of task which they have handled in the past becomes very critical and as we try and understand, what kind of people are required with what experience that will also help to the future how they we can maintain them and what is that we need to do with that and monitor compliance with particularly, the legal requirements of with regard to the reservation of jobs as you know in number of our organizations, 22.5 percent or little more will go for different reserved classes and also there are ex-servicemen, people with call as the came Kashmiri migrants then you also have reservations for different groups of people being this sports person or the person who is already working in the organization.

So it would all help in terms of forecasting to their future about what kind of man power one need to have. So very clearly to the importance and objectives of man power planning can be summarized in terms of the following to recruit and retain human resource of required quantity and quality, making sure that they are they are doing the right kinds of things within the organization to meet the needs of the programs of particularly expansion, diversification, acquisitions etcetera.

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Objectives of Manpower Planning

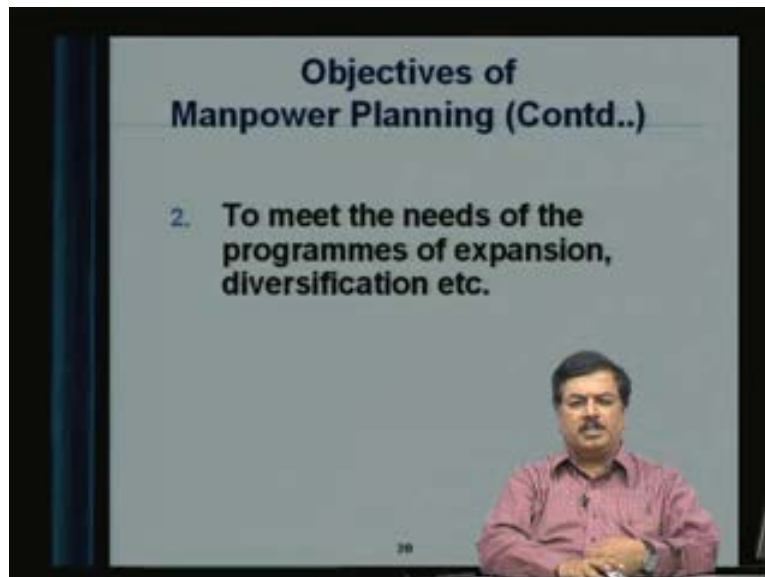
The important objectives of manpower planning in an organization are:

1. To recruit and retain human resource of required quantity and quality.

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Objectives of Manpower Planning (Contd..)

2. To meet the needs of the programmes of expansion, diversification etc.

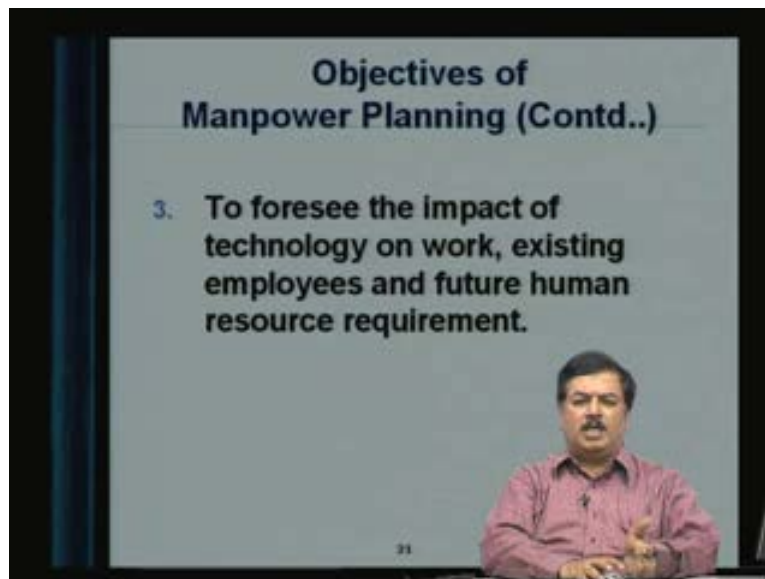
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So that there are people who can meet those future challenges which can come in terms of providing new services to the to the customers or use of existing facilities in a better way that is they are work in some organization working in single shift may get into the double shift or 3 shifts or they may expand the activities from one region to the other or diversification, if they are

into some core activities of say construction they may get into schooling or they may get into some more supplies of building materials. So it could be a kind of a diversification in related areas.

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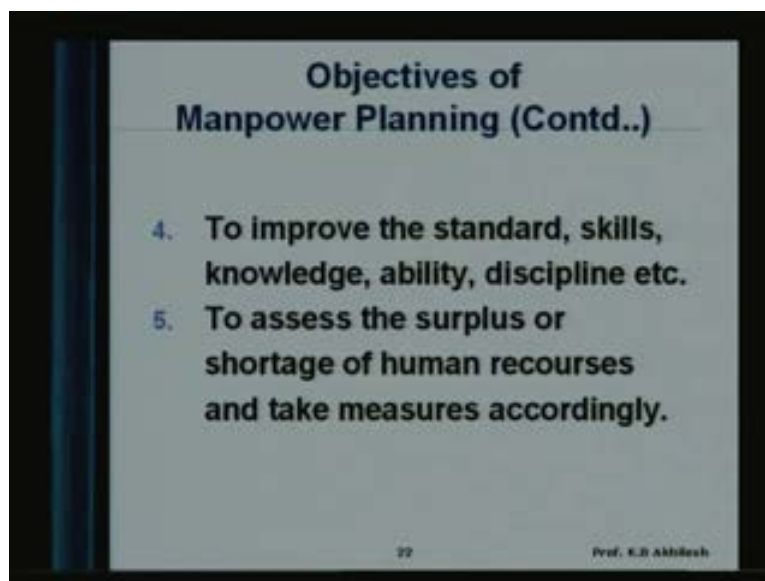
Objectives of Manpower Planning (Contd..)

3. To foresee the impact of technology on work, existing employees and future human resource requirement.

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Objectives of Manpower Planning (Contd..)

4. To improve the standard, skills, knowledge, ability, discipline etc.
5. To assess the surplus or shortage of human resources and take measures accordingly.

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So the manpower planning will help to meet those requirements and also foresee the impact of technology, to foresee what is going to happen into the future by the current technologies and also the future technologies and work and existing employees whether they it will reduce their work in terms of quantity and quality or will it increase their physical efforts. So you need to see some of those things and then expect whether it will save manpower or whether it demands a new kind of manpower and then working out plans how to get and how to deploy these man powers or to develop the existing people.

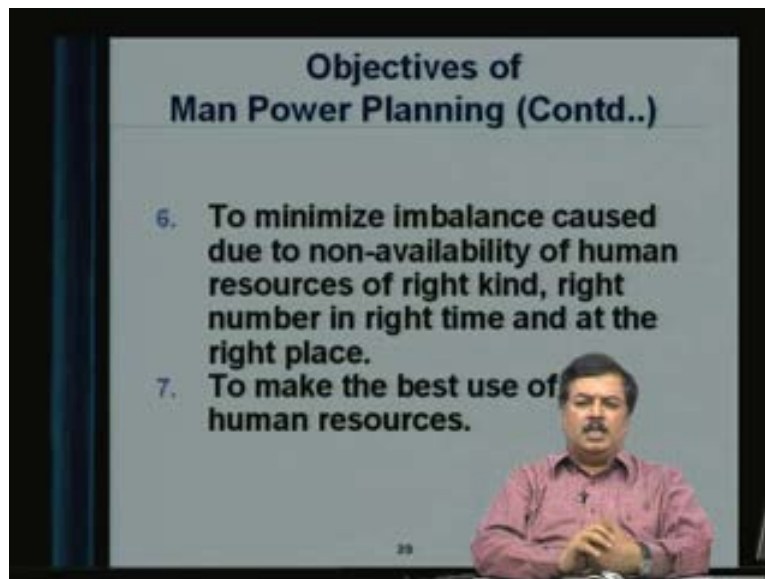
To improve the standard skills, knowledge, ability, discipline etcetera. Man power planning also helps in terms of how a training activities need to be conducted unless you create some extra, some buffer, the existing people cannot be spared cannot be sent out or cannot be cannot be allowed to get into the class room kind of a training because it may come in the way of their work. So how do we do that how do we increase the standards in terms of reducing the number of hours of work if some people are overstretched. So it is these things and also sometimes, it is the discipline, so if you think that if the people are not giving to their best of the capacities then you have to see how do you do this, sometimes it is through outsourcing or through giving some work to the existing employees but to be done outside the organization.

So these kinds of contingent plans also can be done very effectively with the appropriate manpower planning practices and also to assess the surplus or you know shortage of human resources and to take measures to correct those things means certain areas, there could be excess people excess people because there is may be the orders are not are not there or there are this movement or in a couple of month, they may have a the less demand for their activities, so that you have extra people.

In certain areas may be particularly, the January, February, March, we will find the production years when they come to an end suddenly some groups feel there is a shortage of human resources and you know such volumes are the change in volumes are change in demands both positively or negatively affect the availability or a shortage of manpower. So one need to understand this cycle of changes and then plan towards those aspects. The other important things is to minimize imbalance caused due to non-availability of human resources particularly, you

have right kind, right number and the right time as we are talking about sometimes, people are there work is not available but there is high demand for their work but your people are not prepared or they do not have the capacity to deliver.

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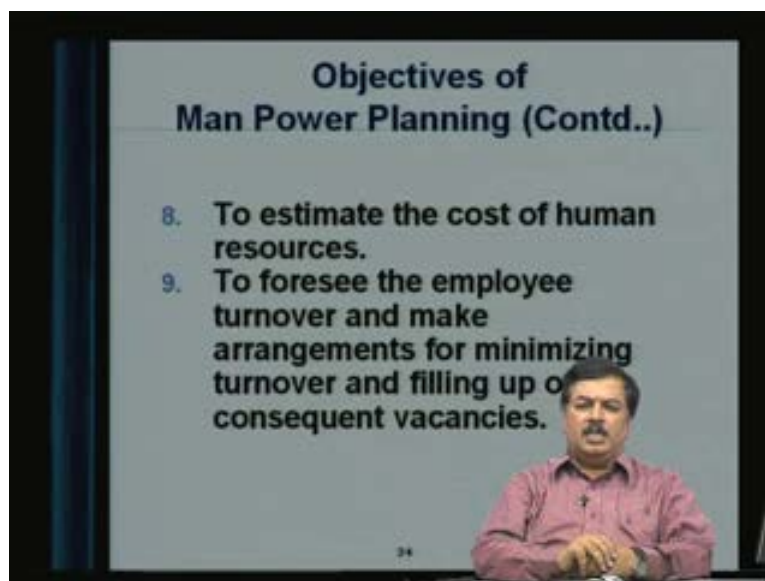
Objectives of Man Power Planning (Contd..)

6. To minimize imbalance caused due to non-availability of human resources of right kind, right number in right time and at the right place.
7. To make the best use of human resources.

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Objectives of Man Power Planning (Contd..)

8. To estimate the cost of human resources.
9. To foresee the employee turnover and make arrangements for minimizing turnover and filling up of consequent vacancies.

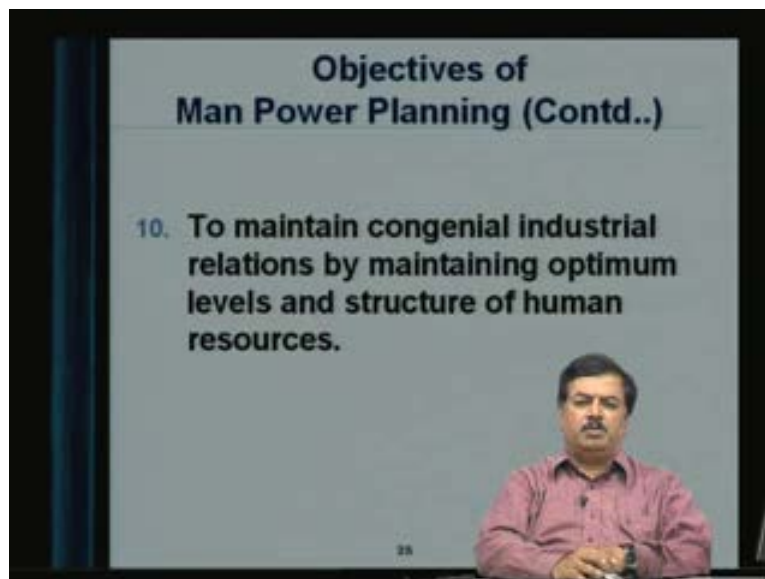
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So one need to correct these things and make sure that the people are available at the right time and when people are there and when there is no work, it can affect their motivation and intern it also affects the climate of the organization and definitely to make use of the existing man power and similarly, when you see to estimate the cost of human resources as we go along in any organization cost of human resources will increase.

So then you must try and see how to get more and better out of the existing people and also to foresee the employee turn over that means you know we try and see are there any resignations, are there any aspirational problems where people do not like to continue in the organization or are there any chances where the kind of people you get they are not able to meet or cope with the organizational demands.

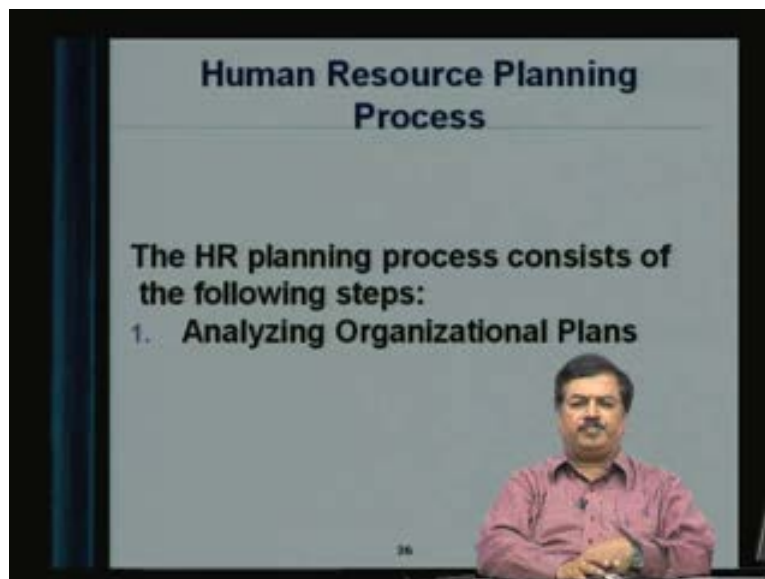
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So that means you have to make some arrangements for having some kind of a buffer first is to minimize the turnover and then in case there are the vacancies come up then you have to make sure that you meet those vacant positions through getting appropriate people and to maintain congenial industrial relations, good management, union relations by maintaining optimum levels and the structure of human resources if people do not have responsibilities that is if they do not

have enough challenges in the shop floor or in the kind of work what they do then it is likely that they will get into other activities and so it is in that sense to make sure that the right people are there right challenges are provided, right recognitions are provided then you know you do have better and good industrial relations, absence of that can lead to conflict, confusion and differences. So when you see this human resource planning it must consist of the following essential steps, one analyzing the organizational plans both short term and the long term plans. Short term plans of next 6 months to an year and when we are using the word long it may be from 2 to 3 year's time.

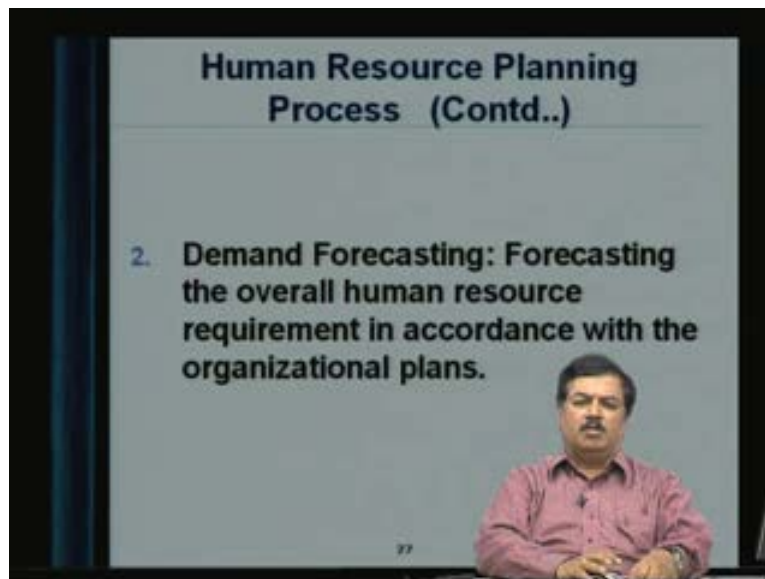
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So analyzing the organizational plans basically it gives an idea of how the some of the existing activities will be continued to the future what are the new technologies are going to be inducted, what are the new areas in terms of geographical diversification is likely to happen or we will also see are there any acquisitions, are there any merges of which is forecasted. Another is to look at the demand forecasting which I mentioned to you earlier the overall human resource requirement accordance with the organizational plans, what are the new kinds of jobs are likely to be in demand how some of those things would can be defined in terms of the quantity and quality of work, another is the supply forecasting making sure the you know the available data and the

information about where are our people how are they coming, what are the sources through which they are coming and whether we are we getting the right kind of people are we getting enough people.

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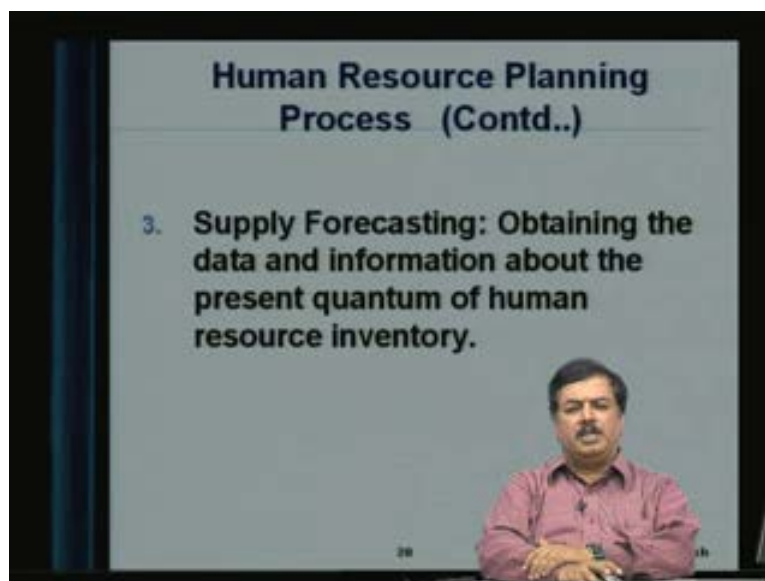
Human Resource Planning Process (Contd.)

- 2. Demand Forecasting: Forecasting the overall human resource requirement in accordance with the organizational plans.**

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Human Resource Planning Process (Contd.)

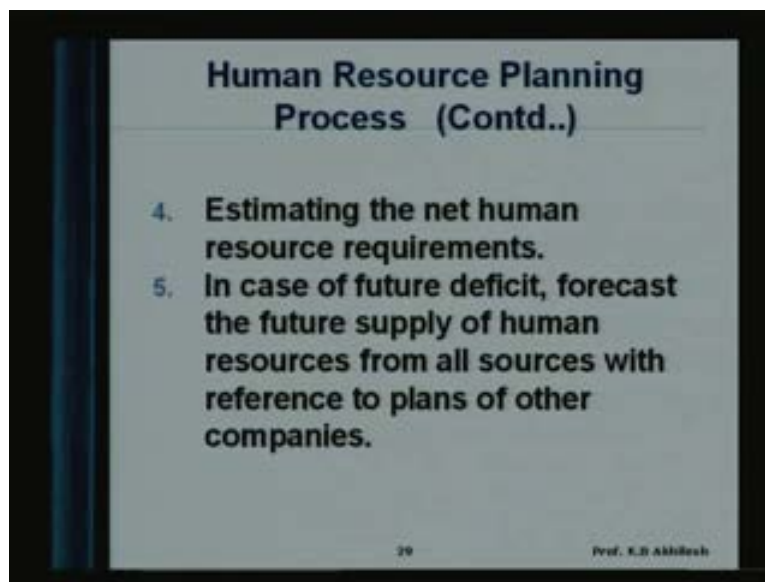
- 3. Supply Forecasting: Obtaining the data and information about the present quantum of human resource inventory.**

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So quantum of human resource inventory and making an analysis of that and seeing to the future whether you are going to be comfortable are there any strategy is required about the supply side. So then existing the net human resource requirements, so the net human resource require means means it is the existing people versus then you will see what is their actual performance. So that means there is a potential and there is actual. So estimating the net human resource requirements put demand that kind of an analysis of the performance of the existing people.

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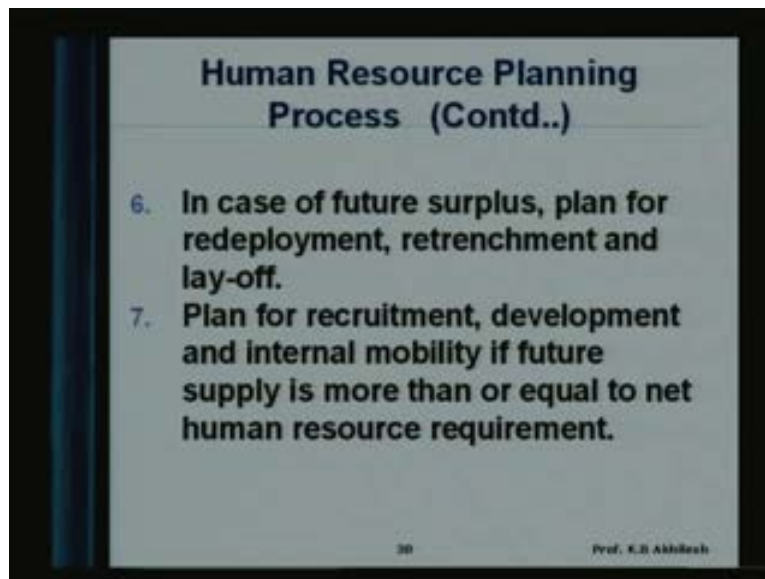


In case of future deficit forecast the future supply of human resource but make sure that from all sources that we were able to see the reference to the you know particularly plans of other companies, what is that they are going to do and are we going to compete for the same human resource, are there any uncertainties in attracting and getting those people on board or the labor market situations are very comfortable where train and well educated people are available, I think these are the choices when somebody gets into the forecasting.

Similar in case of future surplus know then we have to see with the plan for redeployment that means we have more people than what is the required then one should also see a retrenchment and lay-off, normally retrenchment and lay-off to be done as a last resort but one will also see

how and in what possible manners, existing human resource which are not required in certain departments can be redeployed and also one should plan for recruitment development and also the internal mobility.

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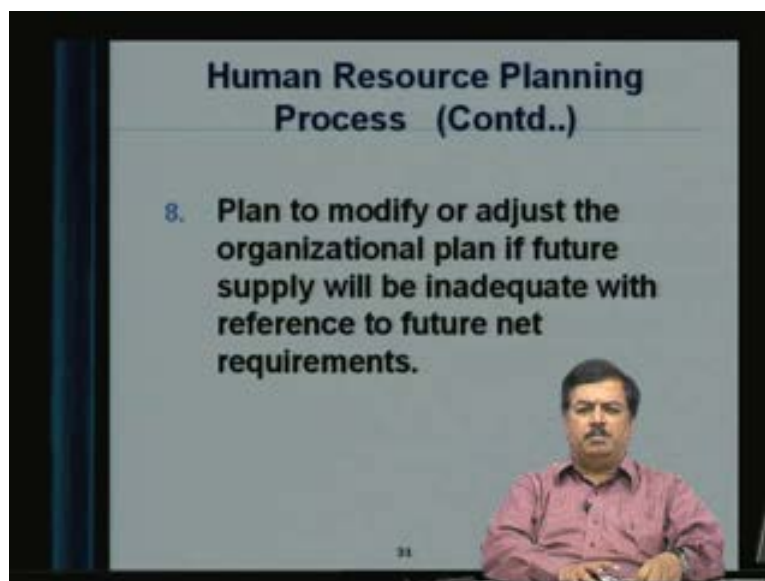


Human Resource Planning Process (Contd..)

- 6. In case of future surplus, plan for redeployment, retrenchment and lay-off.**
- 7. Plan for recruitment, development and internal mobility if future supply is more than or equal to net human resource requirement.**

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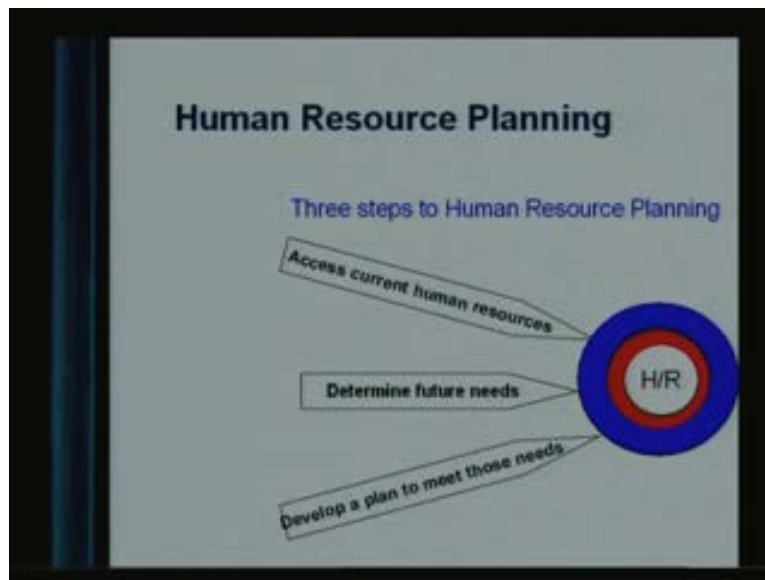
Human Resource Planning Process (Contd..)

- 8. Plan to modify or adjust the organizational plan if future supply will be inadequate with reference to future net requirements.**

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So if a future supply is more than or equal to the net human resource requirement. So in other words the the the the the situations of surplus, the situations of demand must be analyzed and then one need to see what could be the the best strategy. So one also has to plan for or modify the the forecasted numbers because then you know sometimes you see that the future are not understood very clearly. So that could be some inadequate with reference to some future things.

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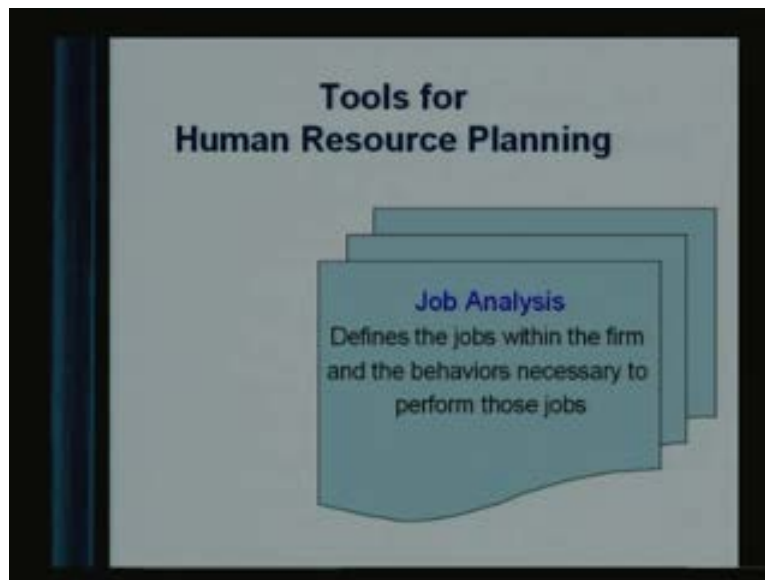


So best is to keep up a monitoring, so in summary what we are talking about this human resource planning consisting of three important steps: the one in terms of assess kind human resources then we are seeing the determining the future needs and also the the develop a plan to meet these needs and we are taking care of the requirements of the HR, the tools for human resource planning essentially starts with job analysis, job analysis we will be talking at different levels, it helps for different levels for recruitment, it helps definitely for human resource planning.

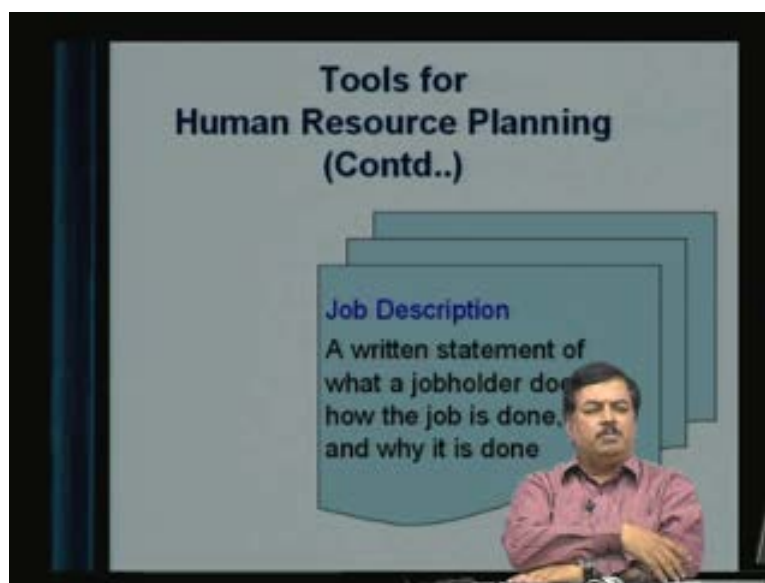
So the job analysis defines the jobs with the firm and the behaviors necessary to perform those jobs so that means systematically, we will understand all the task all the activities and the we try and define what are the positions, what are the duties and what are the responsibilities. I think that is what the job analysis is all about from job analysis we try and go for the job description,

job description is a written statement of what a jobholder does, how the job is done and why it is done.

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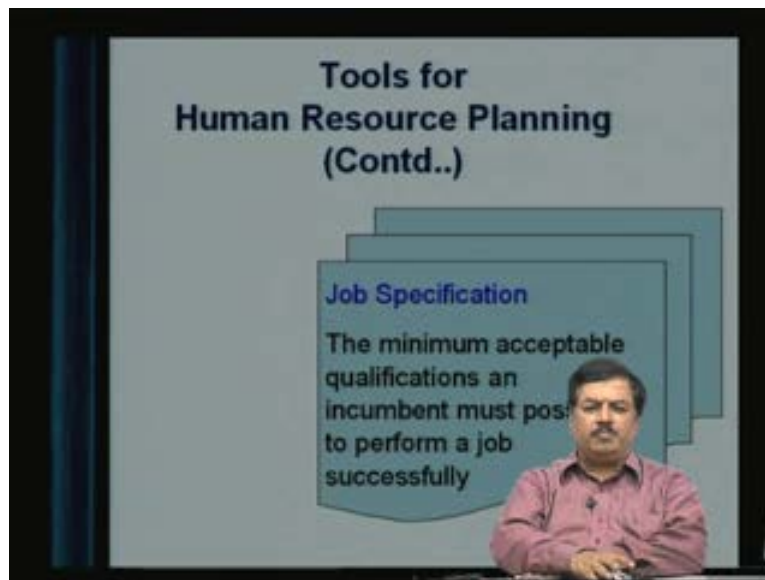


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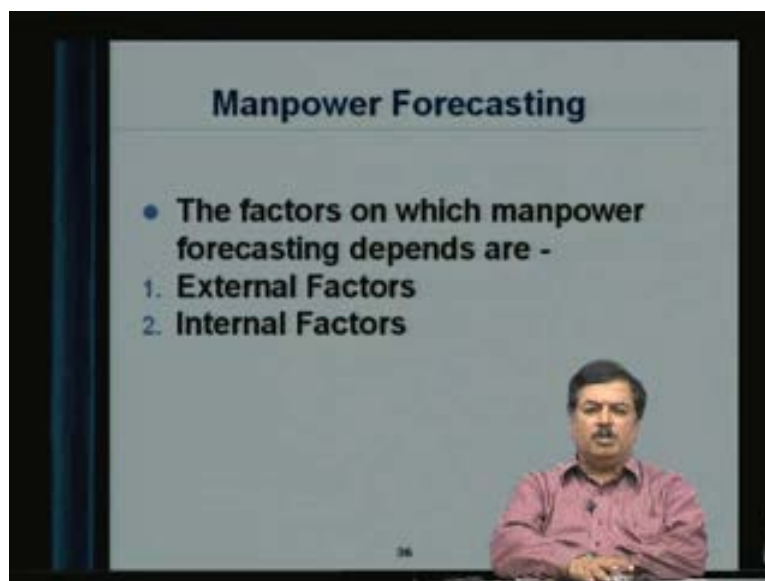


So all the three things will help in terms of getting into the to the very clearly, the what is the demanded from this job from then we do for to the job specification that the minimum acceptable qualifications that means you say this job can be performed by graduate in commerce.

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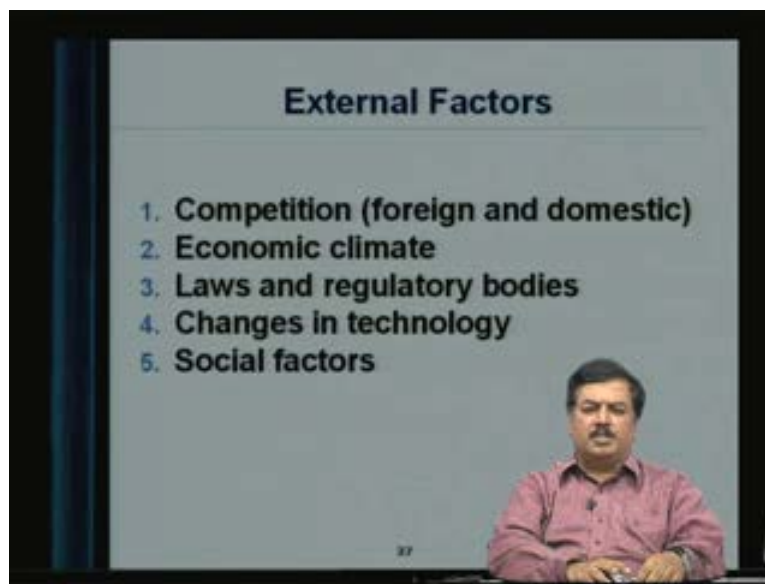


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So or we may say that you know a graduate engineer is required or we may say this job can be a done by anyone but who knows minimum writing. So that means we write minimum acceptable qualification an incumbent must have to perform a given task or a job successfully, from job specification once we have all that then we try and look for the the forecasting. So the factors of which you know manpower, you know forecasting depends are external factors as well as the internal factors.

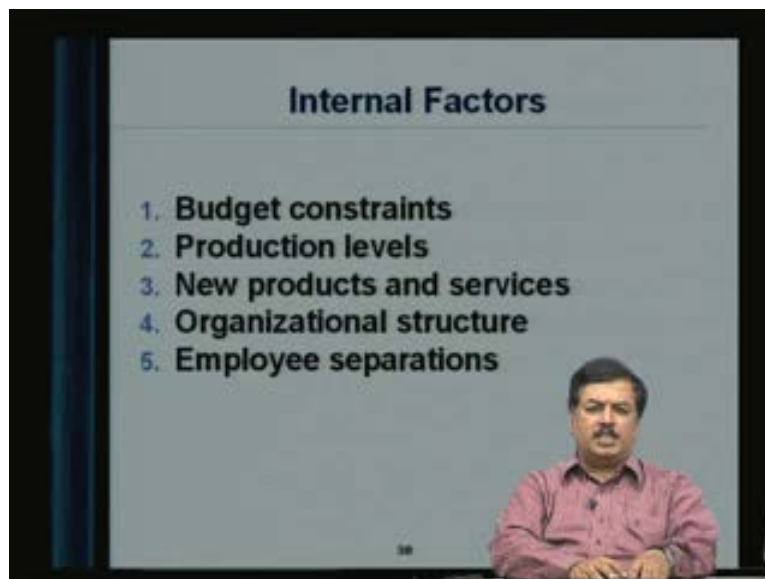
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As I mentioned earlier, the external factors could be the competition the foreign and the domestic economic general climate the and the laws and regulatory bodies, how is that they are demanding the law enforcements and also we are talking about the changes in technology and some of the social and demographic factors. Here, the most important thing is the kind of a competition is the general competition in terms of who and how many of we are organization competing for same kind of talent and the foreign kind of a thing, it has come in some of the machine tool sector when people are trained and the skilled workers they are in always in high demand not only in the local area but also are the national level but also at the international level.

So some of the best trained the machine tool skilled employees not only they are great demand in India about may be in Malaysia and similarly, the construction supervisors in the engineers they may they are not only in demand in India but also may be in gulf countries. The next important thing is the economic climate, the economic climate of inflation, the economic climate of stability, the economic climate where organization can foresee the future comfortably. The laws and regulatory bodies which insist upon the set of basic working conditions, I think that is known but they may also impose upon the, the how much of the work can be done through the contract labor.

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So such regulatory things are abolition of night work for women employees already creating an issue in the the BPO and IT sector. So the regulatory bodies do bring in some of the new perspectives sometimes new laws which either suddenly create an increase in manpower or a decrease in manpower and certainly, the changes in technology the communication manufacturing and the office technologies all are productivity driven and they try and reduce the human effort and also demand newer skill sets, I think that would make an internal exercise much more complex and then one need to see how to meet those expectations created by the technology and the social factors such as the expectations of the people, aspirations of the people

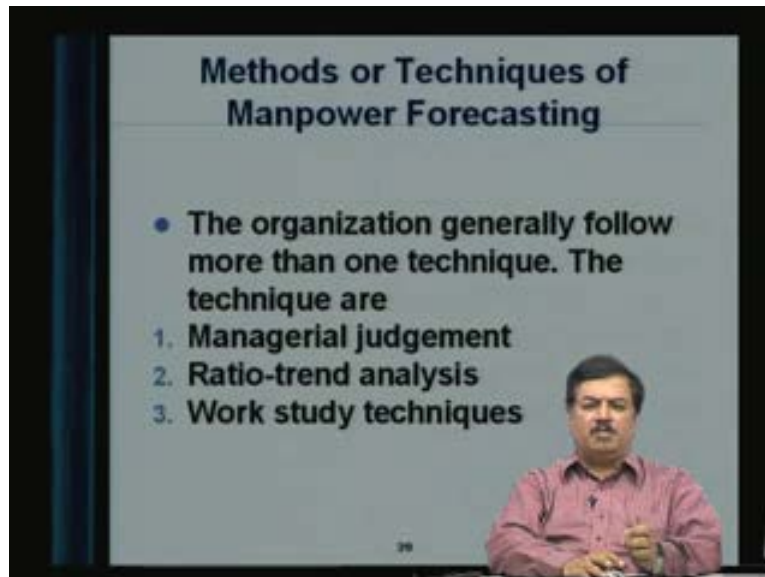
and also the opportunities what they get to move out and acquire some new skills I think these are all the things which will pressurize as the kind of an external factor these are not exhaustive but but as some examples only. The internal factors starts with the budget and budget re-constraints. So in other words, how you have prepared to pay to attract some of the best of their talent.

So that means with the existing wages you may not be able to retain people as well as you are not able to attract people then you know also have to see the production levels, some organizations work with lower capacities that is the time they lose similarly, they have a high capacity where people are stretched or they gain experience the feeling or burnout again there are issues of retention you know issues of getting best out of the people and the third important thing is the organization things about introducing new products and services and as you introduce new products then you have to see what kind of people and how many people and the services services in terms of supporting at the at the customer side or having service center closest to them.

You know many of these decisions again create, so it is a basically an internal decision and definitely organizational structure in terms of more delegation, more responsibility, more promotional opportunities things like that and the last is the of the you know the the manpower planning is employee separations, employee separations because of the the superannuation, the age with which people retire or the natural separations in terms of the death things like that then you have the resignations of the employees big for a better career opportunities then you also have the separations because of the disciplinary actions of dismissal then termination of the employee for misconduct and misbehavior.

So these internal factors and the external factors pushed together about what is the best method of doing this. So the organization generally have to think in terms of what techniques, what practices, what sophistication one need to adopt or one need to follow. The organization generally follow more than one techniques, so that means you cannot one cannot say this could be the best but the techniques are you know if you see there is the managerial judgment or it could be the ratio of the trend analysis or it could be work study techniques.

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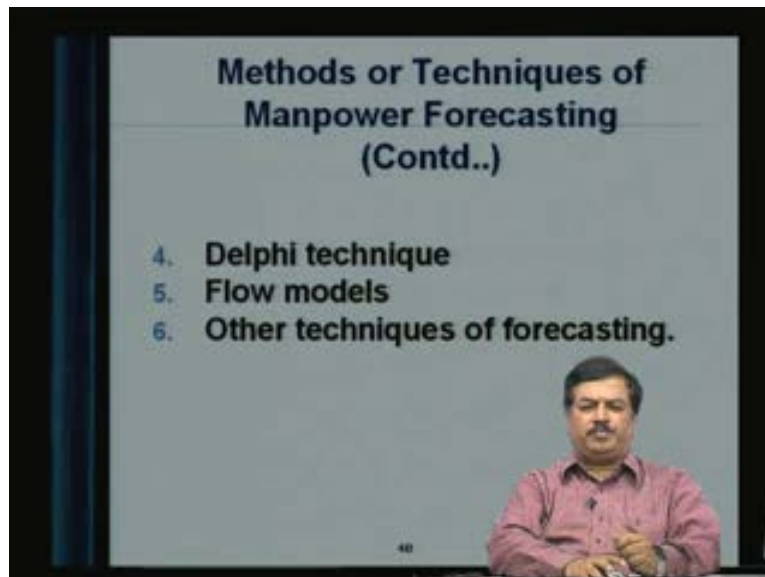
Methods or Techniques of Manpower Forecasting

- The organization generally follow more than one technique. The technique are
 1. Managerial judgement
 2. Ratio-trend analysis
 3. Work study techniques

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Methods or Techniques of Manpower Forecasting (Contd.)

4. Delphi technique
5. Flow models
6. Other techniques of forecasting.

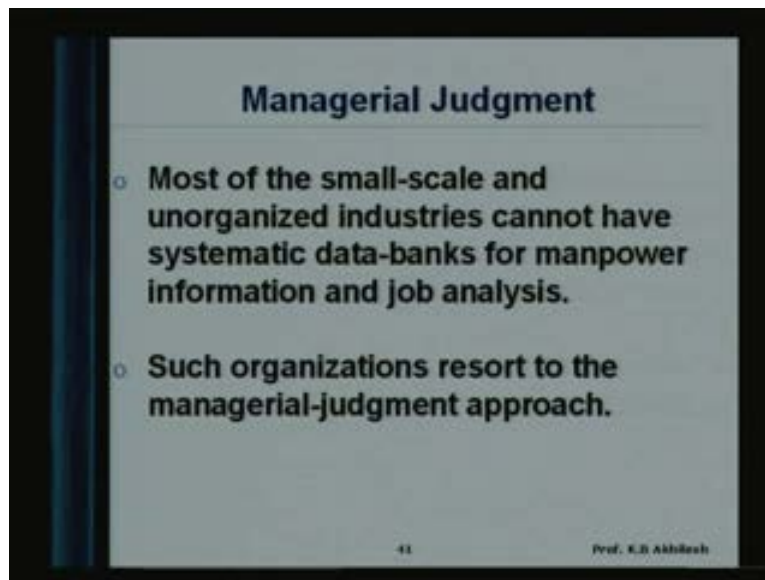
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So methods of techniques if we start analyzing the if we can see the as we have mentioning several of the things in the past Delphi technique Flow models and also the other techniques of forecasting and in all these we will spend some more time but the most critical thing is the managerial judgment particularly, most of the small scale and unorganized industries cannot

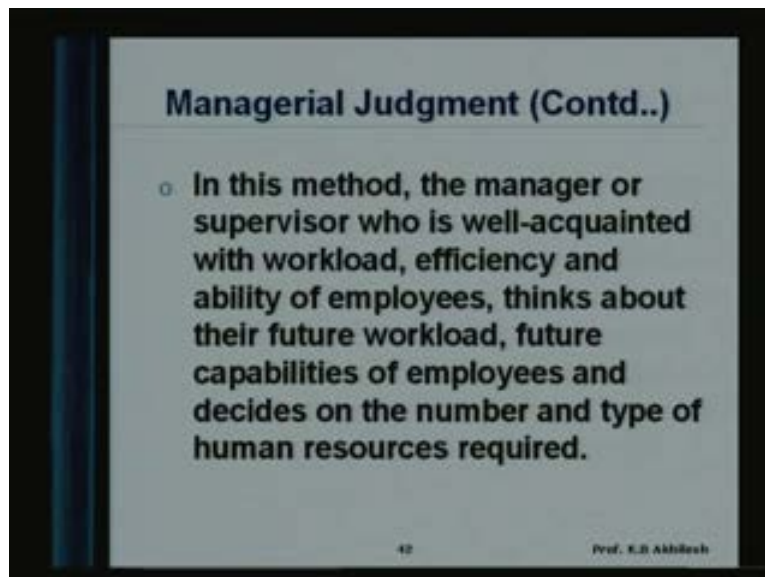
have a very a systematic data bank of a manpower information and job analysis. So that is the time where they go by their intuition or their past experiences and then see who can meet how many of these people can be expanded to take some leadership positions and things like that.

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So that is the time where the organization resort to basically a managerial judgment approach because they roughly they calculate they foresee as we may require another 10 to 12 hands into the next quarter or the next year and they try and adopt set of the short term methods. So the forecasting arise on is not more than 6 months to 2 years and when you are seeing about the managerial judgment in terms of this method, the manager or supervisor who very clearly you know well acquainted with the work load efficiency, ability of employees he is able to think to their future work load also future capabilities of the employees and then able to decide on their careers what opportunities are available and then you know also identify the future human resource requirements.

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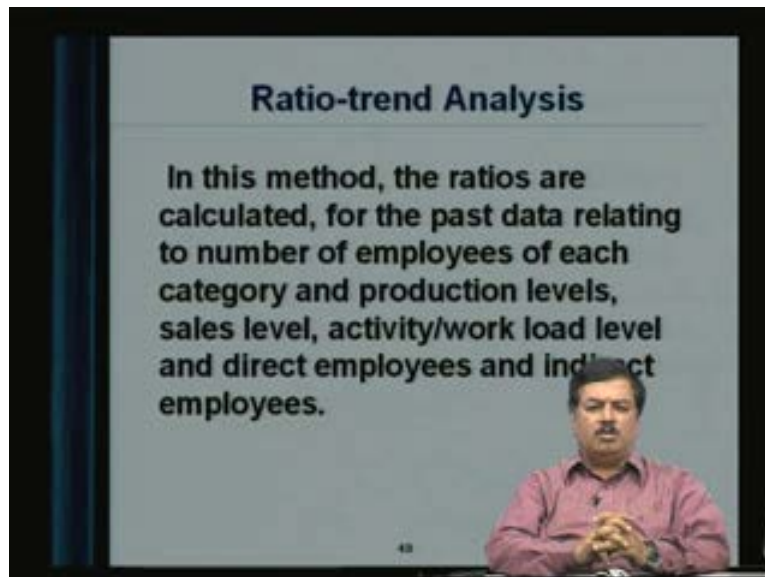


Managerial Judgment (Contd..)

- o **In this method, the manager or supervisor who is well-acquainted with workload, efficiency and ability of employees, thinks about their future workload, future capabilities of employees and decides on the number and type of human resources required.**

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Ratio-trend Analysis

In this method, the ratios are calculated, for the past data relating to number of employees of each category and production levels, sales level, activity/work load level and direct employees and indirect employees.

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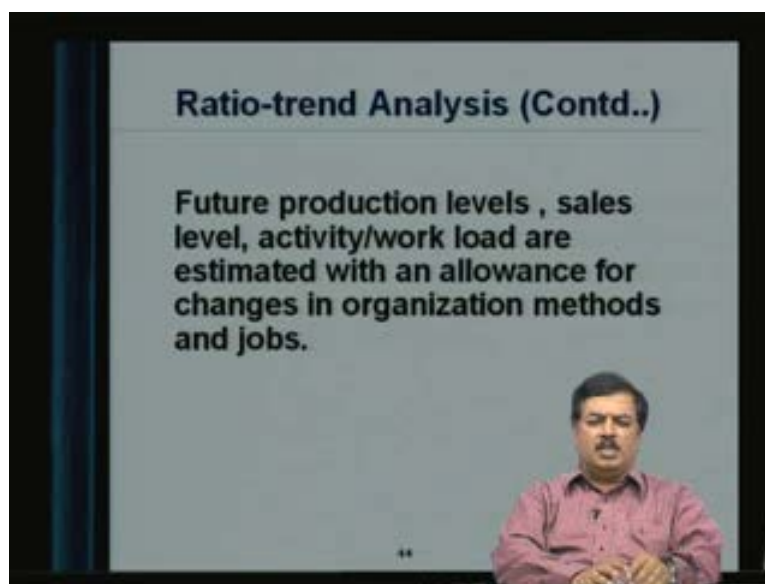
But the managerial judgments are important and several times you have seen time and again good managers and good hunches, good picture of the future whatever they have if it is shared with others will always help in doing good manpower planning exercise but the point is they are more guided by the hunches, they are more guided by their thumb rules but not necessarily they

would have taken all the factors into consideration. I think that is the difficulty of this typical managerial judgment. In ratio the trend analysis this what you you know what one can do is the ratios are calculated in terms of the the number of jobs, number of activities or with respect to the work loads.

So then we talk about based on the past data if the increase in turnover or increase in the volumes who can talk about in terms of number of employees. So number of employees of each category can be expressed and that also indicates the work load and the number of activities required to be performed or it so the so the production levels can be converted into or the sales levels can be converted into or activity as the work load can be converted into number of employees, number of employees can also be segregated into number of skilled employees, number of semi-skilled employees, number of people who have to support these activities or it is in terms of the indirect employees.

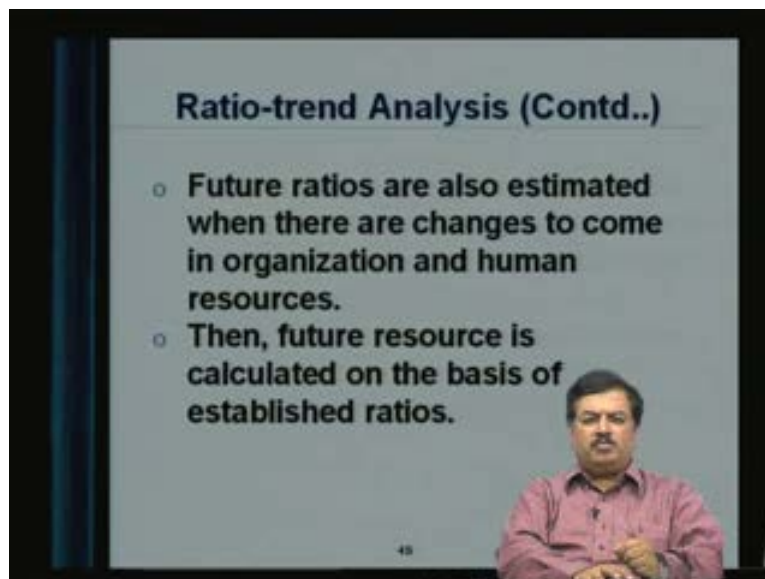
So in the ratio or the trend analysis, we try and convert each of these things into number number of employees and also can be defined with respect to the skill or with respect to the levels of the organizational hierarchy.

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So the future production levels, sales levels activity work load are estimated then also with an allowance sometimes you have to allow for time for training, sometimes we assume a kind of a learning curve then we also think as when we make changes within the system a some people have take at least 2,3 months initially to learn the methods and the various aspects of the job. So that means you have to put some more people and then seek to maintain the productivity levels or the production levels and the ratio analysis and the ratio trend analysis, what we try and do is the look at to the you know future and then we calculate also into the future I think if we grow at 10 percent level, if we grow at 15 percent level.

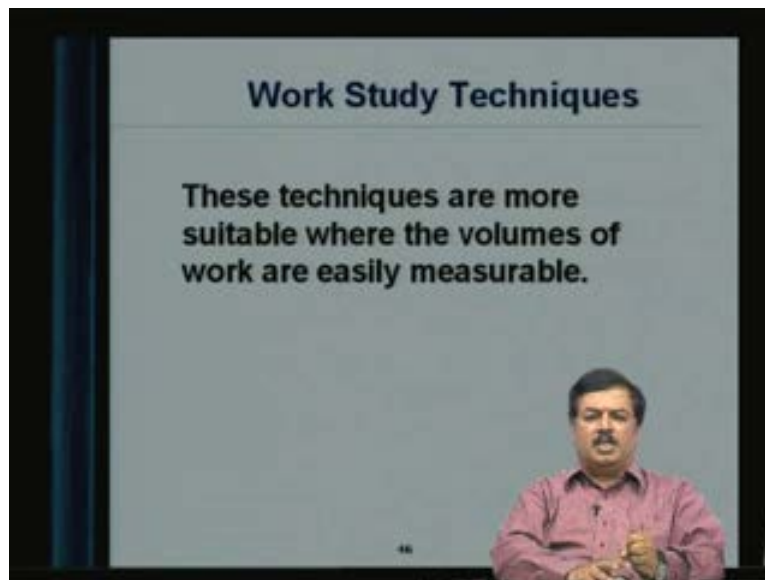
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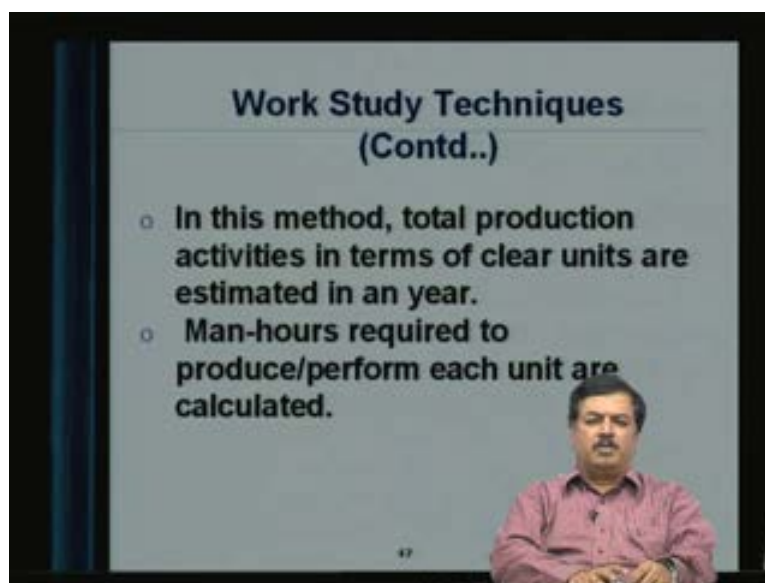
So we build that kind of a scenario and then assuming that the current manpower is available to the future and then within that we will see it a how do we meet the demand for or the the demand for the forecasted increase in production or increase in services and then estimate, what are the future requirement of the people. So in other words, the ratio and trend analysis helps in terms of set of baseline and what additional things are required. When you look at the work study kind of a thing it is much more to do with the productivity. So these techniques are more suitable when the volumes of work are easily measurable, so that means you are able to say so many pieces to

be produced I think existing people we can think of I, we have 20 people and they are able to produce some 15 pieces.

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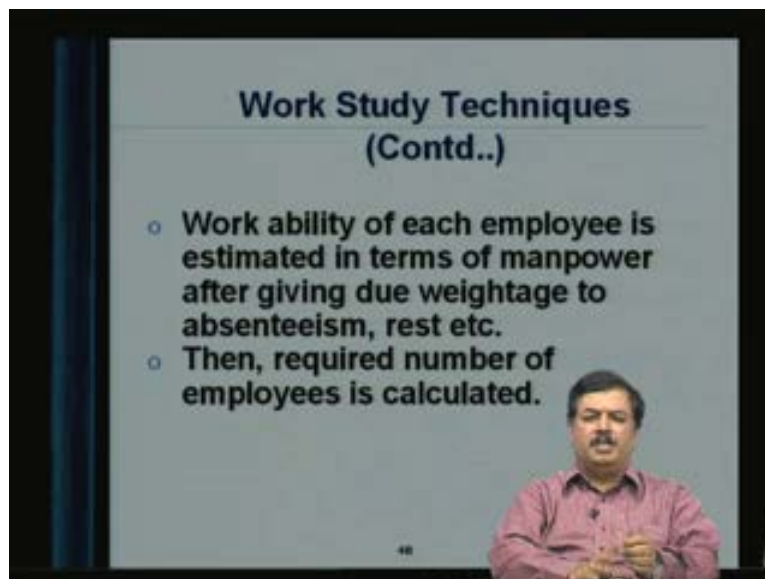


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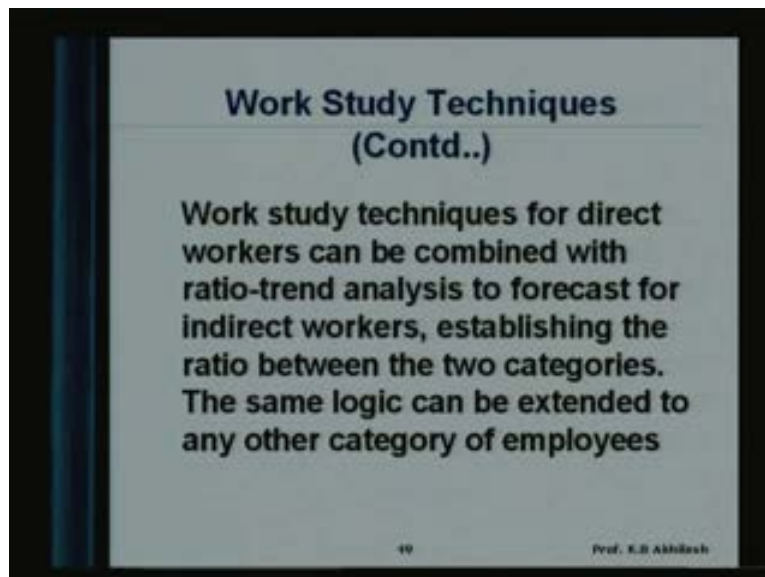
So if you have to really get of a 30 pieces how many more people to be deployed directly and how many to be indirectly. So that means we try and see with the standardization with the existing people with their age and effort and with the kind of capacities what they have, what is that they do and if you are able to state in terms of per hour production, per week production then it becomes easy to express in terms of what is the total output required but in this method total production activities in terms of right, the all the units are estimated and then you convert that into see how many man hours required to produce or perform and then we also try in terms of the how many man days required.

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So the work ability of each employee is estimated in terms of manpower after giving due weightage to absenteeism , holidays, rest etcetera. So that means we assume in an year, so many working days available even in a particular working days so many number of hours are available as which could be counted as productive and in the productive hours, this is the kind of output so we have to see to the future means you look at how many days are available then calculate in terms of how many productive days are available within that we see how many manpower or how many employees are required to perform some of those things.

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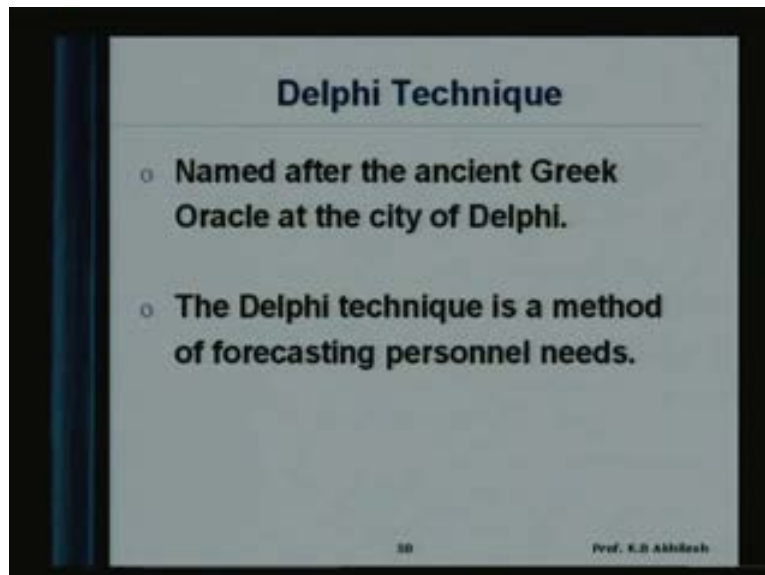


**Work Study Techniques
(Contd..)**

Work study techniques for direct workers can be combined with ratio-trend analysis to forecast for indirect workers, establishing the ratio between the two categories. The same logic can be extended to any other category of employees

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Delphi Technique

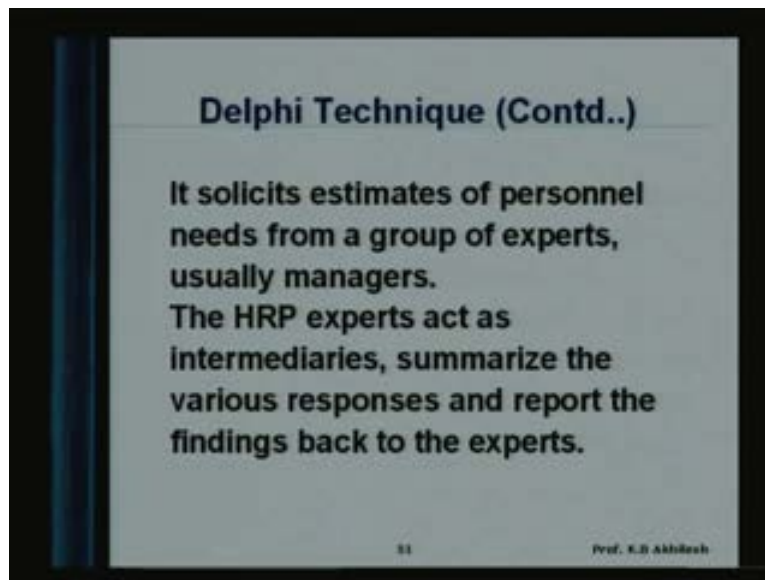
- **Named after the ancient Greek Oracle at the city of Delphi.**
- **The Delphi technique is a method of forecasting personnel needs.**

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So work study techniques helps building the view from the bottom. So we systematically study and we also try and combined with the ratio and trend analysis and come with some kind of a future estimate. So establishing the ratio between the two categories, so the same logic is applied and then the and the future numbers are worked through. In Delphi technique, the point is that

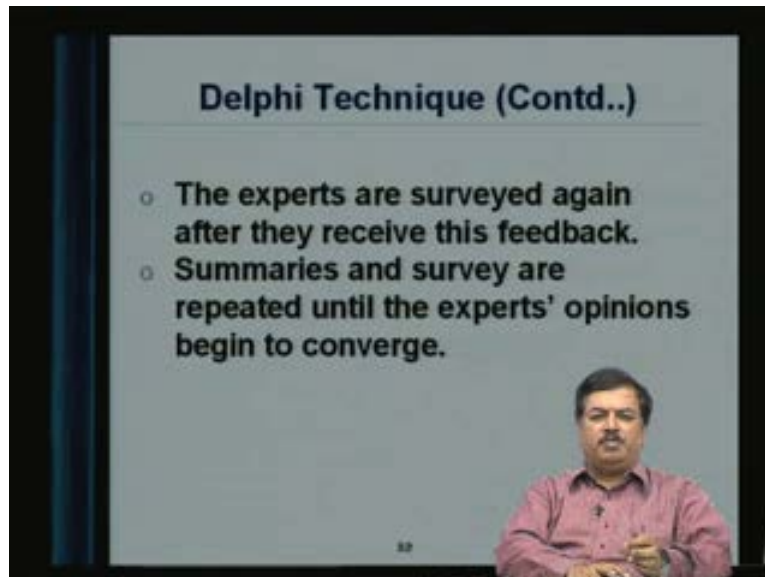
the it is named after the ancient Greek Oracle at the city of Delphi, the Delphi technique is a method of forecasting personnel needs. In other words. the set of experts come together and the different divisional heads, divisional where are the technology experts.

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So then they tried estimate what are the personnel needs, so then based on their past experiences so they try and see this is what is going to be, so the HRP, so the you know human resource of professional's expertise are used then in you know the then you try and summarize various response. In other words, you pole in terms of the number of requirements number of jobs and then you know how many people are required. So once you generate the first level of report and then the findings are given back to the same experts and then experts make correction okay plus or minus I would accept this kind of a position that you do require in order to increase our turnover by an x amount or have our established you know the establishment in two more places or have our offices in another 30 places.

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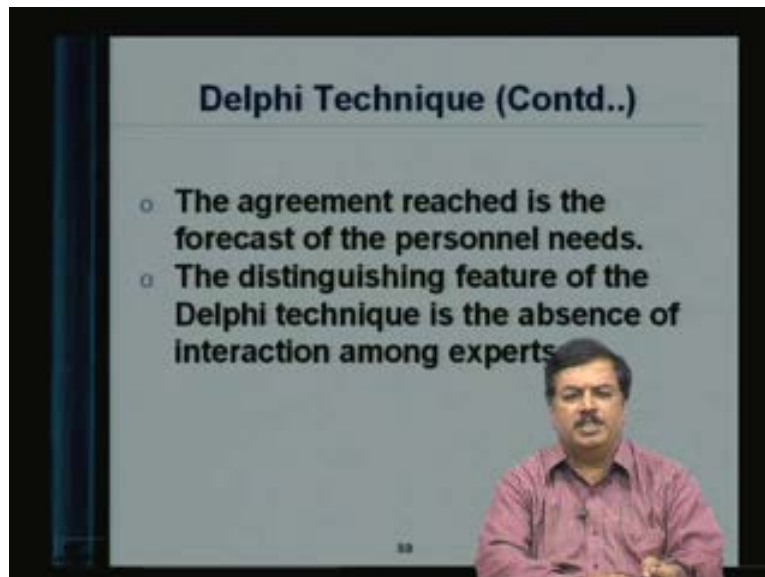
Delphi Technique (Contd..)

- **The experts are surveyed again after they receive this feedback.**
- **Summaries and survey are repeated until the experts' opinions begin to converge.**

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Delphi Technique (Contd..)

- **The agreement reached is the forecast of the personnel needs.**
- **The distinguishing feature of the Delphi technique is the absence of interaction among experts.**

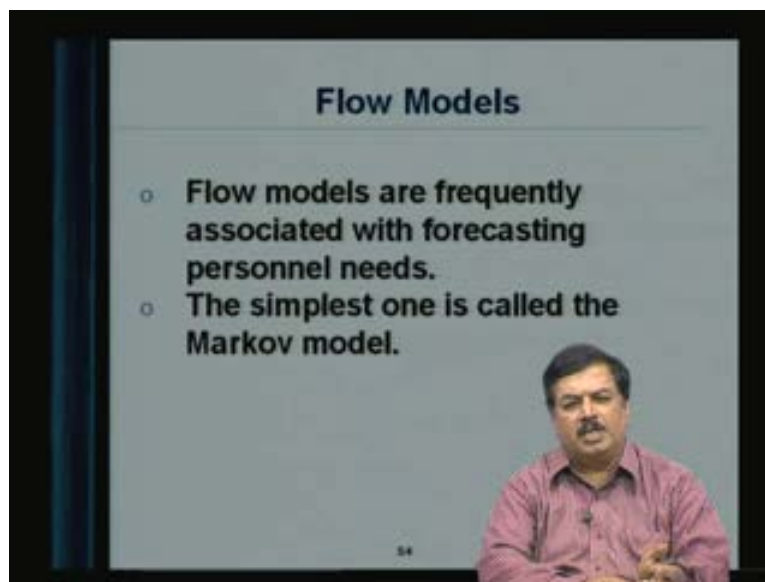
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So they come with some kind of an approximate number based on their past experience and then it is projected to the future and then the Delphi technique is can be used in multiple ways where people can, can revise can repeat over the, you know the revise their estimate based on a kind of a consultation process. So the experts are survived again after there is the summary feedback is

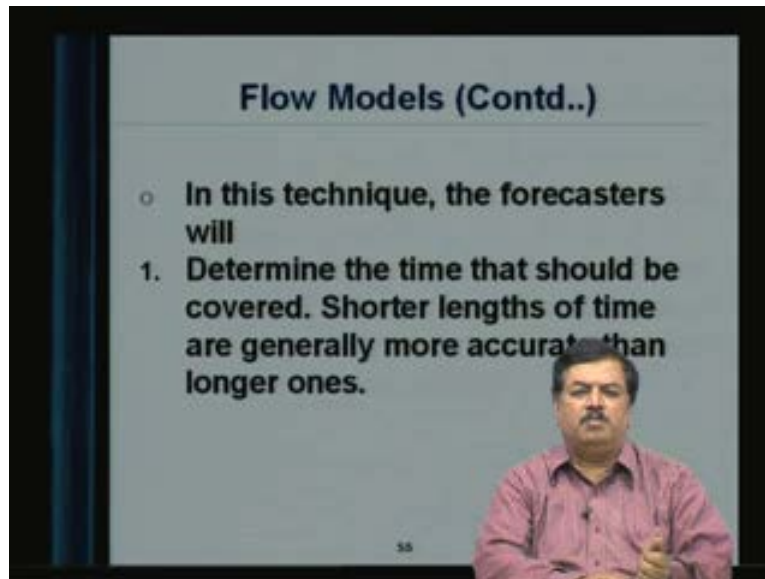
given to them and then a common validation process is adopted. So, 2 to 3 rounds of this kind of an experts opinion and working through we will see that some kind of a convergence coming in and that convergence that agreement would be taken care of I think this how the the requirements to the future and if all the divisional heads of the organization, all the specialist are included in this kind of an exercise that also help some kind of a common framework of building consensus in the organization.

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So in the absence of this active involvement of the experts Delphi technique is not easy to work through then we will also have this kind of a flow models, flow models are frequently associated with the forecasting the personnel needs. The simplest one is called the Markov model, we expect that at each level there are set of people who are coming in the set of people are moving out in the you know moving out situation, they are promoted to the next level they continue to work at the same level some of them also get demotivated, the demoted or they may also go out of the organization, demoted means they are moved from their higher level to the lower level which rarely happens.

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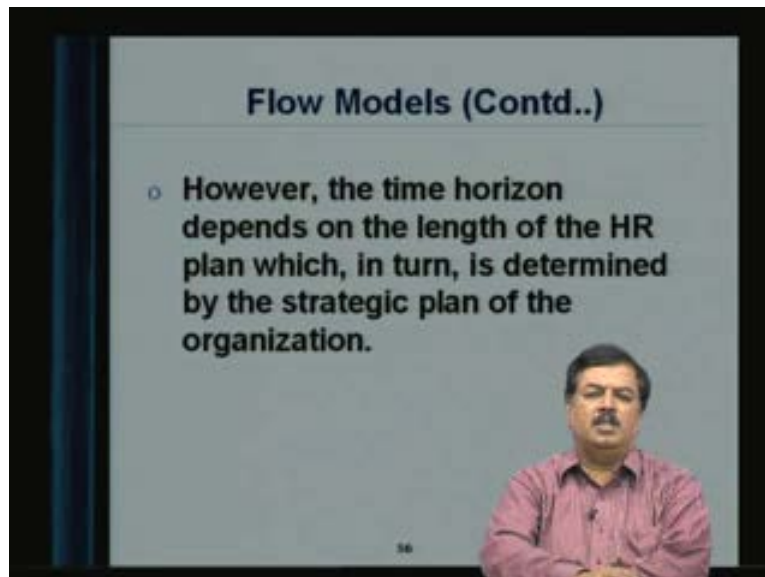
Flow Models (Contd..)

- In this technique, the forecasters will
 1. Determine the time that should be covered. Shorter lengths of time are generally more accurate than longer ones.

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Flow Models (Contd..)

- However, the time horizon depends on the length of the HR plan which, in turn, is determined by the strategic plan of the organization.

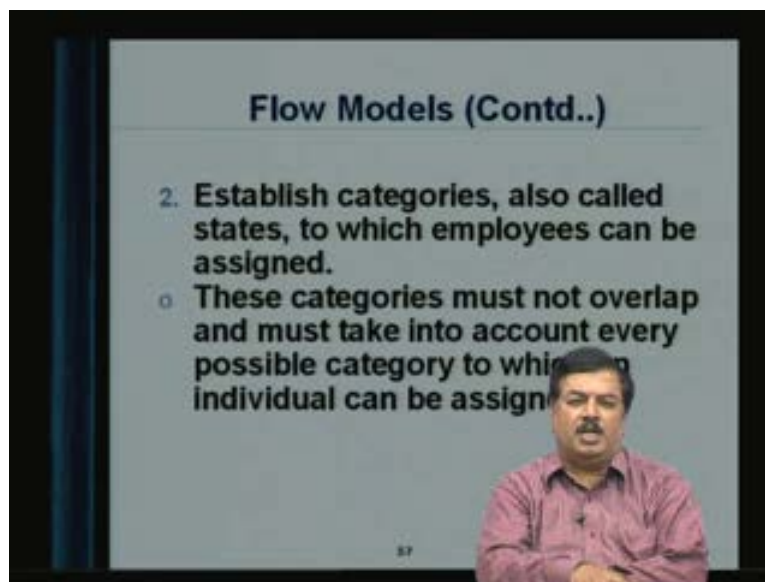
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So determine the time that should be covered because the you know there are shorter lengths of time or sometimes it is the long time but if you see if you are able to look at next 10 to 12 years, I think it is a good enough period where either people would change from one level to the other may be once in 2 years or once in 3 years and then similarly, the kind of changes which is

coming in the in the system but in the flow models what we are talking about is the the time horizon which depends upon the length of the HR plan which in turn is determined by the strategic plan of the organization, if strategic plans are not very clear and then the HR visions and practices are not futuristic, it is difficult to see what should be this kind of a time plan of this flow models but would can establish categories also called as in kind of a states in which employees can be assigned.

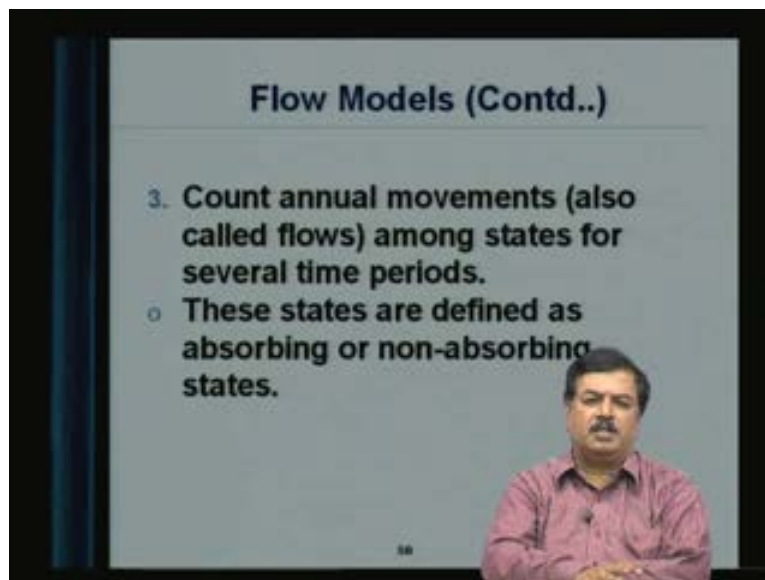
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So different points need to be identified, so this categories must not overlap and must take into account every possible category to which an individual can be assigned. So that means the complete flow of the manpower need to be understood. So in terms of that we take so many trainees the trainees spend about one year of induction process, at end of induction they need to be put as you know the as the first level workers or the first level engineers in 10 departments or a 12 departments or a 15 departments from that they have to move up, so they are work for x number of years in between they are changed from one task to the other but then they are evaluated after end of 2 years.

So at the end of the two years either they continue in to the same position or if they are bright and very good then they are moved to the next level if they are extremely performing well then they are picked up for a future leadership positions are put them onto a fast track. So there are many of these decisions are taken in that kind of a flow model and then you assign a kind of a probability for each of the actions. So that means you will assume that I think I will promote of about 2 percent of the toppers in each kind of a for a fast track kind of an approach then at least brought down of 5,6 percent are you know they put on a slow track for in you know through their investment in their training and development and things like that and at least one to 10 percent of the employees are thrown out that means you know they are given suggestions to move out or move away from the organization.

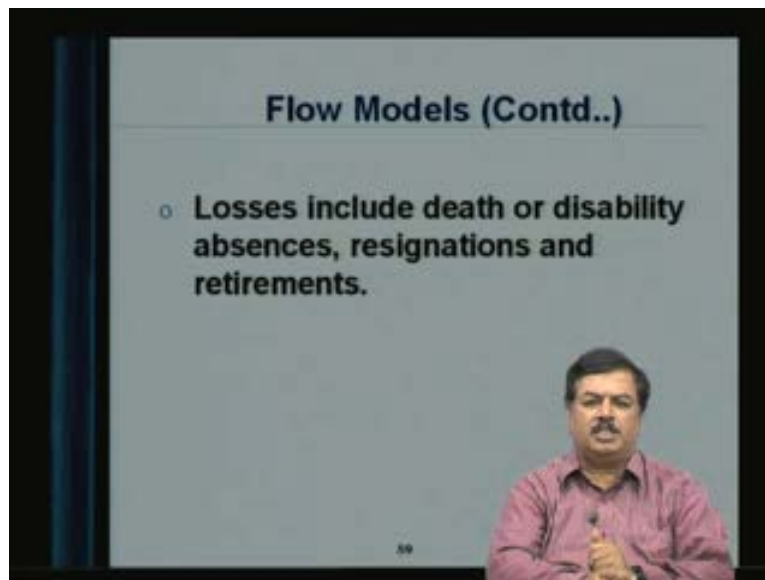
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So there are many of these things one can assume a value and a probabilistic value and then one can build this kind of a flow model to see in next 5 years, next 10 years how the organization would look like if we have the same set of assumptions. So we can think of annual movements also called as the so amongst the various various periods and then arrive at what best could happen. So the way the states are defined as absorbing or non absorbing states and then you think

of the losses which include because of the death or disability which can be expressed as a part of the the accidents rates, absences, resignations and the retirements.

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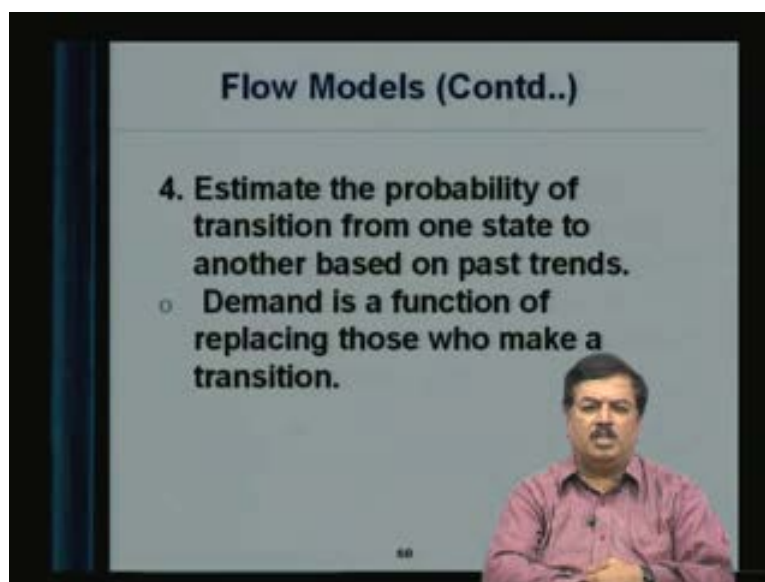
Flow Models (Contd..)

- o **Losses include death or disability absences, resignations and retirements.**

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Flow Models (Contd..)

4. **Estimate the probability of transition from one state to another based on past trends.**

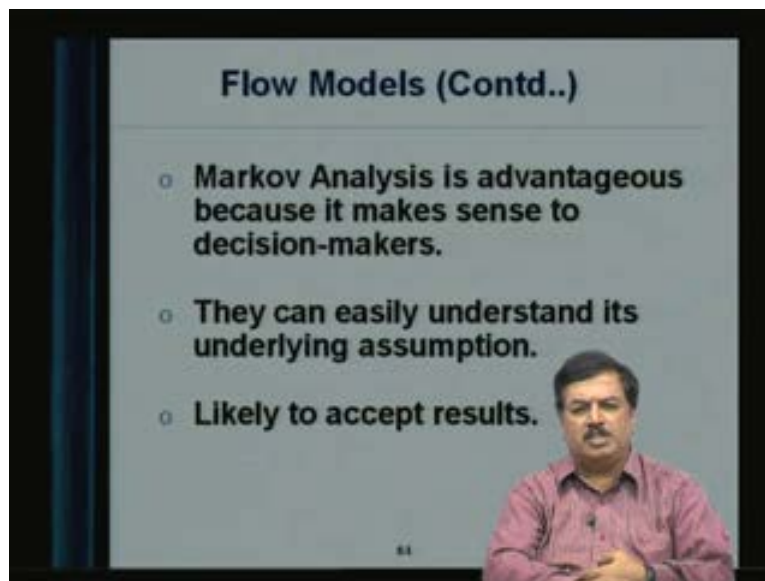
- o **Demand is a function of replacing those who make a transition.**

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So all this can be put as a kind of values so estimate the probability of transition from one state to another based on the past trends. So then demand becomes a function of replacing those who make a transition, so each transition point would ask for, so this Markov analysis is very advantageous because it makes sense to the decision makers.

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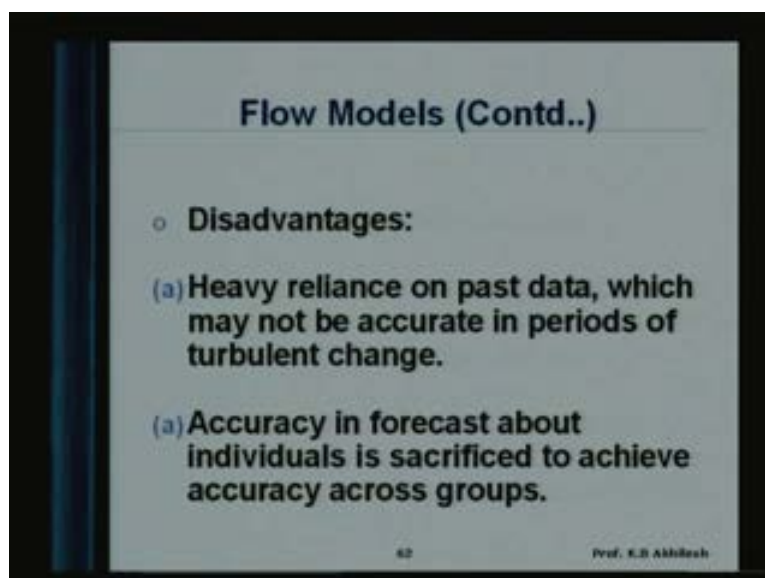
Flow Models (Contd..)

- **Markov Analysis is advantageous because it makes sense to decision-makers.**
- **They can easily understand its underlying assumption.**
- **Likely to accept results.**

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Flow Models (Contd..)

- **Disadvantages:**
 - (a) **Heavy reliance on past data, which may not be accurate in periods of turbulent change.**
 - (a) **Accuracy in forecast about individuals is sacrificed to achieve accuracy across groups.**

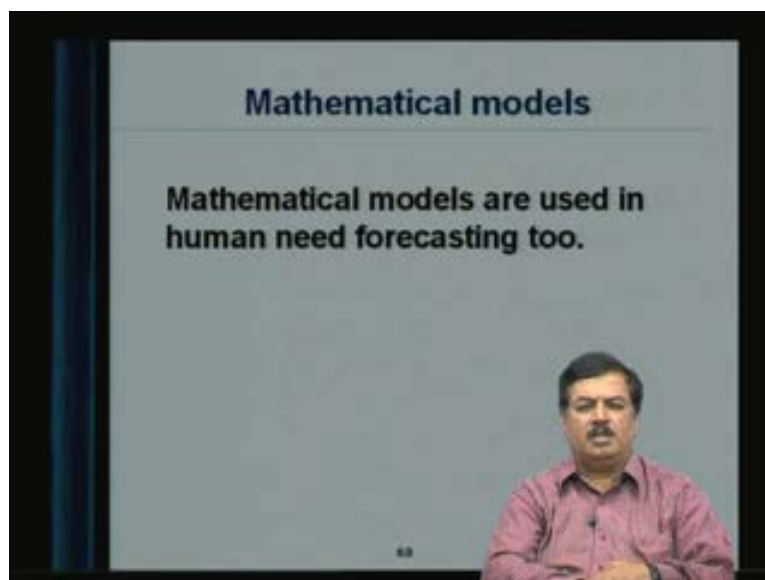
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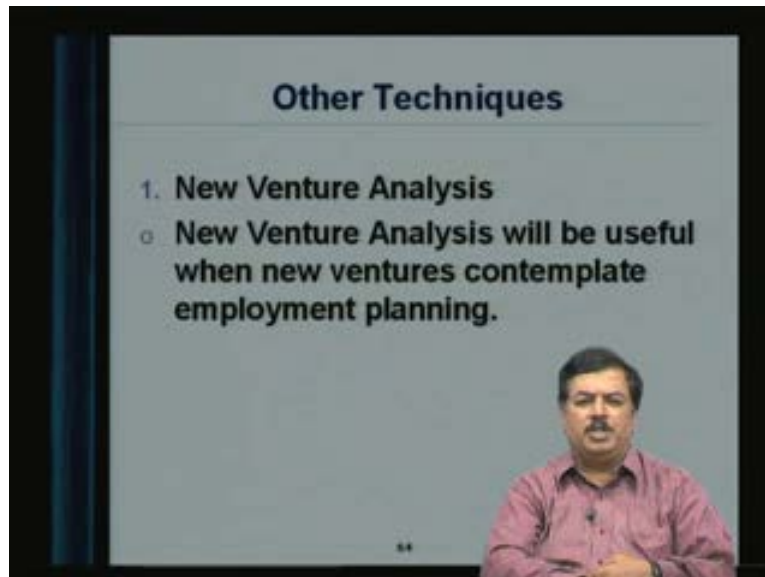
So that it is also you are able to prostrate to the future, they can easily understand whatever is underlying assumptions and according to many we will also get some results which are likely to the closest to the realities of the situations but the disadvantages are there is a heavy reliance on the past data. So and also the kind of a the the the assumptions ,we have made with respect to the probability of similar things happening. So it may not be so accurate in periods of some turbulent changes coming within the organization or outside the organization.

So accuracy in forecast about individuals is also sacrificed to achieve accuracy across groups. So that means we may not take some strong individual differences individual expectations, we may treat all the individuals as same, all departments are same or we may try to forecast across the organization. However, the flow can change within the departments within the divisions of the organization and showing some kind of an imbalances, the mathematical models there also used in a human needs and forecasting but there are other techniques in terms of the new venture analysis particularly organizations are contemplating to get into the some newer activities, related activities when they are getting into the diversification as you see the new activities one need to forecast what are the things to be done.

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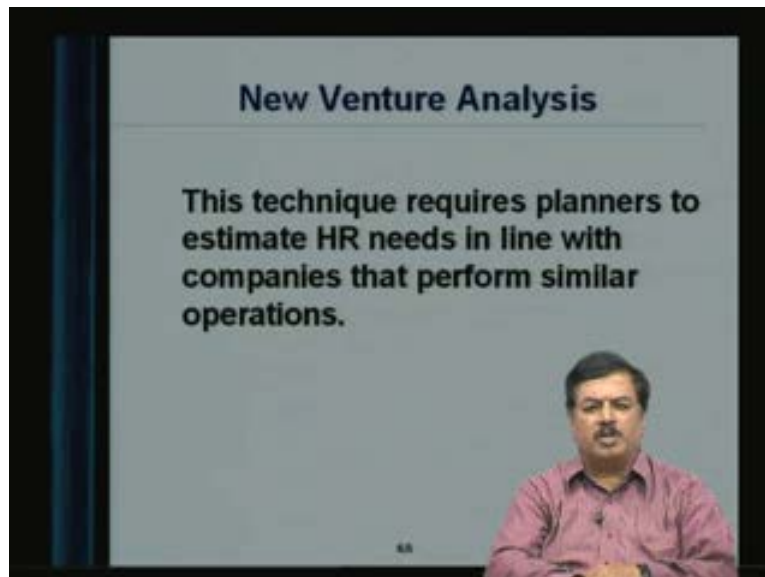
Other Techniques

1. **New Venture Analysis**
 - o **New Venture Analysis will be useful when new ventures contemplate employment planning.**

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New Venture Analysis

This technique requires planners to estimate HR needs in line with companies that perform similar operations.

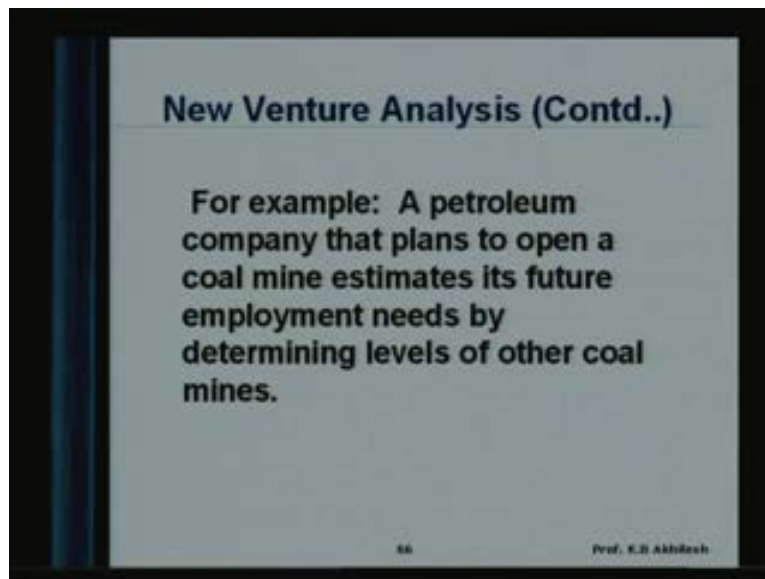
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A man in a pink shirt is visible in the bottom right corner of the slide frame.

In the new venture activities, so planners has to estimate HR needs in line with those companies organizations that performs similar operations. So that means a construction company moving into an IT business. So then immediately you will try and see what is the kind of turnover in it sector where do you source some of these people, what is the supply side in terms of how much

effort or time is required by the organization to train some of these people and put onto the task so we need to estimate how many people are likely to be available for selection when they will be available what is that they need to do.

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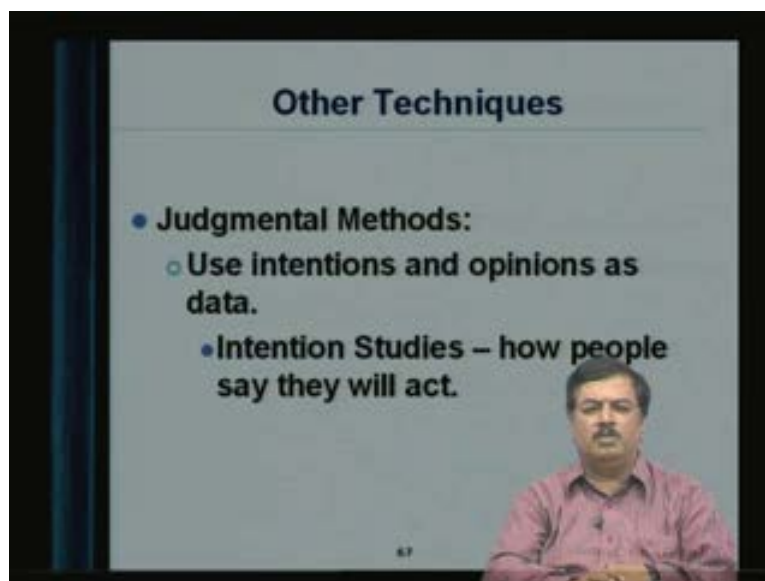


New Venture Analysis (Contd..)

For example: A petroleum company that plans to open a coal mine estimates its future employment needs by determining levels of other coal mines.

66 Prof. E.B. Akhlesh

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Other Techniques

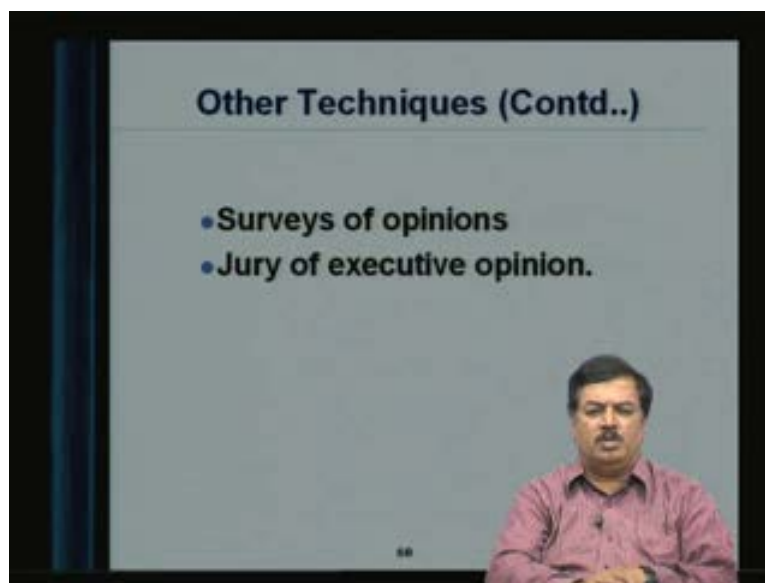
- **Judgmental Methods:**
 - Use intentions and opinions as data.
 - **Intention Studies – how people say they will act.**

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So that there is some set of skills are skills are developed and so that they can become productive to the organization and then what is that the other organizations have done and so we do some kind of a benchmarking tool get into the new things. So it could be you know the capital kind of petroleum company that plans to open a coal mine, so you have to estimate, so the future employment needs and also determining the levels of other you know coal mines and what they do and then put that kind of a things. So the other techniques one can also illustratively mention or the judgmental methods.

So that means you use intentions and opinions as data so people try and see what is going to do for the future how is that you are going to get your people on board and how difficulty towards in the past. So then you try and create that kind of an understanding and an impression is to see how one can look into the future.

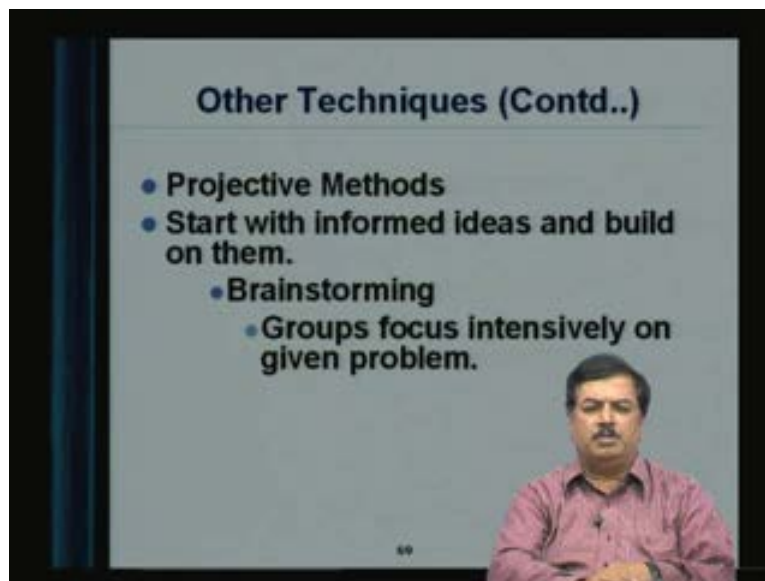
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Similarly, sometimes the survey of opinions in the organization many of the surveys have revealed I think the people have come through referrals have stayed for much longer and also have contributed better. So that means you know you meet to see how can you get more productive employees through the employee referral schemes, sometimes you also have to use a

good number of senior managers to come together and then take a view of what is happening and then also suggest a method of meeting some of those requirements of the organization. Sometimes we also talk about the projective methods we start with the informed ideas and build on that part of the brainstorming. So the group focuses intensively on the given problem.

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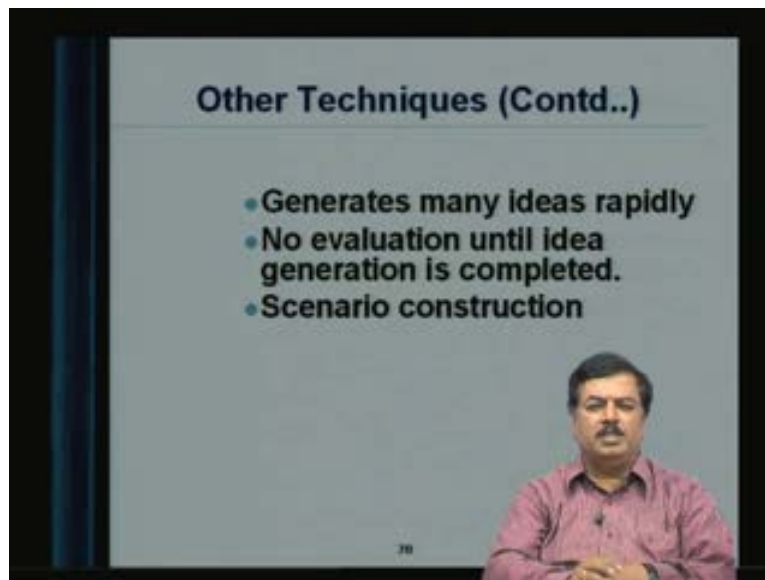


So that means a particular skill sets of the organization or one of the IT companies they were talking about I think they have more java people but they want to have more dot net. So that means you are trying to see okay how do we do that should we should we retrain and reorient existing people or should we get some more people from the outside or should we take some young guys and then build them on to the skill sets I think these are all part of the brainstorming which could lead to set of conclusions.

So as you know the in a brainstorming generates many ideas rapidly, it really difficult to evaluate which idea was be good or anything but then you know you have to go step by step taking all the ideas and then building some algorithms or some flowchart around of those ideas ruling out some possibilities accepting many of the alternatives and then can see to the future. Another

definitely a project, projection method is the very clearly the extrapolation method, you project past and the current trends into the future.

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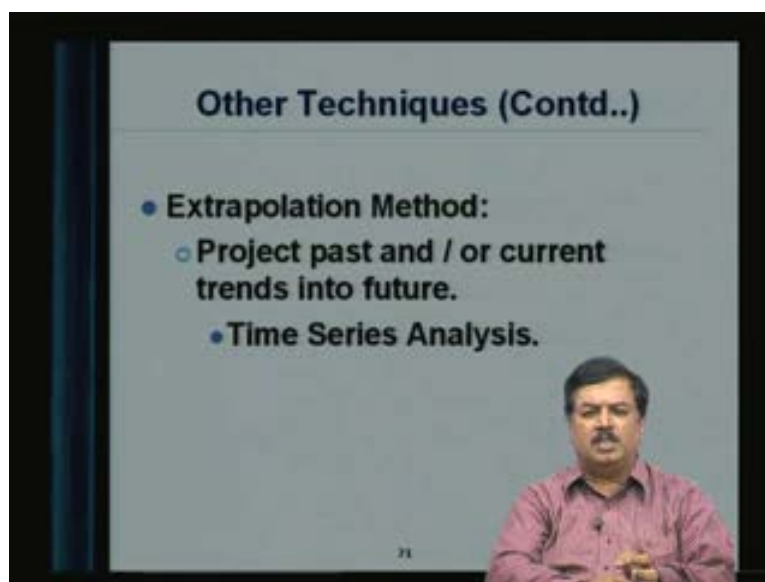
A video frame showing a man in a pink shirt presenting a slide. The slide is titled "Other Techniques (Contd.)" and lists three bullet points: "Generates many ideas rapidly", "No evaluation until idea generation is completed.", and "Scenario construction". The number 20 is visible at the bottom center of the slide.

Other Techniques (Contd.)

- Generates many ideas rapidly
- No evaluation until idea generation is completed.
- Scenario construction

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A video frame showing the same man in a pink shirt presenting a slide. The slide is titled "Other Techniques (Contd.)" and lists two main bullet points: "Extrapolation Method:" and "Time Series Analysis.". Under "Extrapolation Method:", there is a sub-bullet point: "Project past and / or current trends into future.". The number 21 is visible at the bottom center of the slide.

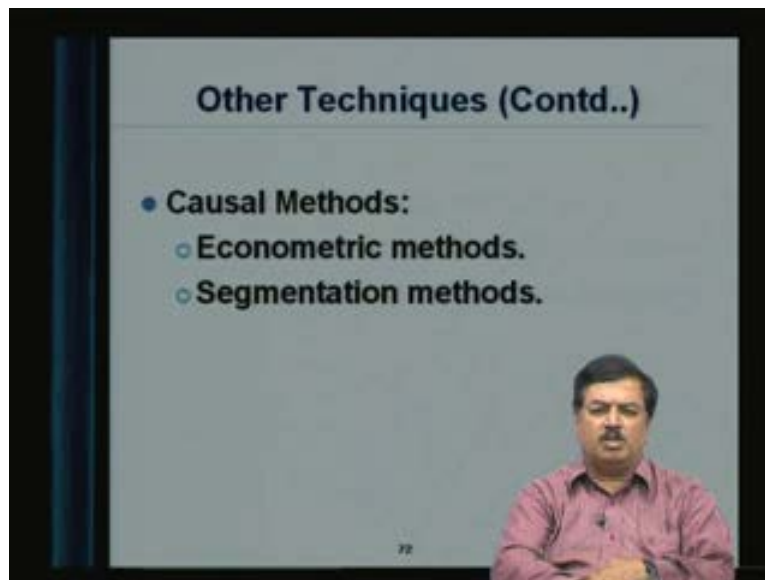
Other Techniques (Contd.)

- Extrapolation Method:
 - Project past and / or current trends into future.
- Time Series Analysis.

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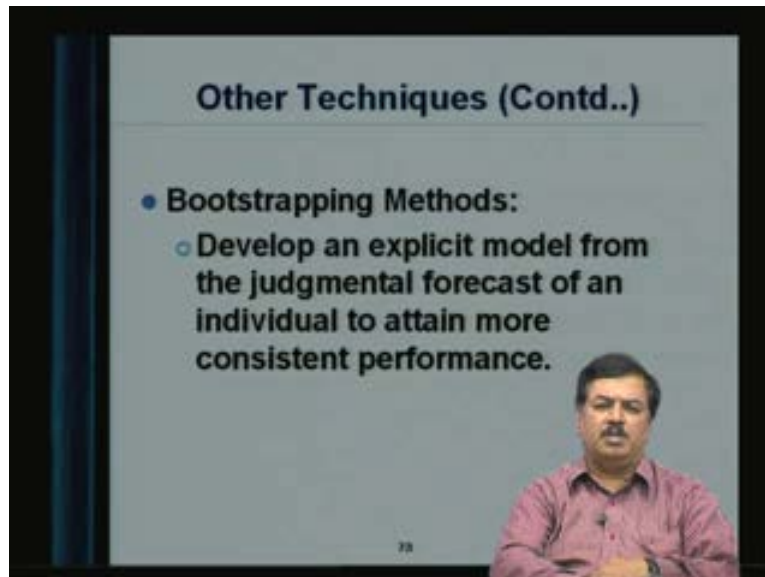
So as typically we go by the kind of a time series analysis. So you will see whatever the kind of growth what you had in the past the kind of ups and downs you had in the past that can be taken as a kind of a value and then we project these details to the future and most organizations adopt this. So that means if the last years growth is about 30 to 40 percent and then you try and assume a similar scenarios to the future may be but plus ten percent a plus 20 percent.

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So you also build some kind of a scenarios then we also have that kind of a causal models where very clearly try and build this some point of an econometric methods or with the help of a multivariate statistics, you try and take several factors of the past and then put them into to the future, how for the future scenarios would look like. In an segmentation methods, you take particular strata of the organization and then try and see how many years it is required to get people at certain levels and whether it is horizontal recruitment or a long term development of the existing people to meet those expectations of the future. Sometimes you also make sure that the you to develop what we are talking about a boot strapping methods is develop an explicit model from the judgmental forecast of an individual to attain more consistent performance.

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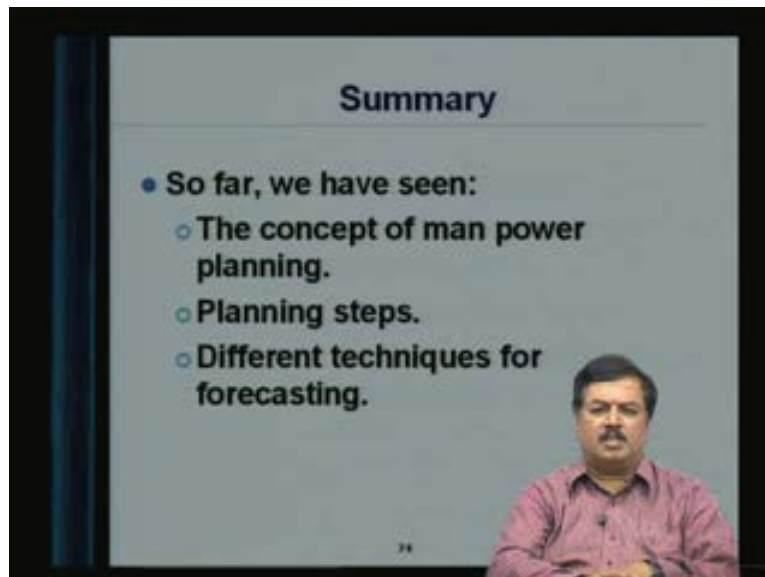


Other Techniques (Contd..)

- **Bootstrapping Methods:**
 - Develop an explicit model from the judgmental forecast of an individual to attain more consistent performance.

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Summary

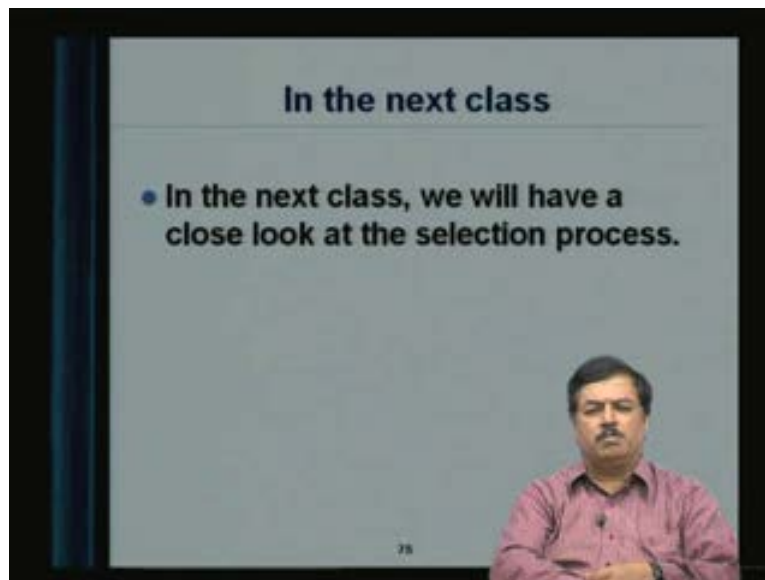
- **So far, we have seen:**
 - The concept of man power planning.
 - Planning steps.
 - Different techniques for forecasting.

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So that means you were rule out yes, I think we would only go by the strategy which has worked in the past and then you continue to believe unless things are going to proof in a different way. So far what I am trying to talk about talk to you is about the concept of man power planning where the effort is to understand the demands of the organization and meet their requirements of

the organization in a systematic way and the having the right persons at the right place at the right time and doing things which are required for the organization and the planning steps could be simple steps of understanding both the requirements of the organization, understanding the factors which create such demands and on the other side to see what are the internal factors a which contribute and change the supplied plans.

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So the supply and demand once it is understood then we move on to the aspect of forecasting, there are different techniques of forecasting and how much of sophisticated one should do it depends upon the context and the requirements. Definitely in the next class, we will have a close look at the selection process, how we recruit, how we get some of the best of the talents to the organization, what are the selection methods, what are the selection procedures. But good job analysis and from the job analysis getting the good job description and then from the job description identifying the specification in terms of who or a what kind of man power is required and linking this requirement of the man power to the overall goals of the organization both short term and long term goals will give a fair idea based on the existing level of performance of the people to see how to recruit, how to retain, how to develop the future human resources of the organization. So that organizational performance can be ensured.