Managerial Accounting
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Lecture - 32
Standard Costing, Mix, Yield, Sales and Fixed Overhead Variances

The dear participants, we were discussing in our last session, Standard Costing and Variance Analysis. In fact, in our last 2 sessions, we have dealing with this important topic. So, let us do a brief recap. So, what is a purpose of this technique, for what is this technique used. I hope most of you are correctly guessing it. This is primarily a tool, used for cost control.

Now, what do you understand by standard? What is a standard? You are right; standard is mainly a benchmark, a norm. This is something with which, we want to compare our actuals. So, before, they starting a period, a standard is set and we put our efforts in the direction to ensure that actual meets the standard. We are more looking at cost standards. So, we will try to see that suppose this is a standard cost, let us say, it is 10 rupees per unit. I tried to keep my cost, below this or not at least more than this.

So, I tried to incur my cost in such a way that they are slightly less than 10, which is an allowed cost. Now, if there is a difference. So, what are the steps first is to set the standard. Then, record the actual; see how much is a difference? We would like that there is no difference. If there is no difference, then variance is 0. If there is a difference, then that is called as a variance.

So, let us say we had in mind the cost will be 10 per unit. Actual cost is say, 9.5. So, there is a variance of 0.5. This is a favorable variance. We are happy that the actual cost is less. We would investigate into the reasons. Since, it is a favorable variance. We would like to retain those reasons. We would like the actual cost to be lesser. If the actual cost is more than the standard. Then, it is a cause of concern. We would try to know the reasons and try to take a corrective action. So, these are the steps in standard costing.

Then, we are look at causes as per each element. So, in last 2 last session, we are discuss material cost variances, what are it is causes? So, it could be more consumption of quantity or it could be difference in the prices. Same way for labor variances, it could be

more or less hours consume or differences in the wage rate as planned versus actually paid.

Particularly, speaking labor cost variances can be broken down into 3 sub parts. It could be because of rate change in the labor rate. It could be because of efficiency or it also be because of ideal type. So, these are the 3 sub parts of labor cost variances. Then, next we are looked at over head variances. First type of over head variances variable over head variances. How do you define a variable over head? This is a overhead, which changes with the level of activity.

So, here the formulas are very similar to labor variances. You have an overhead cost variance. The difference may be because of expenditure or it may be because of efficiency. So, if you end up taking more hours to produce the same number of units. The efficiency is low; that will cause higher variances. So, that is an efficiency variance or the rate itself might have gone up. That is a expenditure variance.

So, variable overhead variance can be broken down into expenditure or efficiency. And in the last session, towards the end, we had started discussion on fixed overhead variances. Now, what do you mean by fixed overheads and can you think of an example. In our last session, we are seen the example of rent. So, this is a cost, which does not change with the level of activity.

Same way, can you think of another example, let us say depreciation. Now, depreciation is fixed for a particular time. It does not change with the number of unit. So, what could be the causes of overhead variances? Now, here, what will happen is, apart from expenditure, the difference, may also happen, because of volume. Because, if actual units and the budgeted units change. It will lead to volume variances also.

Now, volume variance, because we calculate the overhead on per unit bases. If the number of units vary, either they increase or decrease. The overhead, which is charged or absorbed also changes. But, the actual overhead is not related to number of units. So, there is a difference, because of the volume. And if the actual overhead itself changes, it is an expenditure. So, either it can be expenditure or it can be volume.

Then, volume variance also can be due to other causes, like efficiency and so on. But, we are not going into those details right now. We will just look at, how fixed overhead

variance can be broken into expenditure and volume. Let us look at the formulas, which we had seen last time.

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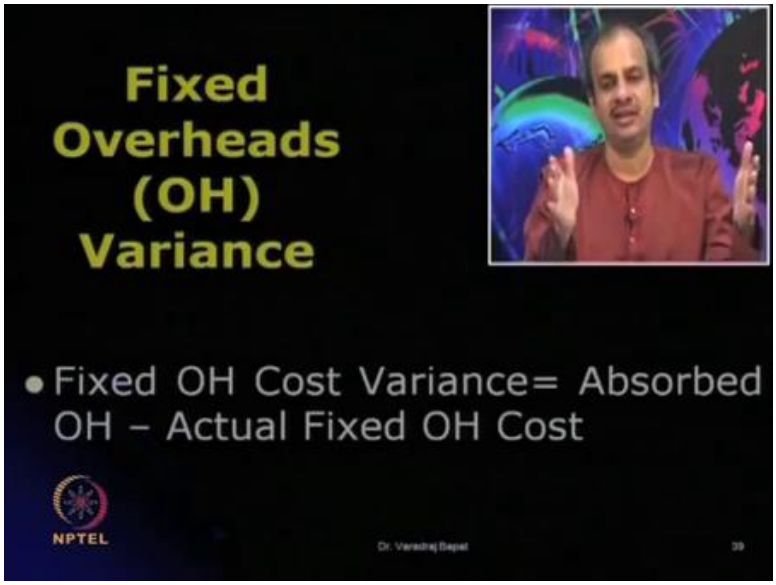

So, fixed overhead, cost variance, it is absorbed overhead minus actual overhead. So, by absorbed overhead, we mean that we will have a budgeted rate. That is per unit, so much expenditure on fixed overhead is allowed. So, we will look at actual units and charge those units at that rate. That is called as an absorbed overhead. That is compared with the actual cost incurred. That difference gives us the total fixed cost variance.

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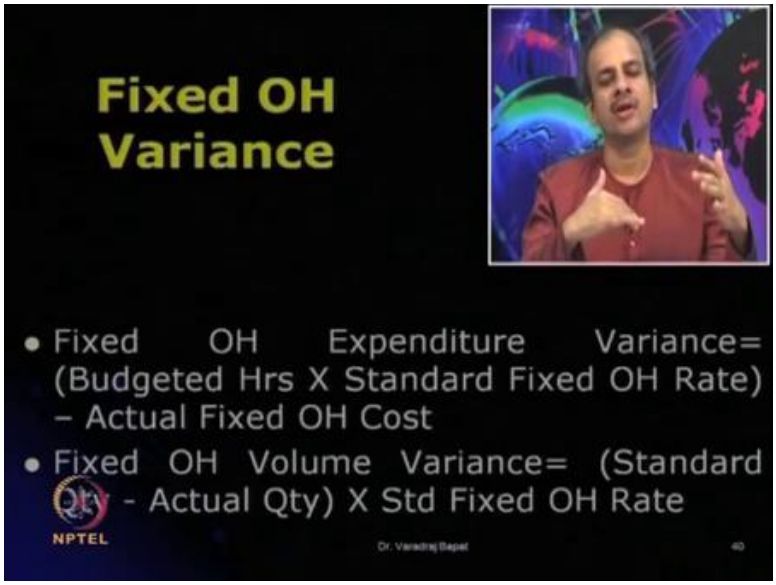

This can be broken into expenditure and volume. So, while, calculating expenditure variance, we will look at budgeted hours into standard rates. And for calculating the volume variance, we try to find the difference between standard quantity or the budgeted quantity versus actual quantity and multiplied by the standard overhead rate. So, how much, differences because of volume will come from this formula.

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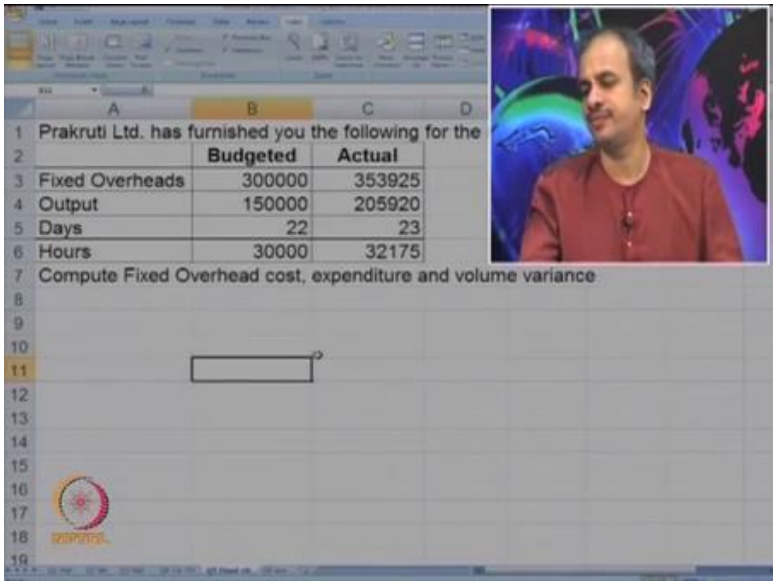

Now, let us look at the case. So, for a company called Prakruti limited, certain data is available, have a look at this data. So, fixed overheads, as per the budget was 3 lakhs. But, the actual fixed overheads have been more. They are 353925. Now, we are looking at the causes. One cause could be change in the output. The output units were budgeted at only 150. But, the actual production is good; it is 205920.

Number of days in that month have also be more. Instead of 22 days, there are 23 working days, may be lesser holidays or for whatever lesser number of Sundays, etcetera. Then, hours are also different, instead of working for 30,000 hours, they have worked for 32,175 hours.

Now, looking at this data, we have to calculate the overhead cost variance, expenditure variance and volume variance. So, now, think over, how to calculate? In the PPT, we have also seen the formulas. So, first we would like to make a table. To look at, if these budgeted rates are considered, what would be the absorption rate or what will be the rate per unit.

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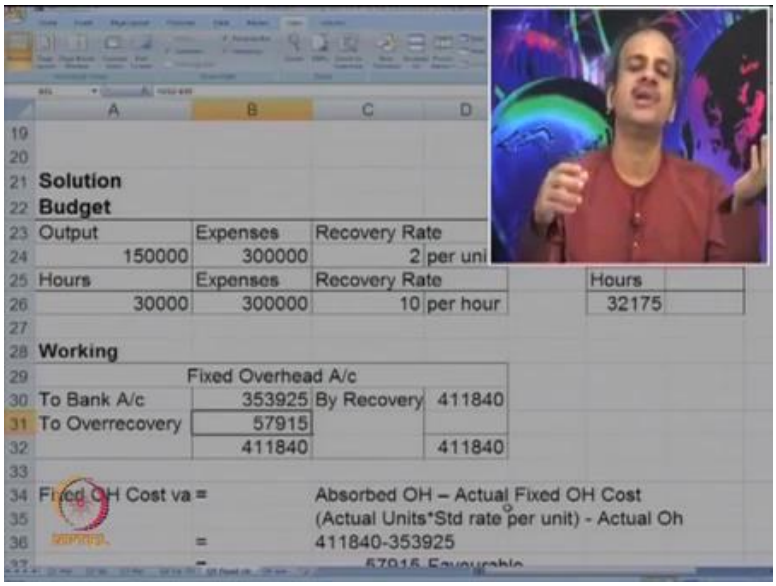

So, you know that at budget, the expenditure on fixed overheads was planned at 3 lakhs. The units were taken at 1,50,000. So, recovery rate or absorption rate, comes to 2 per unit, am I correct. So, it is 3 lakhs upon 150, I get 2 per unit. You can also look it from number of hours angle. So, if you look at number of hours, 3 lakhs was the fixed cost and 30,000 hours were suppose to be worked. So, 3 lakhs upon 30,000.

So, in terms of hours, the rate comes to 10. Now, let us have a look at the actual data, I have just copied it here. This is the actual output, actual overhead expenses and actual hours. Now, we can calculate fixed overhead cost variance. I have just also shown it in the form of a ledger account, to make it clear, how a comparison is made. So, you can see that our rate was 2 per unit. We have incurred 353925, which comes from this actual data.

So, if you make a fixed overhead account, the amount spent is 353925. The actual output is much more, it is 2,05,920 and we have calculated a rate of 2 per unit. So, 3, 205920 into 2 per unit, it will come to 411840. So, for each unit, if you charge 2 rupees, for Those 2 lakhs per units, we will recover 411840 and the expenditure is 353925.

So, you can see, there is over recovery or over absorption, instead of amounts spent of 353. We have charged 411. So, there is a over recovery of 57915. We can also for calculate it by way of a formula. So, you can see the formula is absorbed overhead minus actual overhead. Absorbed overhead is actual units into standard rates minus actual

overheads. Our actual units are 205920, which are charged at 2 per unit. So, 411840 minus 353925. So, we have plus 57915 or it can be called as 57915 favorable. This is the overall cost.

Now, though overall cost variance shows a positive figure. That does not necessarily mean that everything is right. We have to go into causes, that weather it is because of more units produced. Because, you know that instead of 150, we have made 2 lakhs plus units. So, more units have lead to more recovery. So, is it because of more units alone and how much is an expenditure control. So, first sub variance will be for fixed overhead expenditure.

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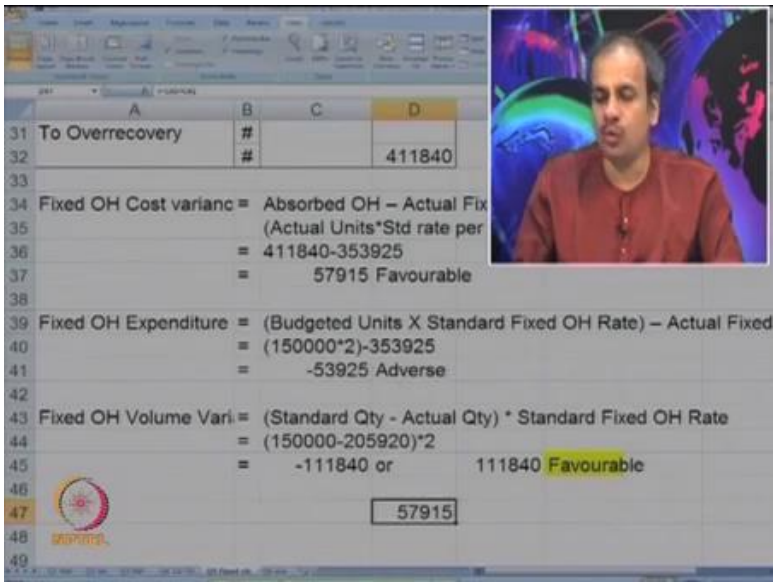

Now, here we look at budgeted units at a budgeted rate. So, we had thought of 150 budgeted units and they were charged 2 rupees. So, we must have incurred only 3 lakhs. But, we have incurred more, we have incurred 353925. So, it leads to difference of 53925. This is an adverse variance.

So, it everything was not positive. Overall variance was 57915 favorable, but in that 53925 was an adverse variance. That is an overhead expenditure variance. So, company odd to have spent only 3 lakhs, as per the budget, but they have spent more. So, in terms of expenditure control, they have failed. The expenditure has crossed, what must have been incurred.

So, expenditure variance is 53925 adverse, but the volume variance is positive. Now, will look at the volume variance, the formula is standard quantity minus actual quantity. So, here the focus is on, the units which were produced more than planned into standard rate. This is into, this is not minus, though it shows minus, I will just correct it, so standard quantity minus actual quantity.

So, instead of 150, I have produced 205. So, 1 lakh, 50 minus 2 lakhs, 5920 and we charge it at 2 rupees per unit, so into 2. So, this shows, minus 111840. Now, is it favorable or adverse? Now, this is tricky, you have to be very careful, that is why I have changed the color. Though, this is a negative variance, this is a favorable variance, this is an exception.

Mostly, what happens is, we are calculating cost variance. So, for example, in expenditure, instead of 3 lakhs, we have spent 353. So, 3 lakhs minus 353 minus 50 3, it is an adverse variance. But, now what happens is, in case of volume, instead of 1 lakh 50, if you produce more units, it is not a bad sign, it is a good sign. That is why; for a volume variance, negative variance is considered favorable.

So, I will just restate it for more clarity. So, the correct answer is, either you say, it is minus 111840 or it is 111840 favorable, keep in mind. In case of volume variances higher or negative figures indicates a favorable. But, for cost variance negative is adverse. Now, we can do a cross checking, we have 111840 favorable and 53925 adverse.

So, if you do this minus, these we get 57195 favorable, which is our overhead cost variance. Now, let us go to one more type that is on sale variance. In general, what do you understand by sale variance, if you compare the budgeted sales versus what has been achieved, that will show the difference in the achievement of our marketing team. That is a sale variance.

In sale variance, often instead of standard, we use the budget. Because, there is nothing like standard there, for a cost, you can have a standard, what sale. But, sale, we make some budget. So, that you can compare the actual with that norm which is a budget. So, sale variances are typically difference between budgets. And actual, because we are looking at, how much, we have deviated from, what was budgeted.

So, first of all, what could be the causes of sales variances? Can you think of the causes, why the budgeted sales and the actual sales may vary? Just think over the cause. Similar to the material, what might have changed is a rate. So, we thought, we would sell at 20 rupees per unit. But, market conditions are favorable, if we can sell it at 23 rupees, we recover 3 rupees more. That is a rate variance.

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Similarly, sometimes, we might have sold more units. So, that is a change in the number of units sold or our volume. That volume also would be, because of more market share by our company. So, we have pushed down our competitors and we have sold our units more or what might have happened is a market size itself has increased. So, earlier market size was 50 lakhs. Now, the new market size is 80 lakhs. So, all the players are able to increase the number of units, market share might have remain same.

So, either it could be changes in the market share or it could be changes in the market size itself. So, these are the main causes change in the price market size or market share. Now, let us look at the actual calculation.

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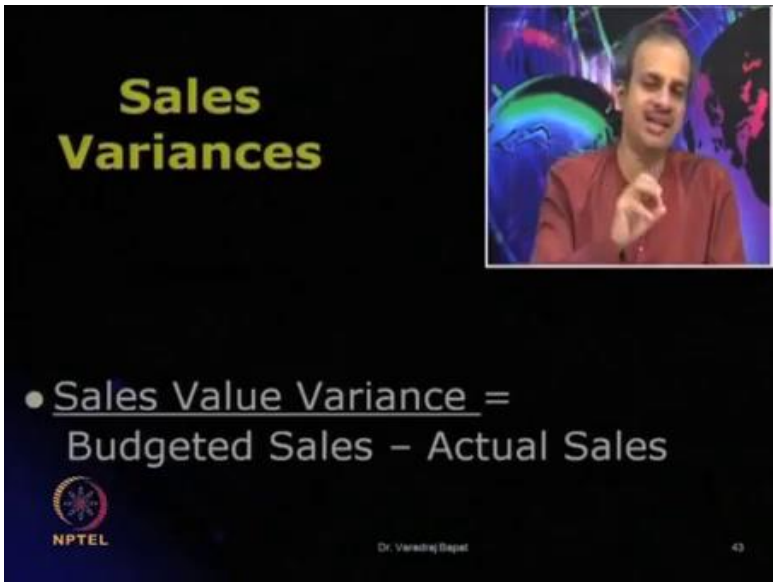

Now, overall sale variance, the total variance is known as sale value variance. So, this is the comparison between budgeted sales versus actual sales. In case of cost variances, if you remember, we use to call it material cost variance. And then break it down into what, do you remember, material cost variance price and quantity. Same way, in sale variance, but we will call this sale value variance. Because, it is not a cost, it is a value of sales, which has increased or decreased. So, sale value variance and it will be broken down into rate or quantity or sometimes, we call it price or quantity. So, sale value variance is budgeted sales minus actual sales.

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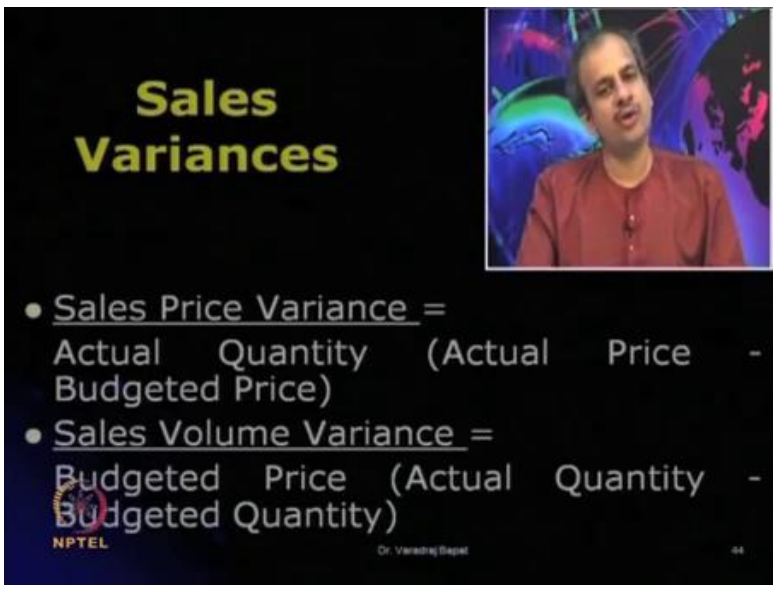

The causes could be prices or volumes. When we calculate price variance we compare the price in bracket. So, we have taken actual price minus budgeted price and multiplied by actual quantity. The 2nd is sale volume variance. In volume variance, as you can see, we compare quantities. So, we have taken actual quantity versus budgeted quantity and multiplied it by budgeted price. So, we will look at a case and try to compare the two variances.

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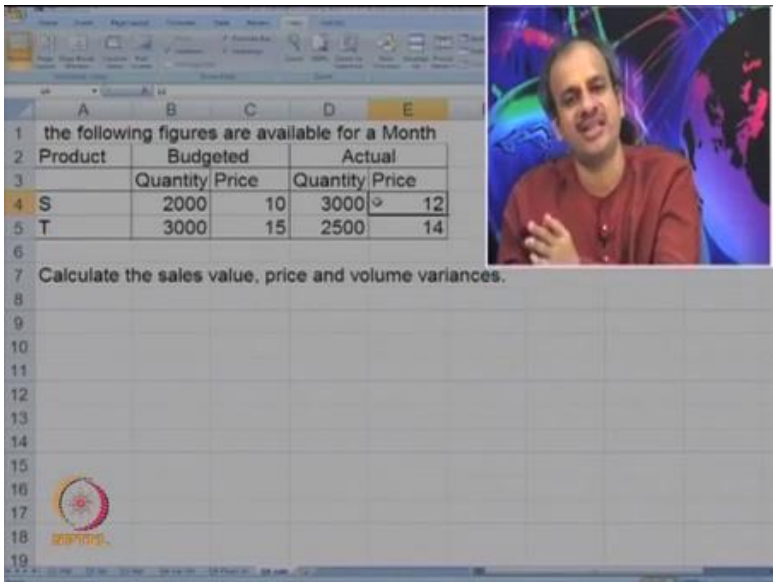

Please read this case carefully. Since, now we have already material and labor variance. I think, you can easily do it on your own also, please read it carefully. So, there are two products S and T. Quantities and prices are given, as per budget it is 2000 at 10 rupees for S and 3000 and 15 rupees for T. The actual quantities and prices are also given. And we have been asked to calculate value, variance price variance and volume variance.

So, now think over, how we will proceed? It is very simple, I would like, you to give a try. So, first variance is value. That is a total. Overall, what is a variance, how do you calculate it. So, if you multiply the quantity by price, you will get the total budgeted sales. And same way, for actual also will multiply quantity into price, we will get the actual sales. That difference will be nothing but the value variance.

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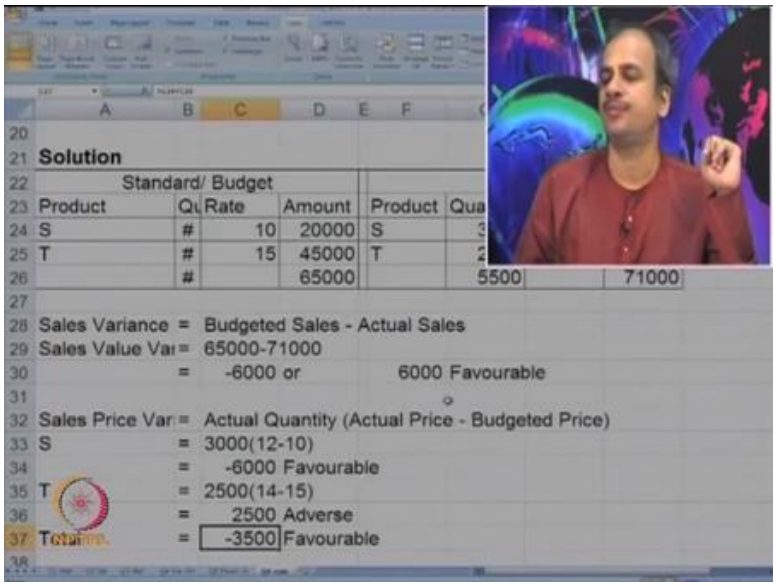

Let us see how it has been done. So, first we have made a table, a simple table. Wherein, we have compared the standard or the budget. So, we get the total budgeted sales at 65,000. Actual sales, you can see has is better, it is 71,000. So, we have done multiplication for S and T and take the sum. So, we see that the actual sales are more than the budget. It is a good sign. That is known as a value variance.

So, budgeted a sale value variance, you are comparing the budgeted sales minus actual sales. This is also sometimes simply known as sales variance. But, I will just write both the names for more clarity. Either you call it sale variance or you can call it as sale value variance, both are carrying the same thing. So, you can see that it is 65,000 minus 71,000.

So, you get minus 6000, is it adverse or is it favorable to the company? I think, it is very clear, it is favorable. We have been able to sell more than budgeted. We thought, we will our sale will be only 65, but we have been able to take our sale to 71. So, here this minus 6 indicates positive. It is a good sign for the company. So, we can say, it is 6000 favorably.

Now, why is it so? once, again same thing like, it see so far. Fixed overhead variance, this is not a cost variance. In cost variance, what happens, if actual exceeds the budgeted cost it is a problem. In case of sales, if actual exceeds budget, it is good. So, here the minus 6000 is same as 6000 favorable.

Now, will look at the causes, one of the causes is prices. You can see the price is different. So, we thought of selling it at 10, but we could sell it at 12. This is called as a price variance. We will calculate it separately for S and T, please see the solution. So, you can see, what has been done? This is actual quantity and we are comparing the 2 prices.

So, instead of 10, we have sold at 12 for product S, so 12 minus 10. So, we have 2 rupees more into 3000. So, 6000 is answer minus 6000, it will come, if you do at budget minus actual. So, this minus 6000, but still it indicates 6000 favorable. If you look at T, it is 15 minus 14. So, 1 rupee is less in this case. So, it is minus. So, it is 2500, it is adverse, 6000 favorable versus 2500 adverse and 2500 adverse. So, we get 3500 favorable in the end. This is as far as the price issue is concerned.

Sometimes, people write it as 14 minus 15, sometimes as 15 minus 14. You can go up and actually it is a comparison of budget of 15 versus actual of 14. So, difference is 1 and this difference is adverse, because actual price is less than budget. So, the variance of 2500 for T, it is adverse for S, it is favorable. So, total variances 3500 favorable. This is a sale price variance. Now, the other variances, because of volume or because of quantity.

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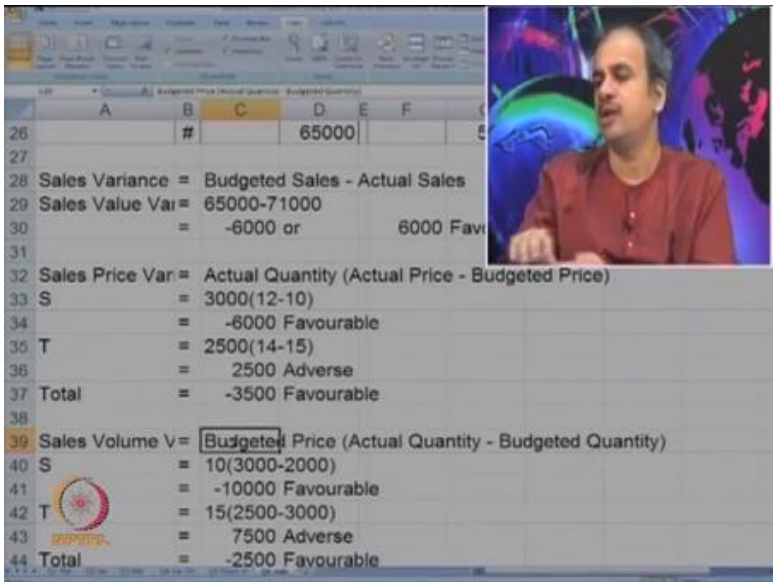

Now, this is a sale volume variance, you can see the formula here. Basically, compares the two quantities. So, actual quantity minus budgeted quantity or you can take it as budgeted quantity minus actual quantity, whatever it is into budgeted price.

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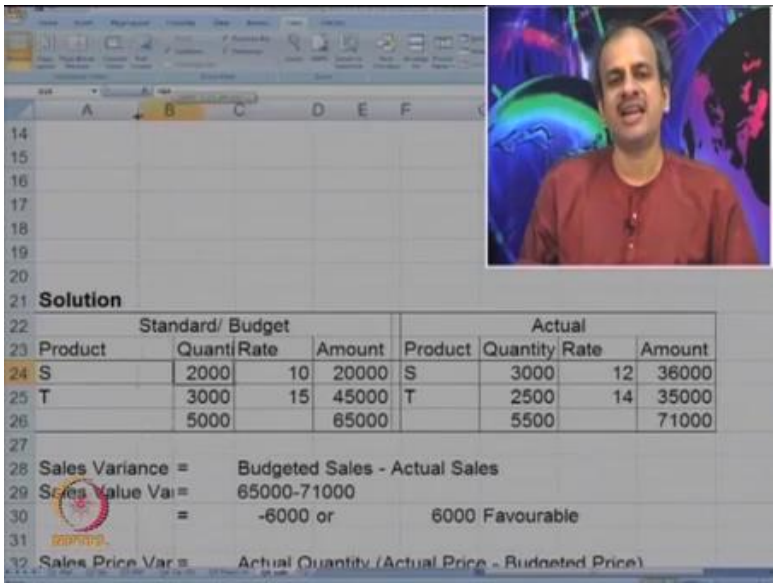

So, we thought of selling for S, we thought, we can sell only 2000 units. But, market is quite favorable. We could sell as much as 3000 units. So, it is a good sign. For T, the market is not much favorable. So, instead of 3000 as per budget, we could sell only 2500. Now, let us look at the variance. So, for S, it is 3000 minus 2000 into 10. So, we get minus 10,000 or it is 10,000 favorable.

For T, instead of 3, we sold 2500. So, 500 at 15 rupees, keeping mind, we multiply this by budgeted price not by the actual price, because as per norms, we could have sold it at 15. So, we multiply it at 15, we get 7500 adverse. So, overall, you can see 7500 adverse and 10,000 favorable. So, 2500 adverse; do not worry about this negative and positive sign. It depends on, how you write the formula.

If in bracket, you say actual minus budget. It will be a positive. If you write budget minus actual, it will be the other way round. But, anyway essence is this 10,000 favorable, 7500 is adverse. So, overall, it is 2500 favorable. Now, if you do an overall picture, you will realize that volume variance, we ended up with 2500 favorable. Price variance is also good, it is 3500 favorable. So, on a whole it is 6000 favorable.

That you can compare with the figure, which we had already calculated. So, instead of 65, our sale was 71. We showed that 6000 was favorable. We broke it down into price cause; because of prices we have earned 3500 more. And because of more units sold, we have earned 2500 more, which is in turn broken into S and T also.

Now, this calculation will be very much useful to analyze the performance of our marketing team. So, we know; what were the targets set, what are their achievements in terms of the quantities. We also know, how much more or less revenue was earned, because of the prices. Now, we have seen all the variance, which we were, suppose to see, we were calculating.

We started, if you remember with the material variances. Then, we calculated labor variances. Then, we calculated variable overhead cost variances, fixed overhead cost variances. And the last variance, which have now calculated are sale variances. So, different aspects of business, the idea is to have a benchmark, compare the actual with the benchmark, and then analyze the causes. That is a variance and the analysis. So, what will be the advantages of standard costing?

Now, that we have calculated various variance. I think, you can imagine, what will be the benefit, what is the advantage of standard costing. Can you think over, one major advantage, obviously is cost control. We would like to control our cost. When, we have a standard costing mechanism, we have a set standard. So, as we were discussing initially, suppose we know that the cost per unit should be 10 and actual comes out to be 13. We know that something is wrong, 3 rupees incurred is more. So, we try to control the cost.

So, there will be a continuous comparison being done and efforts to control. So, it acts as a control mechanism, rectifying action takes place fast. It does not happen, that we have to wait for a long time. Right from first week or first forth night, we know that something is going wrong, we have something to compare. So, we have timely rectification. It also acts as a motivator.

Because, now employees know, what is a target? They know, what is expected out of them, because otherwise everybody is just trying to work in without a specific target. In standard costing, it becomes clear to them, that this is the target, they are suppose to achieve and on those lines, they still try to achieve it. So, it is acts as a motivator. Now,

what are the disadvantages? One major disadvantage is that it is relatively a complicated system.

It is not very easy. First of all to set the standard only for the processes, which are mechanized, which are standardized may be possible. But, number of jobs, may be unique in nature. Our products may be unique; our customer's requirements may be highly customized or specific. So, it becomes difficult to set the standards anytime.

That is a one problem. 2nd standard costing requires a detailed records. In earlier days, when the records were kept manually, especially, it was compulsion. Now, with the use of ERP systems, with use of IT, it has become relatively easy to keep a detailed record. So, these are the disadvantages.

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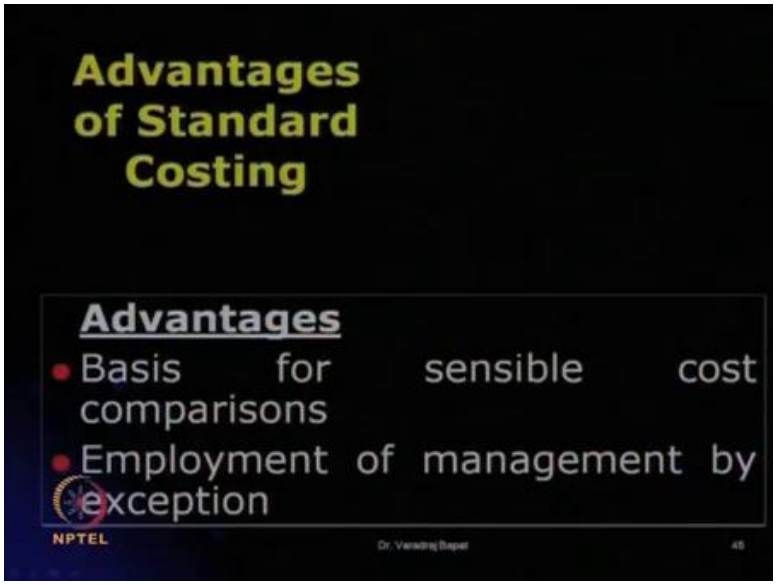

Now, let us look at then once again on the screen, so one major advantage is that standards acts as a bases for sensible cost comparisons. Otherwise, what happens is, we just compare with the past year. So, past year may not be good. In the last year, if you incur excess cost. This year, it automatically becomes the bases to incur excess loss. That does not happen in standard costing. In standard costing through proper analysis, we know the target.

So, it serves as a sensible comparison. 2nd is, there is an employment of management by exception. Now, what is this management by exception, if you remember, we had

discussed it, when we discussed budget. So, management does not have to spend time on everything. If there are 1000 items, you do not have to spend time on 1000 items. We will just look at, what is going wrong and focus attention there.

So, standard cost data, we will show the variances. And variance analysis, will let us know for which product or for which period the actual have crossed. So, we will analyze the reasons, we will look at the causes. So, management's time is saved and their efforts have properly channelized and we can use management by exception, because of standard costing.

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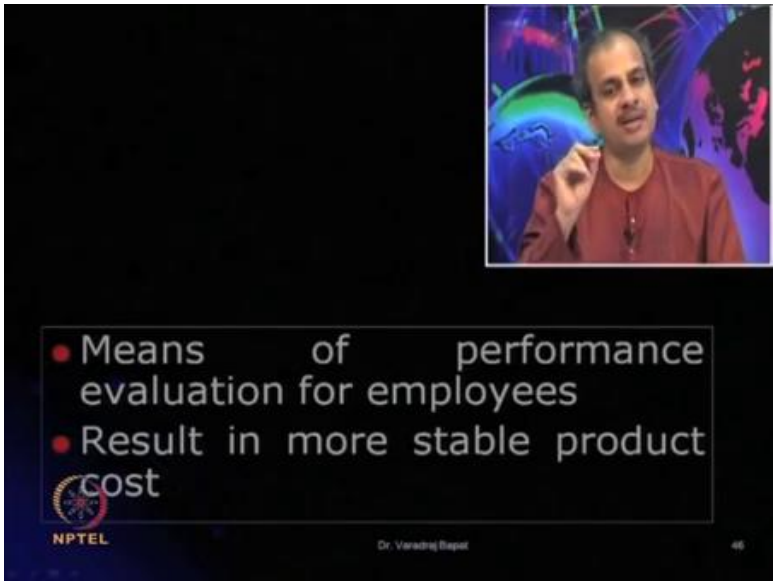

One more advantage is that it becomes a sound bases for performance evaluation. Since, the target or the benchmark is known. The performance evaluation also becomes systematic. And we get stable product cost, because actual may sometimes vary.

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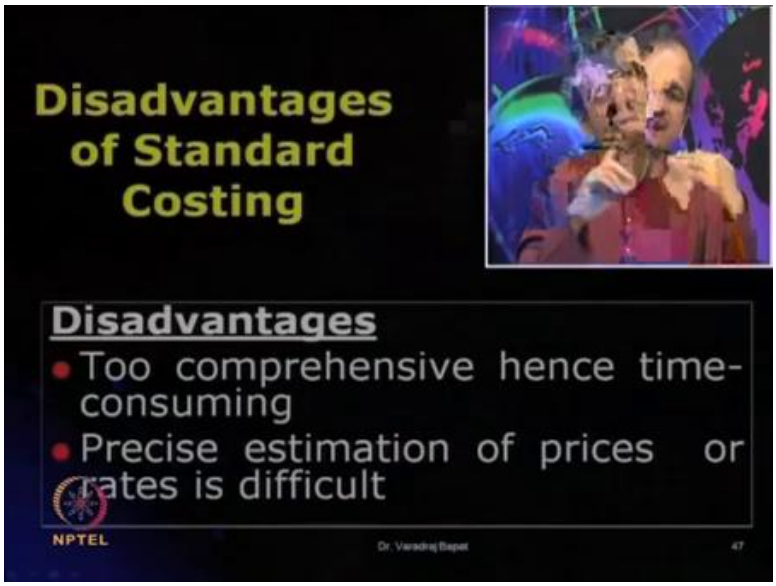

But, since, there a few disadvantages, as we had seen it is a comprehensive in a time consuming system to record everything, to set the standard. Precise estimation of prices or rates generally is difficult. We may decide, how much quantities required. But, it becomes often difficult to know or estimate, what would be the prices in the budget period.

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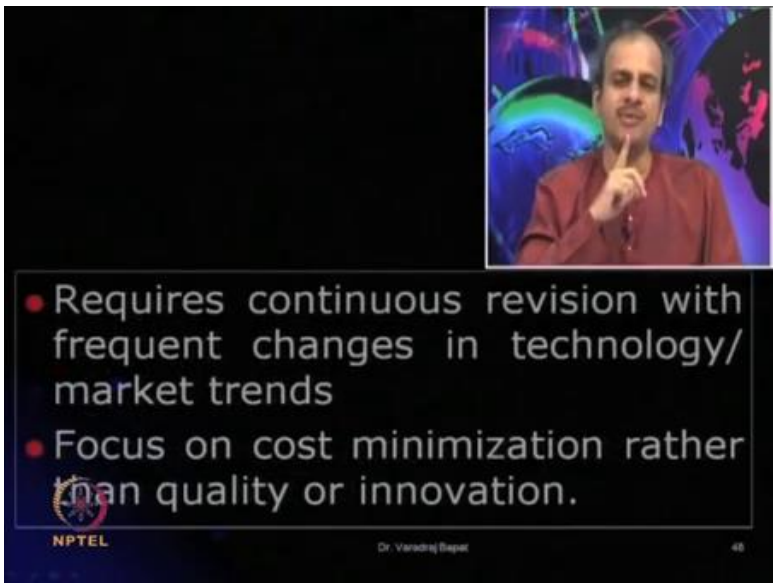

Then, many times, what happens is, technologies and market change frequently. So, we need to see that the standards are also revised frequently. Otherwise, if market trends

have changed, but we do not revise standards. Then, the calculation of variance and variance analysis become senseless. So, care has to be taken to revise the standards frequently.

One more point is, the whole energy, then gets channelized on cost minimization. Definitely, cost minimization is very important and standard costing helps us to control the cost. But, the focus on quality should not be lost. If the only target to manager is to maintain the cost at standard, let us say our standard is 10 and we just look at ensuring that the actual cost is less than 10.

Sometimes, quality may be compromised. That should be ensured that it should be ensured that quality is not affected and we show also think of innovations. In standard costing, what happens is the practice gets standardized. We know that this material should be used; this is a procedure, only this way the work should be done. There could be other better ways.

So, human mind is innovative, we can think of 10 better ways than doing. But, standard costing does not encourage different employees to follow different ways. All are forced or all are told to follow one standard way. It is good for cost control. But, sometimes, it affects innovations. So, parallelly management should do some efforts to promote innovation. So, now, we have had a look at advantages and disadvantages of standard costing.

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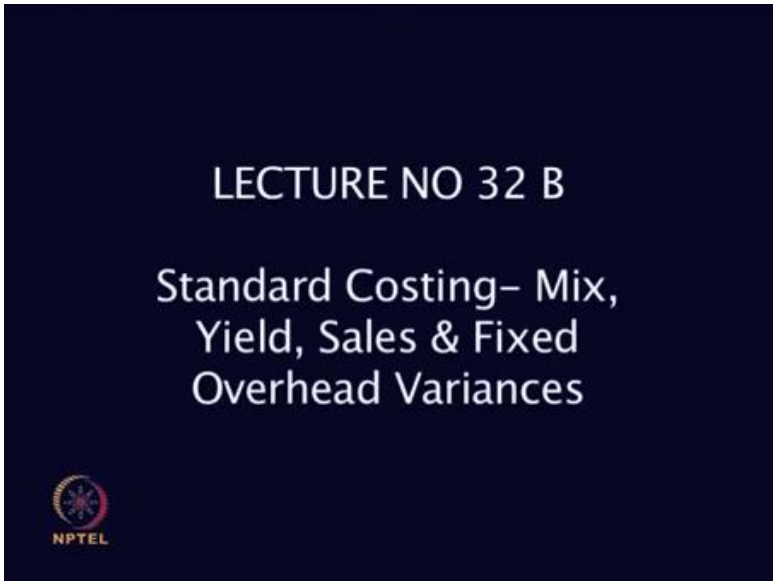

Having discussed the advantages and disadvantages of standard costing, now let us go a little more into depth into analyzing variances further. If you remember, we have already analyzed material cost variances. What could be the causes of changes in the material cost or deviation in the material cost, do you remember? Broadly, there are two causes. One is because the quantities are different or the volumes are different. 2nd is, because of prices are different.

So, we estimated that raw material will be 100 kg's of raw material will be required at 6 per k g. Then, one is there is a possibility that the quantity itself may change or price may change. Now, let us see can we further analyze it into it is causes.

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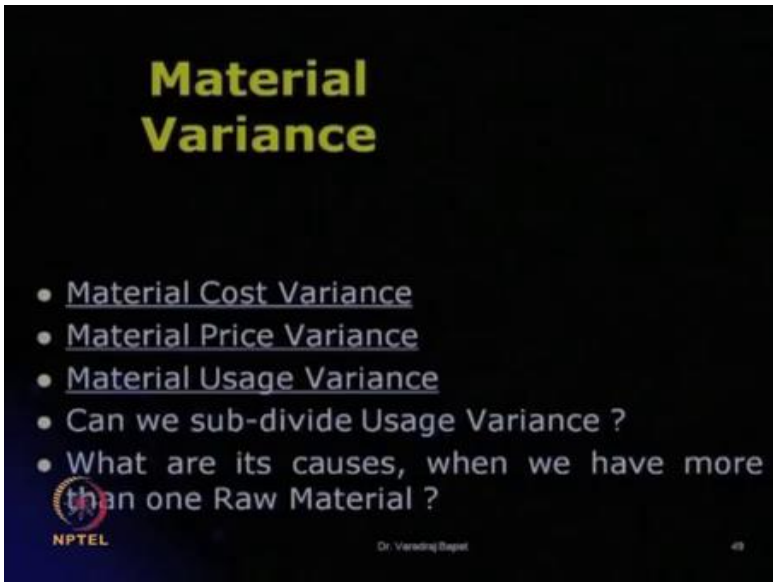

So, you can take a look at the slide, you will realize that we have already seen, these two sub parts that material cost broken down into prices and usage. Now, that usage or the volume variance can be further sub divided. Now, what could be it is further causes and keeping mind that we will not always have only one raw material. We are likely to have 2, 3 raw materials.

So, in such a scenario, what could be causes, you think of, in terms of usage. So, what many times happens is, suppose you have two raw materials. Raw material 1 and raw material 2, there will be a specified proportion in which these two raw materials are to be mixed. So, let us say, it is necessary to put 60 percent of raw material 1 and 40 percent of raw material 2.

Now, if this proportion changes, it leads to a variance, which is known as a mixed variance. So, instead of putting 60, 40 percent, let us say, it was put in the proportion of 50, 50. That will lead to some deviation. That is called as material mix variance. 2ndly, system may have some specification of a normal loss. So, if you put in 100 units, let us say 100 kg's, let us say there is 10 percent loss.

So, you are likely to get output of 90 or 91, so 100 minus 10, so you get output of 90. So, if actual output is less than 90, let us say actual output is 88. That means, instead of 10 the loss is 12. That leads to a variance known as yield variance, you are getting me.

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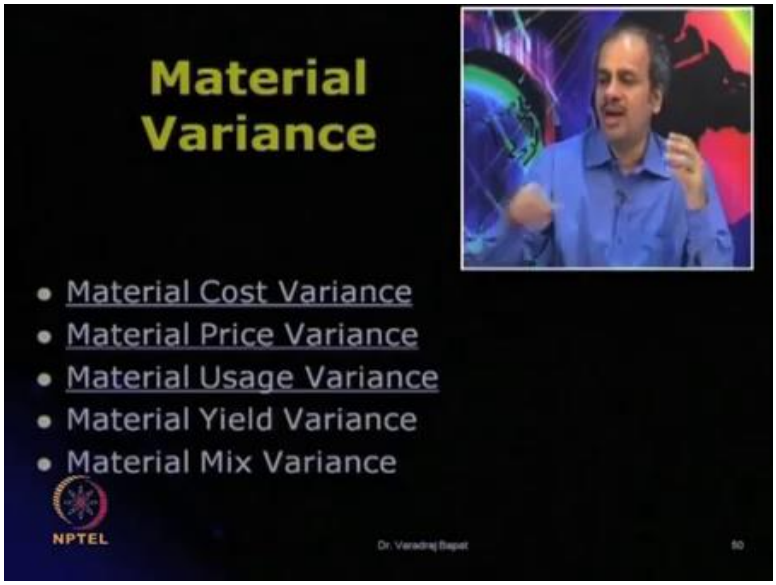

So, usage variance can be broken down into two variances, which are known as yield variance and mix variance.

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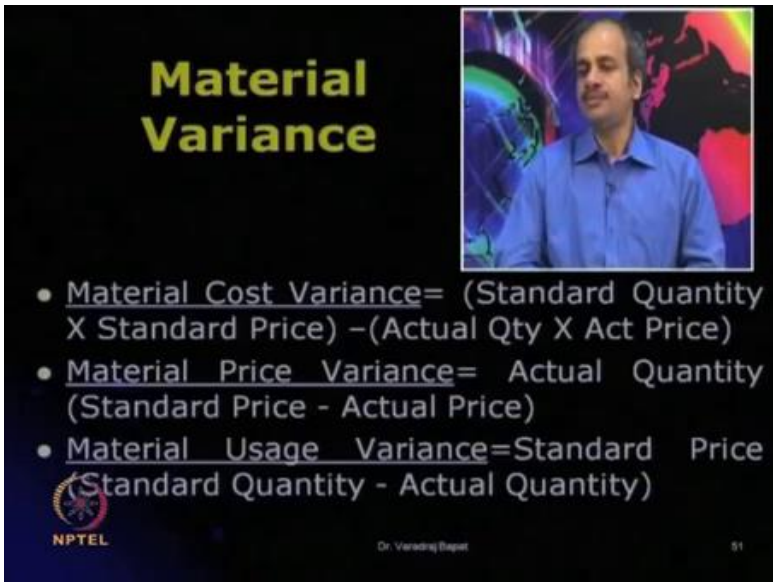

Now, let us look at the formulas for this, variances. I have just given the earlier formula. So, that you remember them once again. So, we have already seen the first three formulas. That is material cost variance, which is a difference between standard cost minus actual cost. Standard cost is nothing but standard quantity into standard price minus actual quantity into actual price. That is a cost variance.

Then, cost variance was subdivided into price and usage. When, you calculate price variance in bracket, you take standard price minus actual price and multiplied by actual quantity. The 3rd one was usage variance. In usage, in bracket, we take standard minus actual quantity and we multiplied by the standard price.

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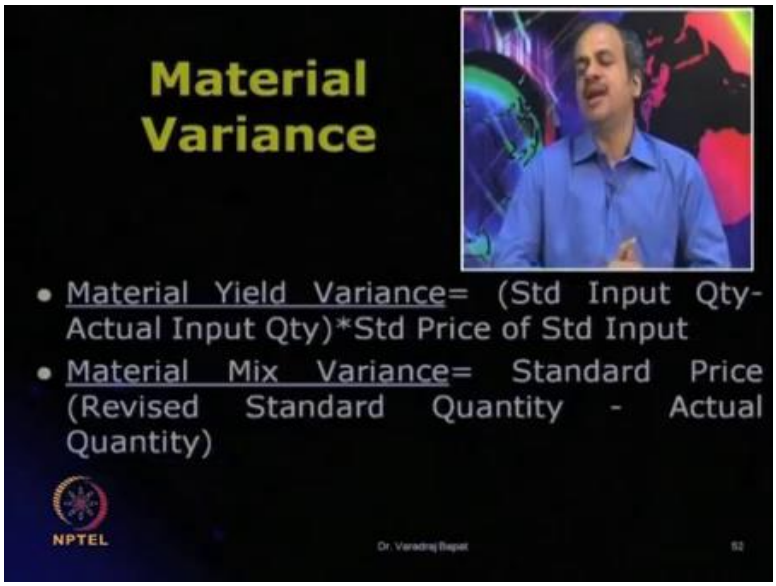

This much we are already seen. Now, let us go to yield variance. In yield, as I was trying to explain, we look at the standard input, which is necessary. So, let us say, we should have put in 100 units, but we have put in 102 units. So, standard input quantity minus actual input quantity into standard price of standard input. This is the yield variance ((Refer Time: 40:31)). You can observe this yield variance is quite similar to usage variance.

Only difference is, usage variance is of one raw material only. If you have multiple raw materials, then in yield variance, we take the total standard input quantity of RM 1 plus RM 2. And we multiplied by standard price of standard input. That is the mixture of 1 and 2, taken together. The 2nd one is material mix variance. In material mix variance, again in bracket, we take revised standard quantity minus actual quantity. This revised standard quantity is with respect to standard mixture and the actual mixture.

So, we were saying that instead of 60, 40, let us put in the ratio of 50, 50. It will change the quantity. So, you take a revised standard quantity minus actual quantity in bracket and multiplied by the standard price. That gives us the mix variance. Now, let us look at a case, which will make it, more clear to you.

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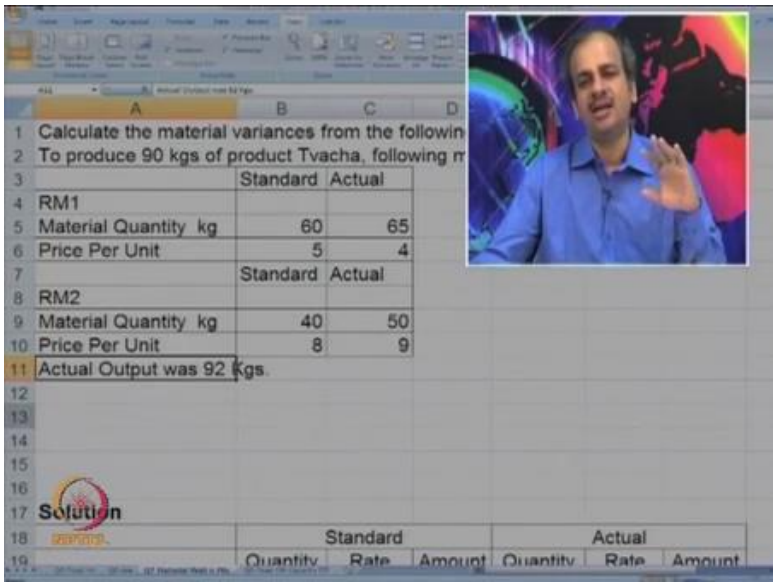

So, here you can see, please have a look at the question first. That will give you more clarity. So, calculate the material variances from the following figures to produce 90 kg's of product Tvacha. The details of material are given. So, standard quantity for the details of material are given. So, standard quantity for RM 1 is 60 and standard quantity for RM 2 is 40.

In other words, we are putting in 100 kg's and expecting an output of 90 kg's of a product called Tvacha. Prices have also given at standards 6, 5 and 8. Actual mixture is slightly different. It is not in the ratio of 60 to 40. It is 65 and 90. So, you can see the material quantity put in is 65 and material quantity put in for RM 2 is 50. So, and the prices are 4 and 9 and the actual output was 92 kg's.

Now, with this we have to calculate various material variances. In the first part, we will calculate the variances, which we had already done. That is material cost, price and usage. And then, that usage will be further subdivided into mix and yield, which we are doing for the first time. Even, before that we need to make a table showing standard and actual.

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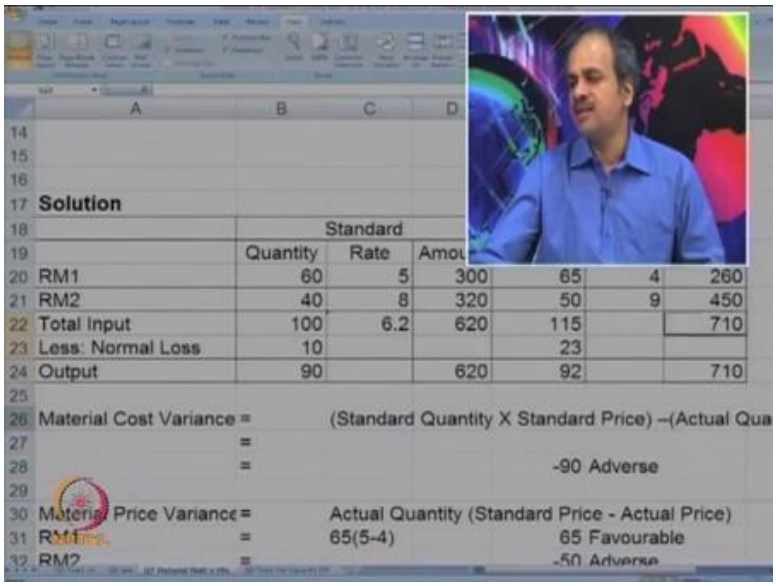

So, let us look at how we can make the table. So, you can see that the standard is 60 and 40. We should have put in 60 of RM 1 and 40 of RM 2. Total input would be 100. The normal loss expected was 10 and the output is 90. The actual is 65, 50, 115. The loss is 23 and the output is 92. And it has the quantities have been multiplied by the respective prices. So, you get a table.

Now, can you use this table directly? That is a very big important question, we have to answer. You all know, there are various formulas now. We will we have the formula for cost variance, price, usage. But, the question, which is of immense important see is, can this table be directly used for comparison.

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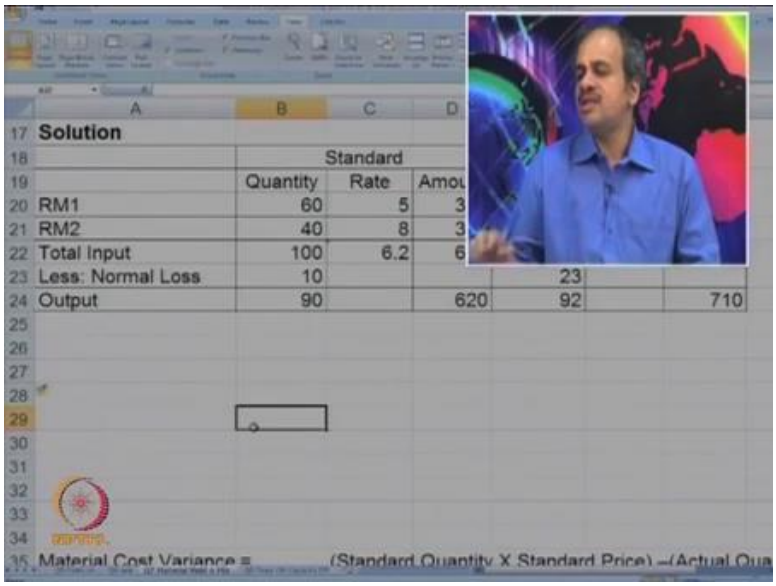

Just think over and we would solve it together. So, that there is a more clarity in your mind. Can this be used directly? The answer is no. Because; you will observe that the output as for the standard is 90; whereas, the actual output is 92. So, the problem is, these two tables are not comparable. This standard cost are for an output of 90; whereas, our actual output is 92.

So, we have to first of all make a standard, which is relevant to this output. Are you all getting it, I have deliberately made these tables. So, that because this is the mistake, which immediately happens, we feel that using the given data. If we copy, we can proceed. But, actually that is not the case. So, I will do one thing, just for the sake of comparison, I will put this table below.

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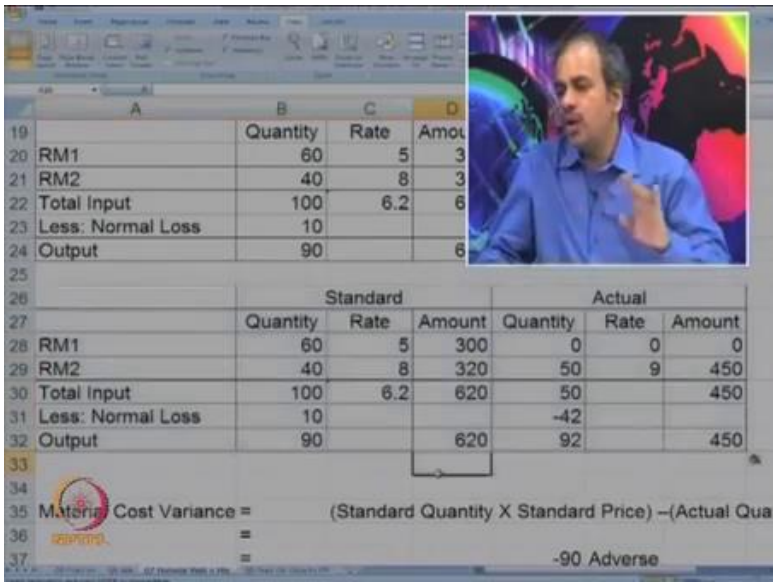

Though it is not the correct table. And now we try to revise this table for the actual output. So, the standard as is noted, I will call it given standard. It is not the real standard, which we learn looking for. This is the standard as was given in the problem, what we are looking for is, we have to make a table for the output of 92. So, instead of putting output of 90, I will replace it with 92. So, that now both the tables are comparable.

Now, for output of 92, how much input was needed, can you think over, look at the given standard. So, that you can make that standard, just think over. So, it is given that there is a input output ratio of 100 to 90. So, if you put in 100, you can look here, there is a normal loss of 10 giving an output of 90. It was given in the problem also. That to produce output of 90, we need to put 60 and 40 got it. So, in other words, the normal loss is at 10 percent. Now, we know that the output is 92. So, for given output, how much should be the input, that we need to work by…

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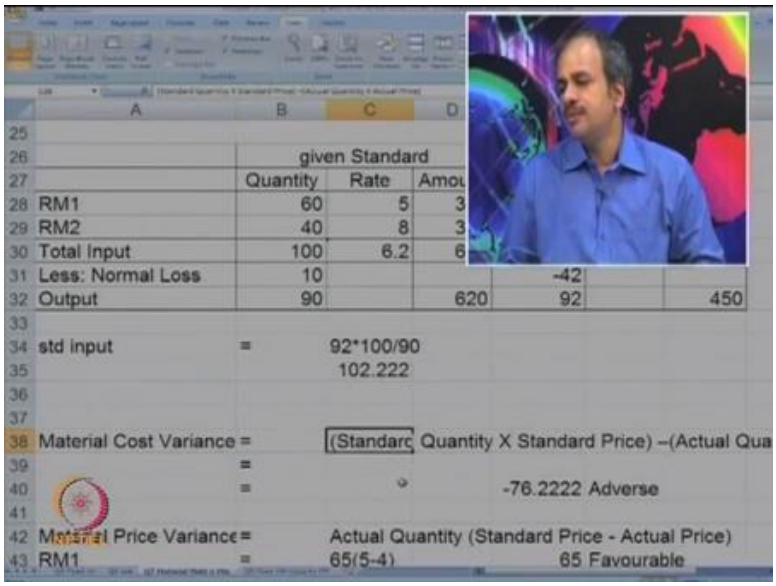

So, how to work that? So, let us calculate the standard input first. Here, when I say standard input, I am talking of the total input; I am not looking at RM 1 and RM 2. Let us first calculate, how much input is needed for an output of 92. So, let us first write down, how we can do it. So, it is 92 into. So, 92 is, what we are looking for and we know that by putting 100, we get 90.

So, for 92, how much we need to put in. So, 90 into 100, 92 into 100 upon 90, is it right. So, 100 and 2.222 is the input, which is required for this level of output. Now, let us put this input and see, what happens, correct. Now, this normal loss would not be 10. It has to be 10 percent of the input. So, normal loss is 10.222, giving an output of 92, is it matching.

So, from 102.222; there is a normal loss of 10.222 giving an output of 92. So, now, we have worked back the total input quantity. Now, how much of RM 1 and 2 required. Now, we cannot take 60 and 40, It is in the proportion of 60 to 40. So, in other words, it is 60 percent of this input. So, you get 61.333 and it is 40 percent of this input. So, you get 40.8888, are you all with me.

So, 61 plus 40, 61.33, 40.33, 40.88 you get 102.22. Prices there is no problem, this is already built-in. So, by quantity multiply by price, with quantity multiply by price. So, the total input is 102.222 and this 6.2 has been worked back as a weighted average. You can look down, even in the given standard, it was 6.2. It is not coincidence, what has

happened is, the quantity has increased from 100 to 102. Standard price has remained unchanged. That is why; the weighted average standard price will also remain at 6.2. So, now we have got the standard, which is comparable with the actual. I will just make it bold. So, that you realize that this is the correct standard.

Now, let us go to actual calculations, the formulas have been built-in. So, material cost variance is, as you can see, it is a comparison of this standard versus this standard. 633 and 710 is compared. So, you get 76.222; it is a negative figure or we can also see adverse. You can see that actual consumption is more than the standard consumption.

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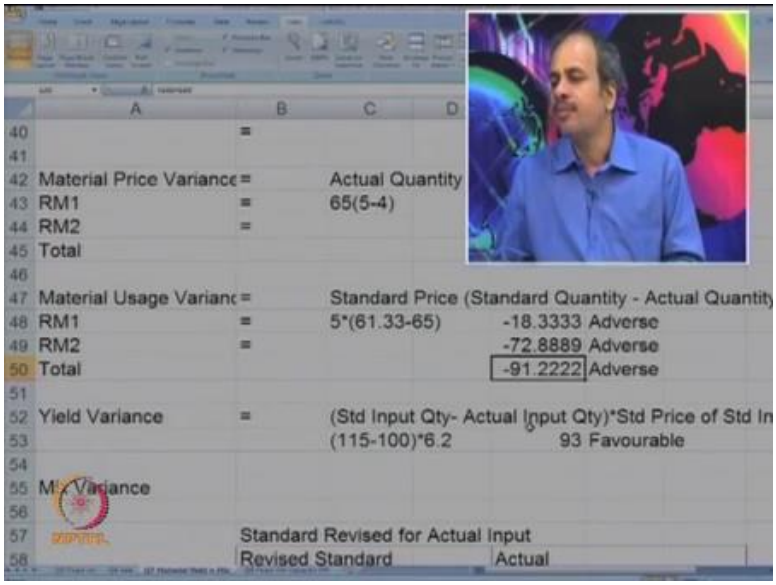

That is nothing but a material cost variance. Then let us go to price variance. In price variance, what happens is, we have to do separately for RM 1 and RM 2. So, what we will do is now, for RM 1; we were to consume 61. We have actually consumed 65. So, it is 60, you can see the formula clearly, it is C 20 minus F 20. C 20 refers to 5; F 20 refers to 4. So, 1 rupee more and actual consumption is 65.

So, you get 65 rupees favorable, it is not 1 rupee more, it is 1 rupee less. We should have purchased at 5, we have managed to purchase at 4. In case of RM 2, it is other way round. We should have purchased at 8, we have purchased at 9, so into 50. So, in case of RM 1, it is 65 favorable. For RM 2, it is minus 50 or 50 adverse. The net is 15 favorable. So, you can see that this 76.222; the first part; that is price is now 15 favorable.

Let us look at usage, for usage, we compare the standard quantity with the actual quantity, you have the quantities with you. So, 61.33 is compared with 65. So, we have consumed 3.667 more at a standard price of 5. So, we get 18 here. It is not 60 minus 65, it should be 61.33 minus 65, I will just correct it. Add put it that way, because that is a very common mistake, which happens. I hope now, it is very clear to you, that this is not to be compared, but the standard is to be compared.

Now, the same way we have done it for RM 2, both are adverse, you can see that the actual consumption is more than the standard consumption. So, we get 18.33 adverse and 72.88 adverse. Now, you can see this 91 adverse and 15 favorable, we get 76.22 adverse. So, material cost variance is broken down into price and usage. Now, in the next session, we will go ahead and we will break up this usage variance into yield and mix, which are the further sub-variances.

Thank you so much.