MINERAL ECONOMICS AND BUSINESS

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Week 11

Lecture 52 : Average sale price (ASP)

Hello once again, welcome to this lecture on the Average Sales Price of Minerals under our course Mineral Economics and Business. The average sale price is extremely important in the Indian market, where there is a procedure laid down by the Government of India. Under the provisions of different action rules for the determination of the average sale price. This will greatly affect the calculation of royalties and other taxes depending on the ASP. Let us see the concept you have covered: the average sale price, the definition, how to compute the average sale price, who publishes the ASP for concentrate or different minerals and metals, then how to calculate the ASP for different metals.

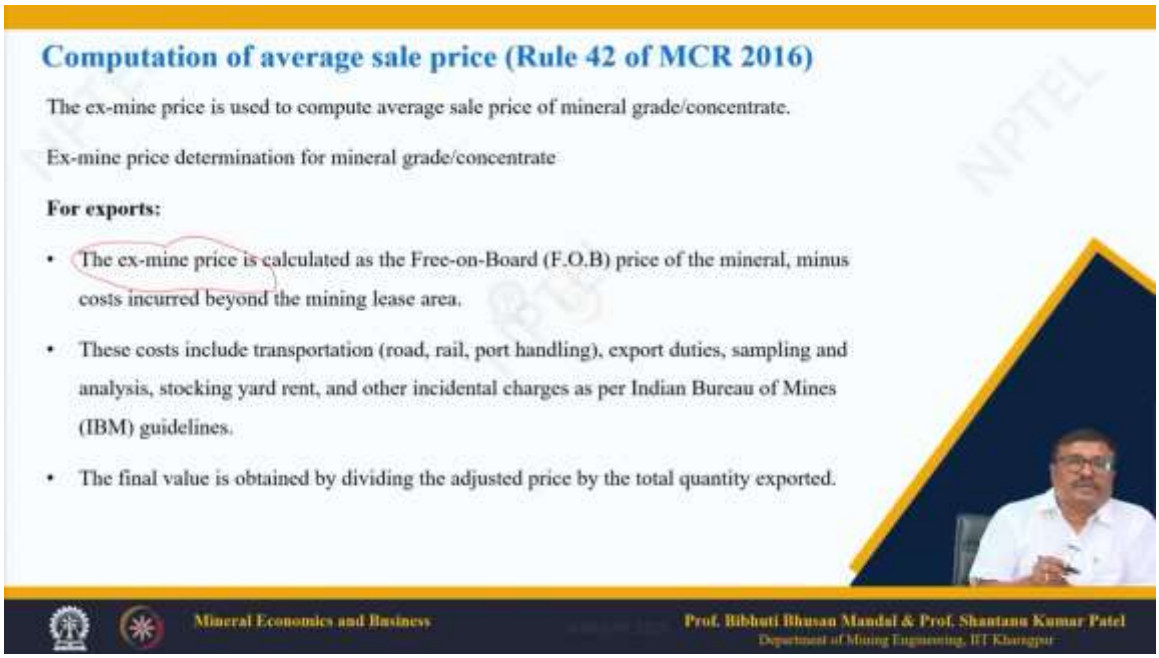
And ASP for different run-of-mine minerals. We have some examples from the IBM website referring to the January 2025 data to show how the average sale prices are

published. Even though the whole document is not available here, it can be easily seen on the website, but we have taken the values from there just to show how it looks. Now, the ASP for the metalliferous ores is a weighted average price at which a specified mineral is sold in a given period of time. This is used for calculating the royalties and auction premiums. When we see the calculation of royalty, we will see that it depends on ASP, a percentage of that.

So, ASP calculation is very important. This also helps in determining the base price for the mineral auctions under the Mineral Auction Rules 2015. How do you determine the value of the reserve? What is the basis of your calculation? We can use the ASP to find out the monetary value of any resource or reserve, and that can be used for the purpose of the mineral auction, the base price, and fixation of the base price.

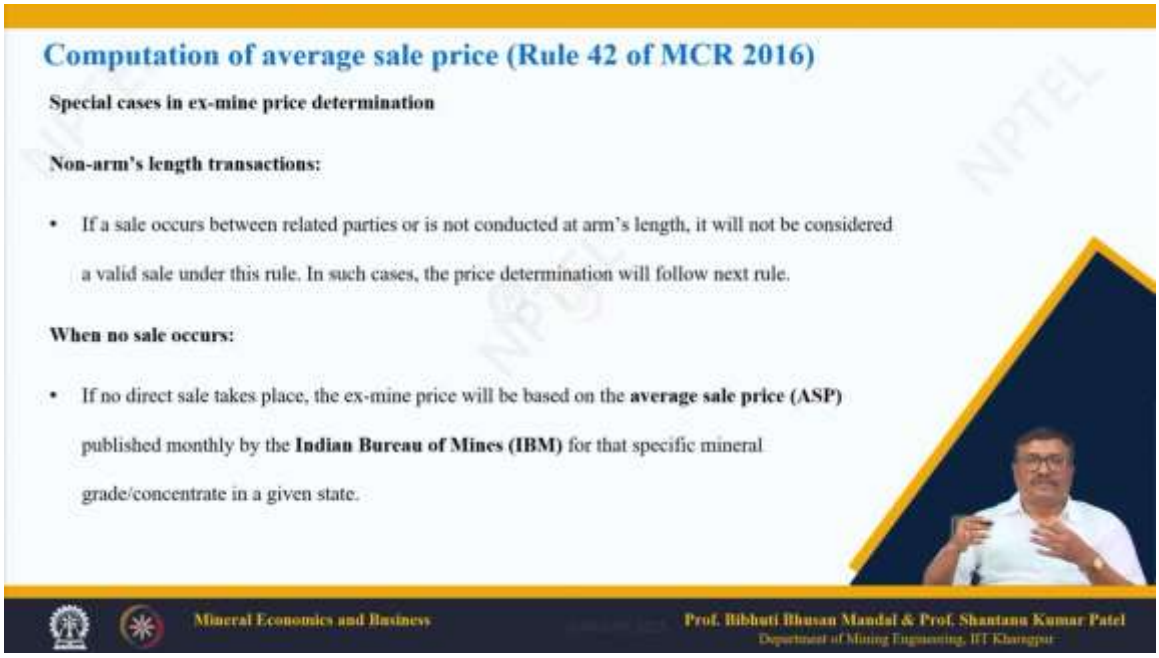
This ASP determination of ASP etcetera is governed under the MMRD 1957 and it plays a crucial role in the mineral revenue assessment and taxation ah policies in our country. This is a crucial metric in ensuring the transparency through the websites at what rate things are selling, where purchasing and efficiency in the management of mineral resources. Now the x mine price is used to compute average sale price x mine price. The x mine price is actually calculated ah as you can see from the ah here from here So, the X mine price the X mine price is is used for the computation of the average sale price.

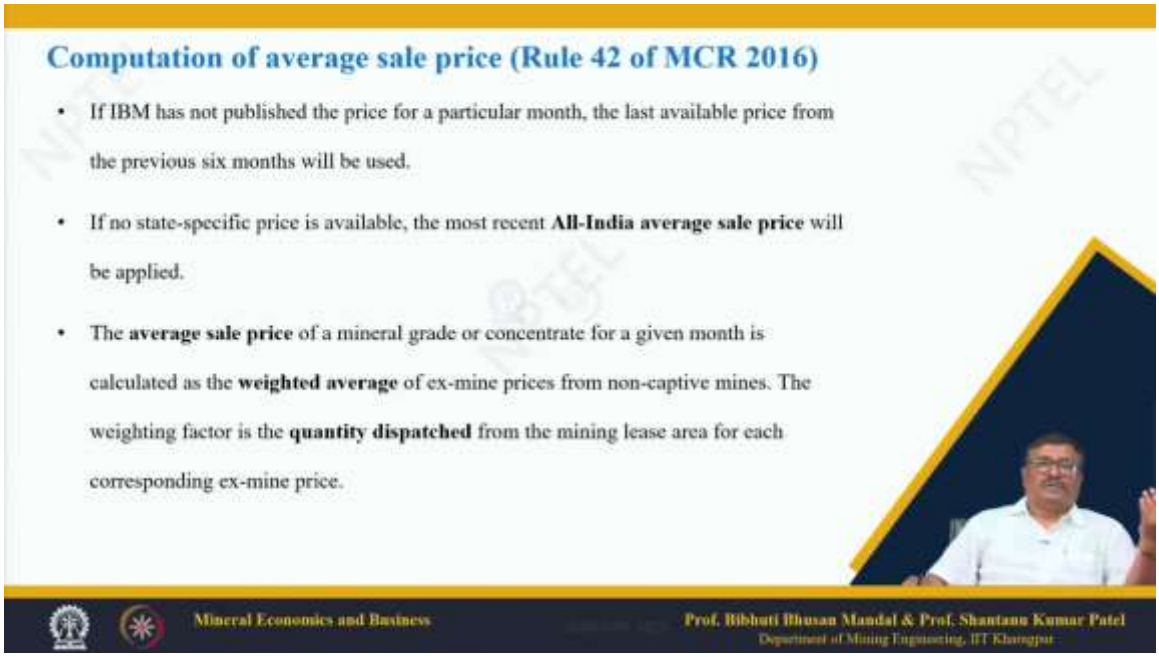
So, this is nothing but the free on board FOV price of the mineral minus the cost incurred beyond the mining laziness. So, if you are going for any other transportation handling those things are not taken care of. So, it is FOV price. So, this cost including the includes transportation, rail, port handling, export duty, sampling, analysis, stockyard and other incidental charges as per IBM guidelines. Now, the final value is obtained by dividing the adjusted price by the total quality quantity exported.



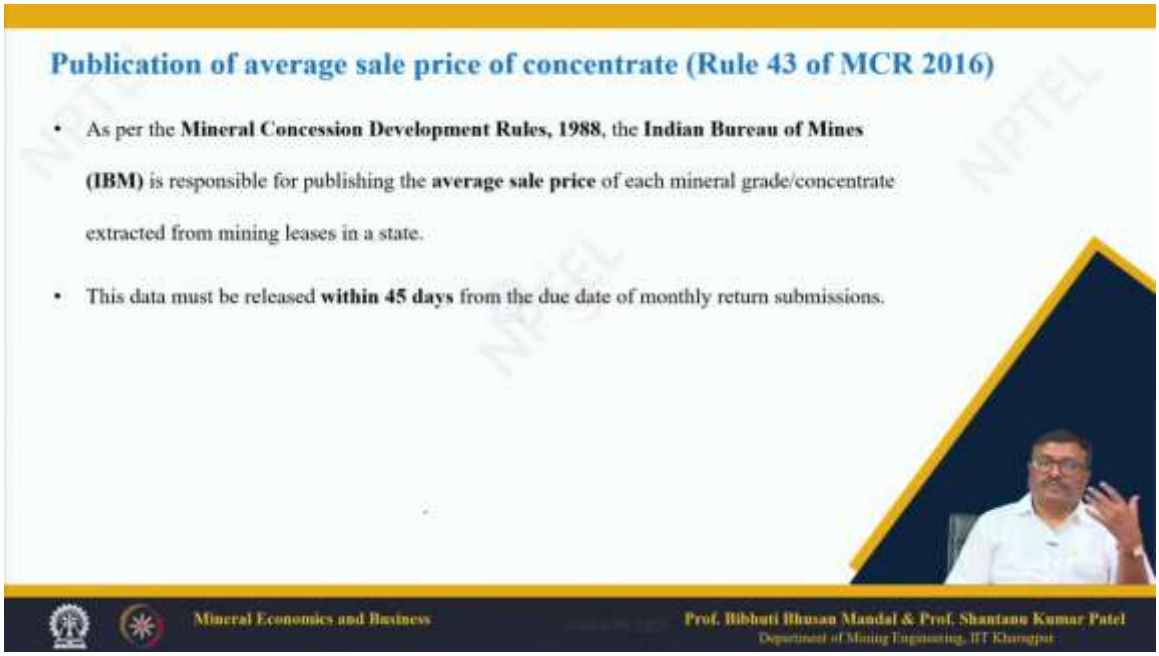
That means you have the total amount divided by the total quantity that will give you per unit prices. For domestic sale next mine price is derived from the total sale value of the mineral after deducting all the expenses as we have said earlier. But any additional cost beyond the mining lease area are also subtracted any other things. So, resulting amount as I said is divided by the total quantity sold from there you get the per unit ASP. Now, if some two parties are making they have personal or business relations and they are not following the standard norms or the competitive rates ah that means, they have their own understanding.

So, they are selling at a lower price or something which is not at par with the market norms, then this will not be taken as a valid sale under this rule, and the price determination will be followed by the alternative methods. Or say when no sale occurs, no direct sale is taking place. So, X mine price will be based on the average sale price published monthly by the IBM in a given state. So, if IBM has not published the price for a particular month, then the last available price from the previous 6 months will be used. So, that will be used for the ASP purpose.





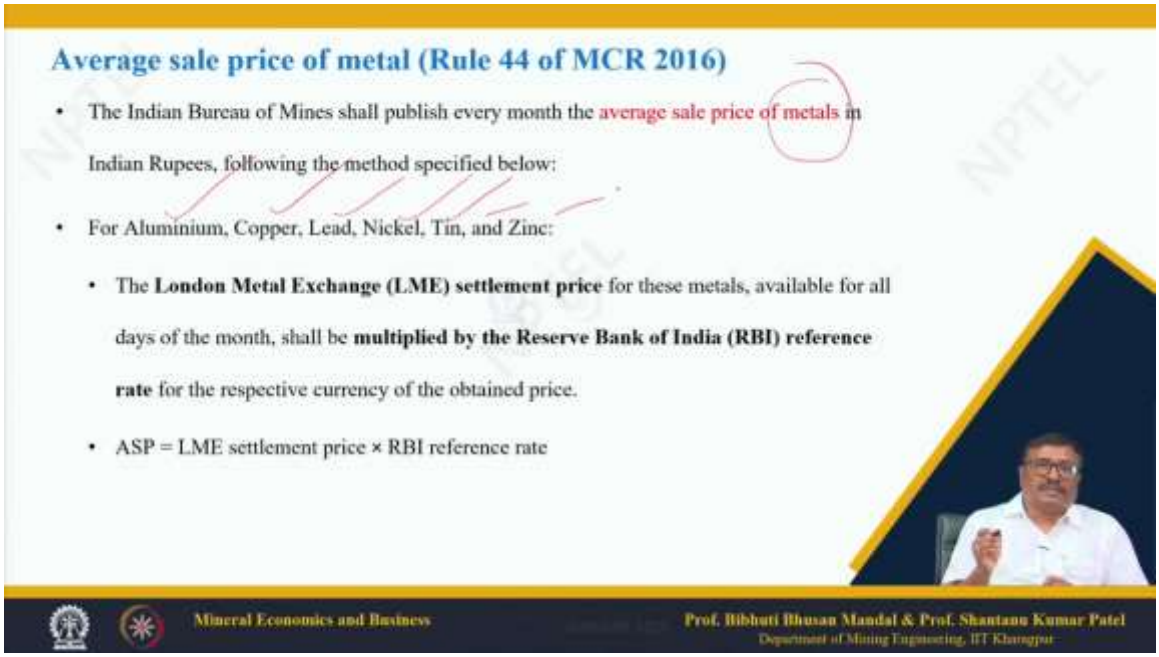
And again, since these publications are state-specific, for every state, you will see in the document published on the IBM website that state-wise, like for Chhattisgarh, Madhya Pradesh, Odisha, you have all the ASPs published there. But for any particular month, if no state-specific data is available, then the most recent all-in average ASP will be applicable. Now, for a month, ultimately, what will be the average sale price? Because it will be different for different grades or concentrate for a particular month, and there could be different values also. So, this is basically calculated as the weighted average of the X mine prices of the non-captive mines, non-captive. Means that the captive mines are utilizing their own products for the purpose of their industry.



So, we will consider the non-captive mines who are selling and weighted average. The weighting factor is the quantity dispersed. From the mining lease area for each corresponding X mine price. That means if the quantity is more, the weightage will be more. So, this price multiplied by the quantity, plus again the price 2 multiplied by the quantity, and so on.

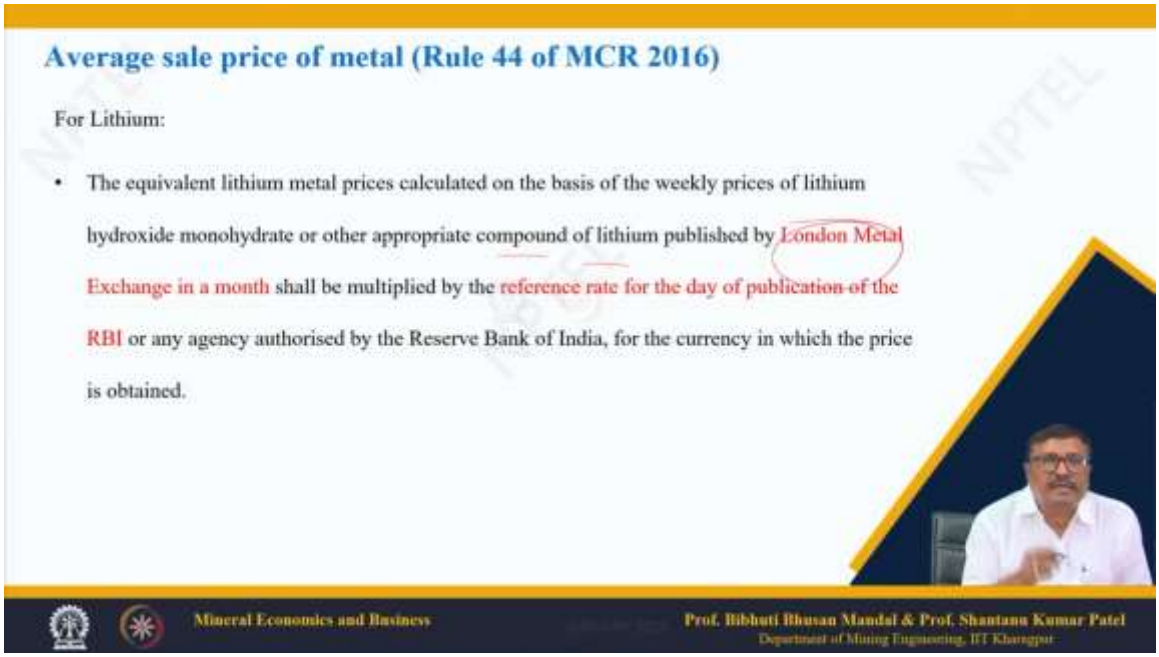
So you go on getting the total value divided by the total quantity. So it will be a weighted average of X mine prices from all non-captive mines for the calculation of the average sale price for any mineral grade or concentrate. So, as per the regulations or rather MCDR 1988, IBM has been made responsible; they are actually responsible for publishing the ASD for every mineral grade. For example, iron ore for different grades: 55 percent and below, 55 to 62, or 65—like that, there will be gradation.

And the concentrate that is extracted from mineral mining leases in a state. Now the data is supposed to be released within 45 days from the due date of monthly return submissions. So, within 45 days of that, we have to publish—IBM has to publish. So, IBM is also supposed to publish the ASP of metals—not the minerals or ores—metals in INR for the following metals like aluminium, copper, lead, nickel, tin, and zinc. What if we follow that the LME settlement price for these metals is available?



So, that shall be multiplied by the respective currency conversion to obtain the price in INR. So, the ASP is calculated as: ASP = LME settlement price x RBI reference rate

So, that will give you the price in India that will be published as ASP of those metals. Now, for lithium also, similarly, the equivalent lithium metal price is calculated on the weekly prices of lithium hydroxide monohydrate or other appropriate compounds of lithium as published in the LME in a month, which is multiplied by the RBI reference rate. So, from there, convert that into INR, and that will be our reference ASP for the calculation in regard to lithium.



For gold and silver we use the London bullion market association LBMA auction price this is taken. And if the RBI reference rate is unavailable for a particular day then what do this because it is varying daily we are probably seeing these changes in the newspaper or in the website. Then what we do that we use the then the RBI reference rate of the immediately preceding day will be taken for the calculation. And the final ASP calculation is the simple average of the daily metal prices converted into INR using the above method what we have described shall be considered as the ASP of the metal for that month for that month. not very difficult is simply stated and then well detailed.

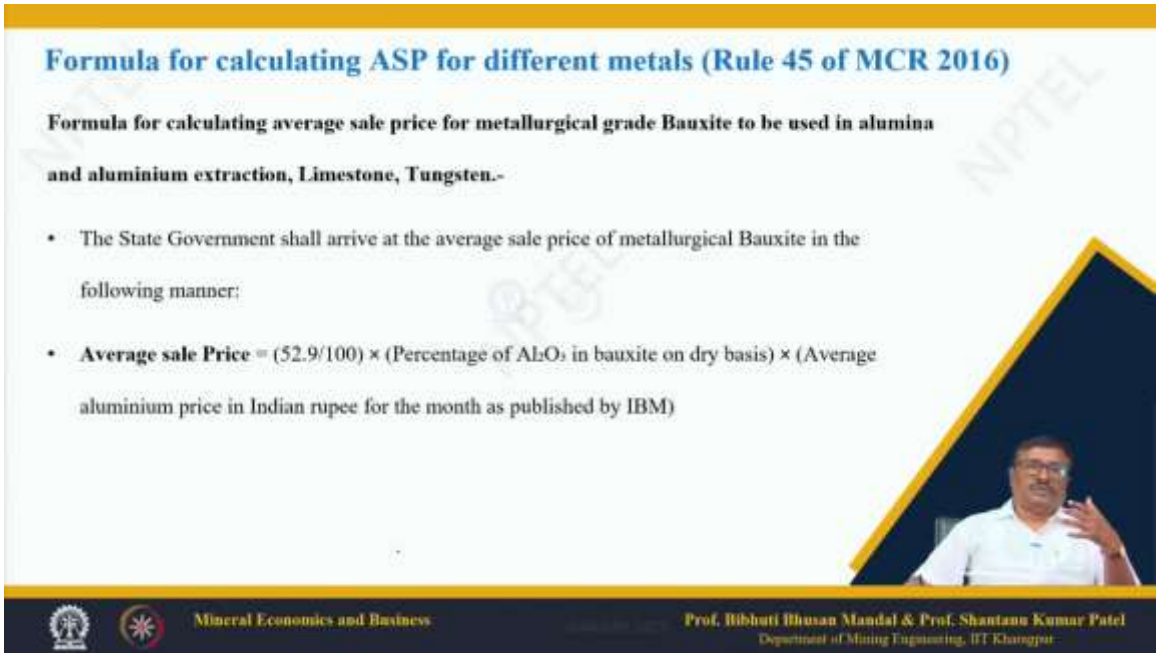
Now, what is the formula for calculating ASP for different metals like ah the ah metallurgical grade bauxite to be ah which is used ah for the ah calculation how it is done. The formula for calculating average sale price of metallurgical grade bauxite. which is to be used in aluminum or alumina or aluminum extraction or say limestone or

tungsten how these are calculated. So, the state government is supposed to arrive as at the ASP of metallurgical bauxite or in the given manner, what is that:

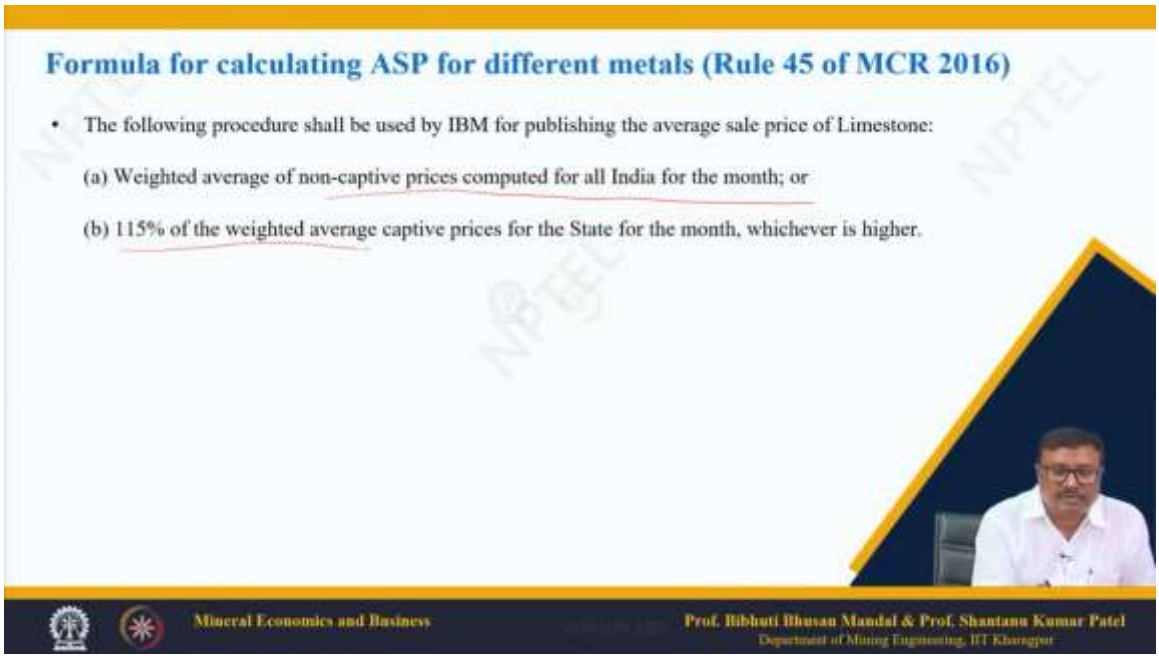
Average sale Price = (52.9/100) × (Percentage of Al_2O_3 in bauxite on dry basis) × (Average aluminium price in Indian rupee for the month as published by IBM)

If the ASP average aluminium price in the Indian rupee, then we percentage of ah alumina in the bauxite on dry basis multiplied by 52.9 percent will be the ASP for the metallurgical grade bauxite. Similarly, the following ah procedure the the the procedure that is used for ASP of limestone is the weighted average of non-captive prices computed for all India for the entire month or 115 percent of the weighted average of captive prices for the state of that month whichever is higher will be taken as ASP for the price of ah for the for limestone. Now for the tungsten average sale price is lowest price of :

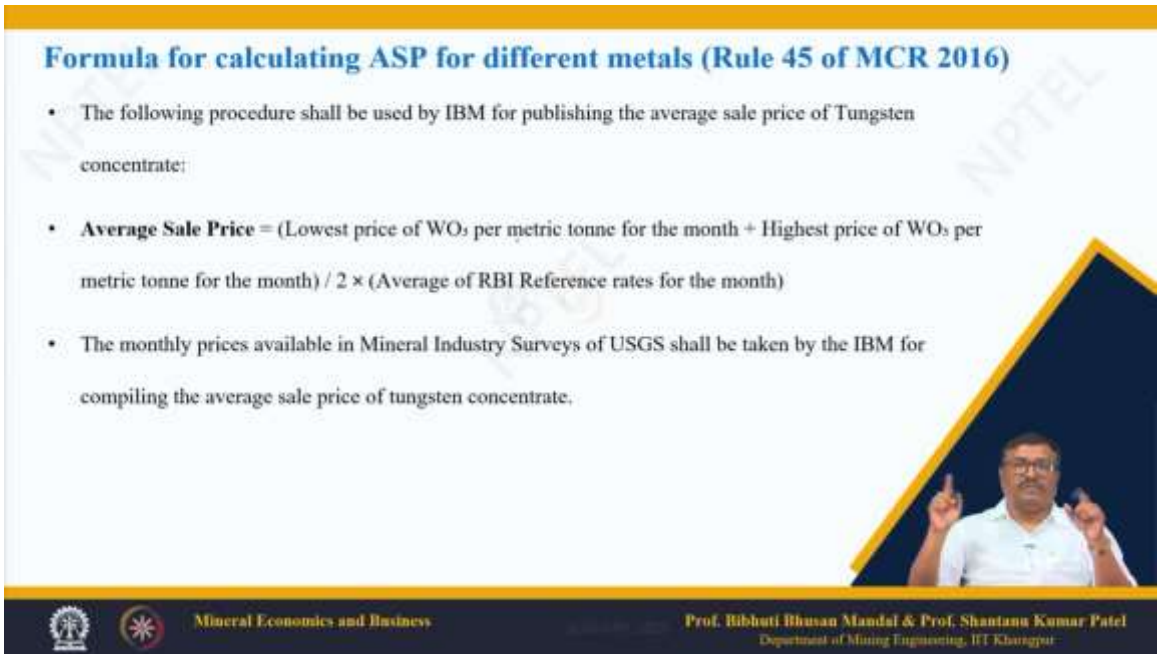
Average Sale Price = (Lowest price of WO_3 per metric tonne for the month + Highest price of WO_3 per metric tonne for the month) / 2 × (Average of RBI Reference rates for the month)



So, for the whole month, you get the ASP for tungsten concentrate. Now, the monthly prices available in Mineral Industry Services of USGS, United States Geological Survey, shall be taken by the IBM for compiling ASP of tungsten concentrate. So, we have a reference; we use USGS prices for calculating the ASP of tungsten or tungsten concentrate in our country. Now, for rare earth metal, what does IBM follow? So, by referring to the price data from USGS or other credible sources, the price is converted using the average exchange rate of RBI for that month.

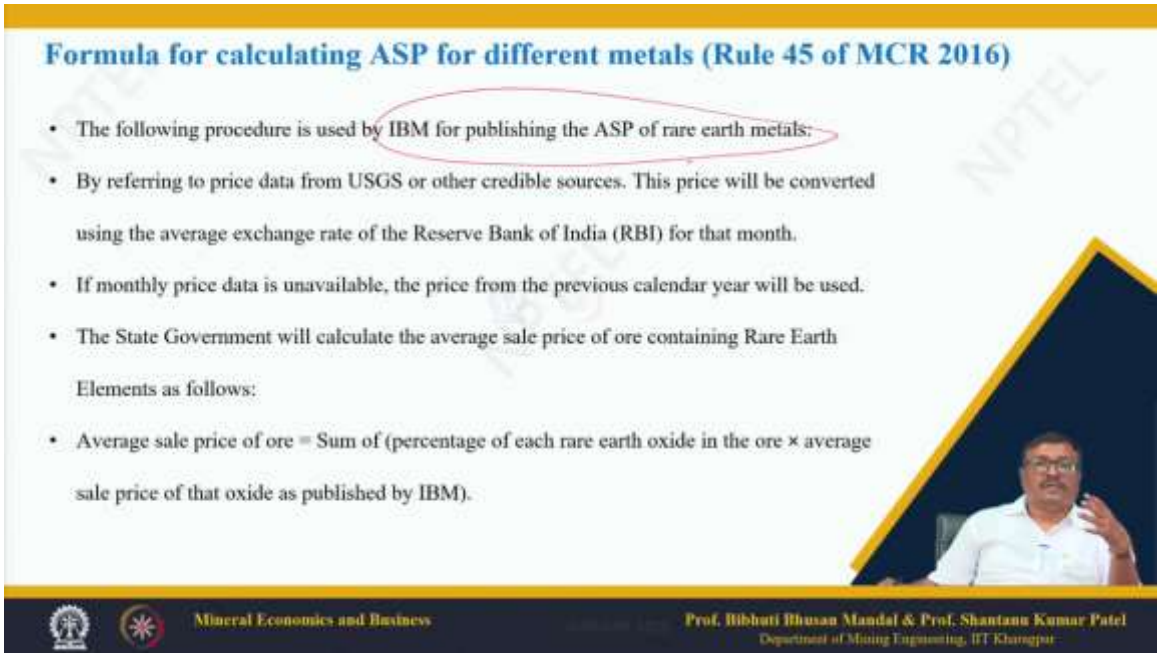


It is taken from USGS and converted into Indian currency using the RBI reference rate. So, for example, if monthly data is not available, the price from the previous calendar year is used. But in our case, the state government calculates the average sale price for



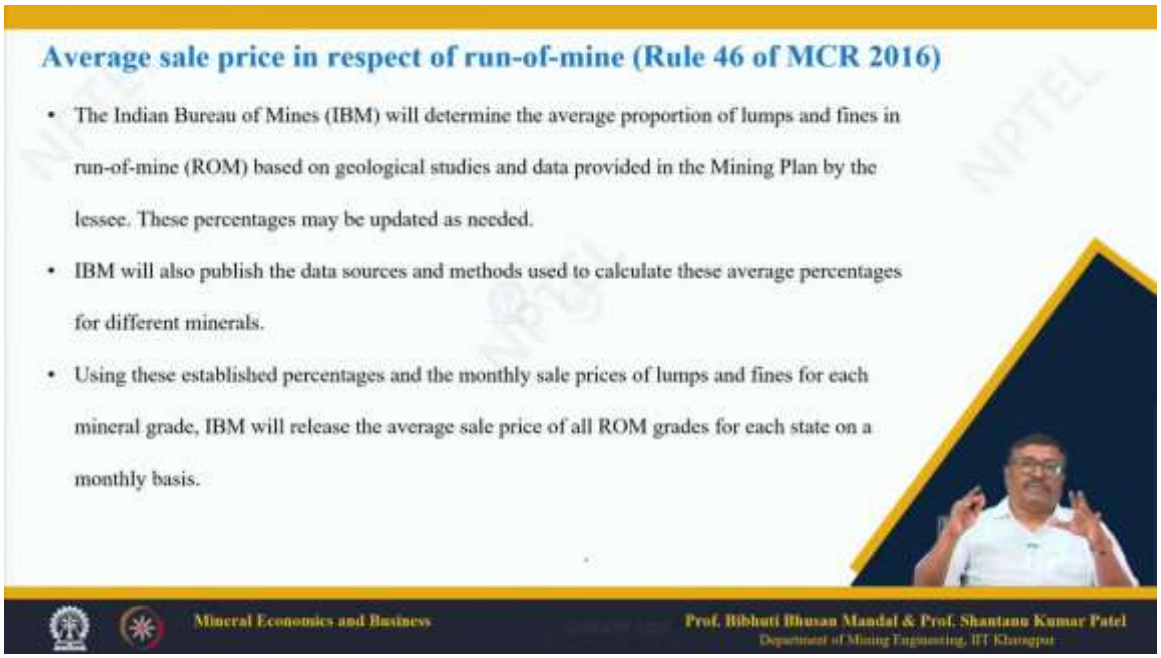
ore containing the rare earth element. How do they calculate? The average sale price of the ore is the sum of the percentage of each rare earth—remember, the percentage of each rare earth—because it is a combination of many rare earth oxides in that ore, multiplied by the average sale price of that oxide. If there are four different oxides, then there will be four different ASPs for that oxide ore, and the percentage is given for weighting purposes, and then we sum them.

So, the sum of, for example, percentage P multiplied by X1 (one rare earth) plus P2 multiplied by X2, like that, and you get a sum. So, that will give you the average sale



price of the rare earth ore. Now, the IBM also determines the average proportion of the lumps and fines in run-of-mine based on geological studies and the data provided in the mining plan by any mining lease holder. So, if you look at the IBM publication, For the ASPs, you will see a detailed grading of this according to the lumps and fines, meaning different sizes and also the percentage of mineral in that.

IBM also naturally, if it is using USGS, it is using LME or something. So, it definitely gives a reference to where this has been derived, what the source of the base data is. Now, the ROM grades for each state are separately published. You will see that separately for Chhattisgarh, Madhya Pradesh, Odisha, West Bengal—wherever you see, for every state, the ASPs are published. And wherever a different grade is applicable, the different grades are also given, and the corresponding ASP is also published. Now, we give an example, like the IBM January 2025 data, just to see as an example. This is taken from—this is not exactly how it looks.



It looks different, but we have taken the essential data just for the explanation and to make it clear for you. For example, for bauxite, we have—for use other than alumina and aluminum metal extraction (sorry)—in terms of use other than alumina and aluminum metal extraction, it is 655 rupees as the ASP. Now, for example, we have the refractory grade for use other than aluminum and aluminum metal extraction: 2848. So, for every grade, the IBM publishes this data. For example, chromite—a very important one.

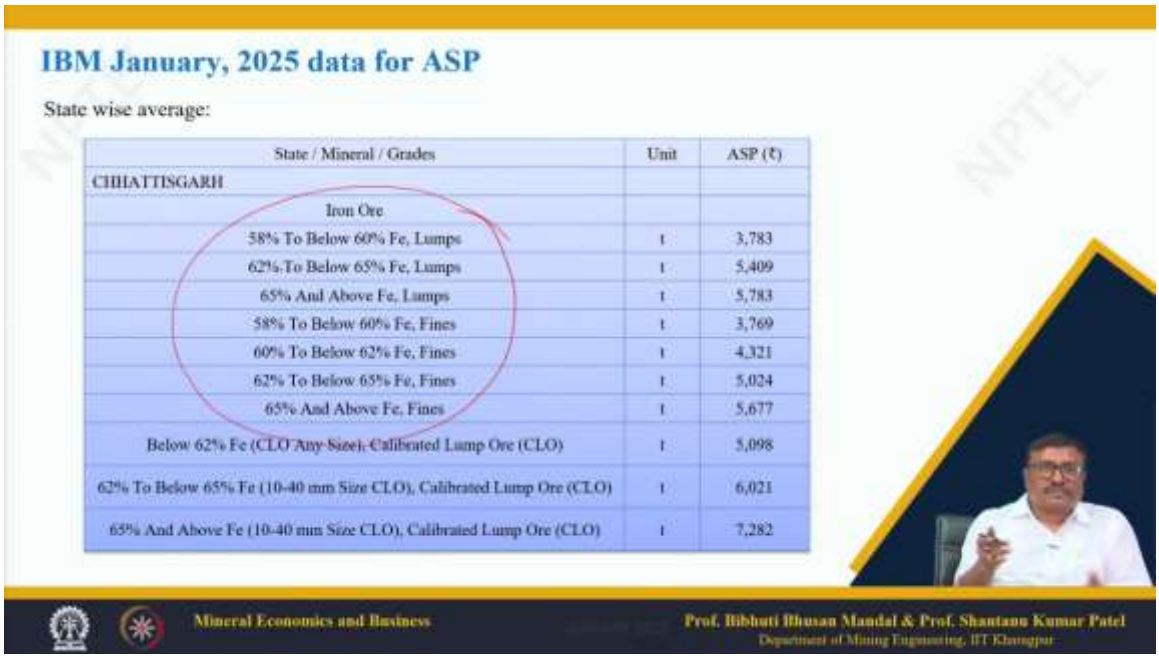
So, below 40 percent chromite and in fines form: 8485. 40 percent to below 52 percent, which is a good grade and fines form, is 19,525. Whereas, when the chromium chromite grade is more than 52 percent in fine form, it is 31,000 rupees per ton—very high grade—and the concentrates are 21,241. Similarly, you can see for fluoride—different grades: calcium fluoride, garnet, garnet abrasive. So, these are published grade-wise and mineral-wise data. This we have taken from the January 2025 data published by IBM. Now, as we have said, it is published state-wise.

State / Mineral / Grades	Unit	ASP (₹)
India		
Bauxite		
Cement, For Use Other Than Alumina And Aluminium Metal Extraction	t	655
Abrasive, For Use Other Than Alumina And Aluminium Metal Extraction	t	2,809
Refractory, For Use Other Than Alumina And Aluminium Metal Extraction	t	2,848
Chemical, For Use Other Than Alumina And Aluminium Metal Extraction	t	1,219
Chromite		
Below 40% Cr_2O_3, Fines	t	8,485
40% To Below 52% Cr_2O_3, Fines	t	19,525
52% And Above Cr_2O_3, Fines	t	31,695
Concentrates	t	21,241
Fluorite		
30% To Below 70% CaF_2	t	4,573
Garnet		
Garnet Abrasive Other Than BSM Grade	t	3,804

So, just to give you an example for example in Andhra Pradesh for Andhra Pradesh rather we have taken the example for iron ore. Now 51 percent to below 55 percent and in lamp ore it is 1100. Now, for example, the in in case of say limestone, we have BF plus furnace grade that is 874, cement grade is 541. For example, this manganese ore. In this case say below 25 percent manganese 3670 and for example 35 percent to below 46 percent which is high grade is 16085.

So like that for one step for different mineral and for different grades for that mineral the data is published in detail. There is enough transparency for doing business and because of the data that is published by IBM. And, the calculation of the royalties taxes and revenues is very easy ah if you utilize the data that is available from the IBM website. That becomes easy for for all the business people who are connected with this and also

for the calculation of the royalties as I said and and taxes. For example, again here detailed description.



grade wise the the iron ore is given. Satish Gaudi is very mineral rich and see for all these grades ah lampore and then calibrated lampore see the price is given in detail. So, there is no problem in calculating the ASP, calculating the royalty, taxes and revenue and the business transactions from one company to other. The references are taken from the

ibm.gov.in you can go through the through the different sections of the act that we have mentioned and also the rules and regulation that we have considered here for discussion as the mineral concession rules or the mineral concession and development rules. And, the act also where the this particular provisions are there for detailed understanding of how the ASP is determined, how they are used for the business transactions, calculation of the royalties and taxes.

Thank you very much.