

**Summary of the Q&A Session for the December 2021 ESG Meeting
for Institutional Investors and Analysts**

Date/Time: Tuesday, December 14, 2021 (15:30-16:45)
Presenters: Keiichi Iwata, Representative Director & President
Hiroshi Ueda, Director & Executive Vice President
Yoshizumi Sasaki, Managing Executive Officer

Q. I think your efforts to shift fuel energy sources for Sumitomo Chemical on a parent company basis as well as for your affiliates will increase your costs, but to the extent that results in higher costs, will you be able to pass on those costs in the form of higher pricing? More generally, I would like to ask your views on how your net zero efforts for 2050 will change your overall earnings.

A. Currently we are converting our Ehime Works and Chiba Works to different fuel sources. For example, in the case of the Ehime Works, we made this decision at a time when the criticism against coal-fired plants was not as strong as it is now. Thinking ahead, we decided to switch to LNG based on the thought that we had to move away from coal, but using LNG would increase our costs. If we simply accepted higher costs, our plants would lose their overall competitiveness, so we needed to think and come up with new ideas. LNG costs more than coal, but if we take into account such issues as the electricity generated from LNG and then from steam, or that, by building a large LNG terminal where ocean-going vessels can land in the Toyo area of Shikoku, which did not have one at the time, we can collaborate with other companies, we can reduce the costs. These new ideas enabled us to limit the cost increases. The same was true in the case of the Chiba Works. We were not using IRR to measure investment efficiency, but we are not looking to make investments in CO2 reductions that would increase our utility costs, such as from steam and electricity. Still, as to whether we can continue to use this approach into the future, there may be a limit to the benefits of new ideas, and we may not be able to avoid cost increases. Even if we cannot generate benefits, we need to think about what we need to do to avoid a reduction in our competitiveness, and I want us to continue to focus our efforts on this issue. Particularly in the beginning stages, whether society will be willing to accept higher costs will be an important point that determines the progress toward carbon neutrality.

Q. You are saying that, while costs will increase over the long term, you will make it so that your competitiveness does not decline, but what are your thoughts about the possibility that the investments associated with your current initiatives will result in stranded assets? You described LNG as a transition, but, for example, are you thinking that, after it is fully depreciated in 20 years, there will be a next stage of investments, or that it will be OK because the carbon footprint will be able to be measured, and that you, along with a wide network of supporters, will be able to make an appeal to its value? I would like to ask you about your thoughts on the effectiveness of your current investments from a slightly longer perspective.

A. There are 30 years until 2050, so because any plant would be fully depreciated before 30 years are up, we were not viewing these as becoming stranded assets. Still, the points you are making are very important, and I would like us to consider the issue of how they should factor into investment decisions or evaluations of economic feasibility.

Q. In the past year you have implemented several fairly specific initiatives, leaving me with the impression that you have made great advancements. In terms of your policies for carbon neutrality, regarding what you describe as “obligations,” you have presented quantitative data on the extent to which you can reduce carbon emissions. On the other hand, for the “contributions,” you have not presented quantitative data. For example, I think it would be difficult to calculate the contribution in the reduction of greenhouse gas emissions of your separators, but if you have internal estimates at the present time, please let us know.

A. That is exactly the point under discussion, and there are some who talk about net zero in terms of subtracting the contributions of their products and technologies from the volume of their emissions. In the case of Sumitomo Chemical, however, getting our own emissions through our own efforts to zero is what we view as our obligation. If we specified our contributions quantitatively in terms of number of tons, it would be mistakenly assumed that we would be subtracting our contributions from our obligations, so we intentionally are not presenting figures on the effect of our contributions. Within our contributions, there are two types: direct reductions in greenhouse gas emissions from licensing technology, and indirect reductions in greenhouse gas emissions from the use of our products. In the example you raised of our separators, they are used as a component in the storage batteries of electric vehicles. In the difference in greenhouse gas emissions between electric vehicles and gasoline-powered cars, however, even if our separators made a contribution of some percentage, it would be an indirect reduction in greenhouse gas emissions, so it needs to be thought of in a different category. Because it would be difficult to attribute that percentage of indirect contributions to Sumitomo Chemical, it is still a point of discussion. I would like us to show a significant volume of reductions just from our direct technology contributions.

Q. On slide 13, you mention plant electrification among the efforts you will be taking up to 2050, but are paying close attention to the initiatives of companies in Europe and the US toward e-furnaces and e-crackers? It seems that chemical manufacturers outside of Japan have a strong willingness to invest in these technologies, but we would like to hear your views. In the case of Japan, there are limits to using renewable energy sources, and there are also difficulties with carbon capture and storage, so I would also like to hear your views on these issues.

A. For Japan's petrochemical industry, what fuel to use for crackers is an extremely important issue. We also considered this, but because Japan would be at a severe cost disadvantage in terms of electricity costs, we understand that industry groups, such as the Japan Petrochemical Industry Association, are considering using ammonia as a fuel. I think Japan will take up the challenge of developing cracking technology with ammonia as the fuel. Separately, there is technology for electric boilers. Electric boilers are widely used throughout the world, but the high cost of electricity has resulted in them being hardly used at all in Japan. In collaboration with a boiler equipment manufacturer, we are currently studying the potential for electric boilers.

Q. Does that mean that, when you mention plant electrification in slide 13, you especially have electric boilers in mind?

A. It refers to a variety of things, including the use of electricity in reactions.

Q. Regarding the graph showing declines in greenhouse gas emissions, according to your explanation, I think that much of the decline is in Japan, but are your affiliates outside Japan also contributing to the reductions? In addition, you have changed your target for reductions in 2030 from 30% to 50%, but is much of the contribution here in Japan, or will your affiliates also contribute?

A. The boundaries for the totals are the group companies subject to our control, and this is the standard rule in accordance with SBT. In other words, PCS and Petro Rabigh are not included, but TPC and Dongwoo Fine-Chem are included. In terms of the reductions, rather than making special mention of which locations made large contributions, the reality is that many group companies made contributions, and it is the cumulative effort over time. Regarding the 50% reduction target, while we aim to achieve it, we have not disclosed the specifics. As part of the contributions of group companies, we can point out the reduction in emissions from fluorine-containing gases in the processes used by Dongwoo Fine-Chem. Compared to CO₂, the contribution to global warming from fluorine-containing gases is several hundred times greater. Up until now, while our emissions of fluorine-containing gases was low, we had not paid sufficient attention to them in terms of the issue of greenhouse gas emissions, but now we are already taking action. The cumulative effect of such initiatives is what is making the difference in the increase in the reductions target from 30% to 50%.

Q. So should we take this to mean that reductions in emissions with high global warming coefficients are part of the count?

A. When considering reducing our greenhouse gas emissions, we have found substances with high global warming coefficients at group companies outside Japan. In this way, taking these new measures will become one factor in reducing emissions from the 30% target to the 50% target.

Q. With regard to the simultaneous listing of both parent companies and subsidiaries, you have said that you think your current setup is good, from the perspective of the benefits of having listed subsidiaries versus the financial issues, but in the event that your financial situation becomes healthy, will your feelings on this subject change? I think that the market caps for both Koei Chemical and Taoka Chemical are relatively small, but what are your thoughts on this subject? In addition, what sorts of issues are the focus of your discussions on this topic, either with investors or with executives inside and outside the company?

A. With regard to Sumitomo Dainippon Pharma, the simultaneous listing of both parent company and subsidiary is becoming a financial problem. Even if those financial restrictions were loosened, however, that does not automatically mean that we would discontinue the simultaneous listing, or make it a wholly-owned subsidiary. Rather, I think it would be necessary to once again confirm which option would raise corporate value for both companies. Our current way of thinking is that, even if we assume that making it into a wholly-owned subsidiary would be best for both companies, we cannot do that because of our current financial issues, so in that sense, I think that actually we would end up having to take another step first.

As for Koei Chemical and Taoka Chemical, we feel that the current state is best for both companies. We believe that simultaneous listing alongside the parent company will increase the market value of both companies going forward, rather than being driven by any financial problems.

With regard to our cooperative conversations with investors, we first held discussions that included both Outside Directors and Outside Corporate Auditors. We conveyed the views of management, and heard their frank views, and our shared viewpoint is that simultaneous listing of parent companies and subsidiaries is a case-by-case issue. Our shared understanding is that simultaneous listing is not always bad, or always good, but rather something where the merits and flaws should be judged separately for each individual case, and that it is one possible option when rational reasons are available.

Q. With regard to the announcement by Mitsubishi Chemical Holdings that it is reorganizing its basic chemical businesses in Japan, I would like to ask for the President's thoughts on what sort of impact this will have on your company, though I understand the impact may be small, because you have already withdrawn from the cracker business.

A. Looking at the Japanese domestic petrochemical industry from the three criteria of growth potential, cost competitiveness, and CO₂ emissions burden, it is difficult to find reasons to make the petrochemical industry in Japan into a core business going forward, or to put effort into this area. There are, however, also a number of reasons to not leave the petrochemical industry entirely. For example, there are issues of economic security, and a domestic petrochemical industry might become a source of competitive strength for other manufacturing industries, and furthermore, they might be converted into chemical recycling facilities in the future, so you cannot just get rid of the entire petrochemical industry. In these circumstances, I think integration or cooperative reinforcement might become the natural conclusion. What sorts of integrations or collaborations might be appropriate would need to be discussed on a case-by-case basis, looking at the state of the product or the petrochemical complex, and the state of the market. What needs to be taken into account is whether there is a possibility of talking about this at the level of entire complexes, or whether separate markets exist for them as products. I think the general view is that it then becomes a question of how you think about those combinations. The question of how we will position things during our reorganization is something we will need to thoroughly consider going forward. Because I personally do not have a view that things ought to be a certain way at the current stage, and neither does our Petrochemicals & Plastics Sector, this is a topic we will need to consider going forward.

Q. On the technology front, I think the petrochemical industry in Japan has been used to capturing harmful emissions, such as SO_x or NO_x, for example, and rendering them harmless. Now, however, CO₂, which had previously been considered to be essentially harmless, is suddenly being called harmful. Because it is extremely difficult to recover CO₂ once it has been emitted, I think it would be most efficient to capture 100% of CO₂ as it is being produced, and render it harmless, but is that something you could do as a manufacturer? If you cannot, is that because of the costs, or some other reason?

A. The CO₂ emitted during manufacturing processes, while it is not the majority, is possible to capture because it comes out of chemical reaction formulae. The CO₂ in combustion exhaust, however, is difficult to treat as a foreign element, technically speaking. There are things like SO_x and NO_x, for example, and particulate matter, that mean that, if they are not properly handled, we will not be able to capture just the CO₂ when it is emitted. The CO₂ separation membranes that we are currently researching and developing are efficient because they can separate out and capture CO₂ without an energy cost, but if even small amounts of SO_x or NO_x are present (even below levels set in environmental standards), the performance of the membrane drops, which is a problem. As for other methods, CO₂ collection using amine absorption does not have this problem, but because separating the collected CO₂ from the amines requires a great deal of energy, we feel that the separation and collection process as a whole is not efficient. At the moment, however, only amine absorption is possible at a practical, technical level.

Q. There have been TV news reports covering trials that separate the CO₂ from amines at lower temperatures, so I think effort is being put into that area, but should I take your statement to mean that, because putting CO₂ countermeasures into place in one area can mean that CO₂ emissions are generated in other areas, therefore you are not making much progress?

A. With regard to amine absorption, your understanding is correct. As for membrane technology and other technologies, they are still at a rather low level of technical maturity.

Q. If technological development proceeds smoothly going forward, will these technologies be achievable at costs that could allow for commercial deployment?

A. In terms of performance, we can do it, but I think it depends on how much pre-processing of foreign impurities costs.

(END)

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