

Moves to ban HFCs are too late and too slow

- 1) LONDON – The chief source of new problems is solutions to old problems. The ammonia that we used in domestic fridges as a coolant in the early 20th century was poisonous if it leaked, so in the 1930s we replaced it with chlorofluorocarbons (CFCs), which you can breathe all day without harm. Problem solved. (coolant 冷却材)
- 2) Unfortunately, it turned out that CFCs, when they leaked, eventually rose into the stratosphere where they began destroying ozone. The ozone layer is the only thing protecting us from the sun's harmful ultraviolet radiation, so countries responded quickly in the 1980s when scientists discovered a spreading "ozone hole" over the Antarctic. (stratosphere 成層圏 ultraviolet radiation 紫外線放射 the Antarctic 南極地方)
- 3) In only a few years the world's nations negotiated the Montreal Protocol of 1987, which mandated the elimination of CFCs from all industrial processes by 1996. The deadline was met, and the latest projection is that the ozone layer will recover to 1980 levels between 2050 and 2070. Problem solved. (mandate 命令する)
- 4) Unfortunately, the CFCs were replaced in most fridges and air conditioning units by hydrofluorocarbons (HFCs). They don't hurt the ozone, but they are very powerful warming agents – 10,000 times more powerful than the same volume of carbon dioxide – when they escape into the atmosphere.
- 5) Global warming was not seen as an urgent threat in the 1980s, so the negotiators were not much concerned by that. If the warming turned out to be a major problem, it could be dealt with later. But it did turn out to be a major problem, and later is now.
- 6) The rapid industrialization of the warmer parts of the world (India, China, Brazil, etc.) has led to an explosion of demand for air conditioning and other cooling technologies. According to the Lawrence Berkeley National Laboratory in California, about 1.6 billion new air conditioning units will be switched on worldwide by 2050.
- 7) HFC leakage from air conditioners alone will raise the global average temperature by half a degree Celsius by mid-century. When all the world's government are pledged to stop the warming before it reaches plus 2 degrees, and we are already well past plus 1 degree, an extra half a degree is a lot.
- 8) So we needed another miracle like the Montreal Protocol – and now we have it. On Oct. 15, in Kigali, Rwanda, almost 200 countries signed an agreement to curb the use of HFCs being used. U.S. Secretary of State John Kerry called it "the single most important step we could take at this moment to limit the warming of our planet."
- 9) Well, yes it is, but you are probably noticing a pattern in all this. It's not so much that we keep getting it wrong. It's the time it takes to put it right: a century so far, and we'll still be at it for at least another 30 years before all the HFCs are out of the system.
- 10) When you read the fine print of the Kigali Amendment, it turns out that the United States (the second-biggest HFC polluter), the European Union and some other rich countries will have to achieve their first 10 percent cut in HFC production by 2019 – but the schedule for further cuts is not clearly defined, apart from the fact that they must be down by 85 percent by 2036. (That's 20 years from now.)(fine print 細事部分、細則)
- 11) The majority of the world's countries – including China, the biggest polluter – will only have to freeze their production level in 2024. (At the moment, their production of HFCs is going up by an average of 16 percent a year, which means it could almost triple by 2024.)
- 12) The first 10 percent cut by these countries is only due in 2029, and it will be 10 percent of whatever they are producing five years from now – possibly double the current amount. They will then make further cuts in 2030-2045, getting production of HFCs down by 85 percent by the latter date (three decades from now).
- 13) India, Pakistan and most of the Middle Eastern countries don't even have to freeze production until 2028, and their target date for getting to 85 percent cuts in production is 2047. At a rough guess, global HFC production will peak sometime in the late 2020s, and will be back down to the current level by the mid-2030s.
- 14) Don't get angry. Countries don't know how to negotiate any other way: Nobody gives anything away if they don't absolutely have to. But if you want to despair, go right ahead. The pace of the political process does not remotely match the speed with which the threat is growing. (despair 絶望する)後略
【Oct 20, 2016/Japan Times/Commentary by Gwynne Dyer (an independent journalist and military historian)】

★Ice breaker for active discussion

1. What kinds of problems can be caused by global warming?
2. The HFC reduction targets of each country are different. What are the advantages and disadvantages of this?
3. According to the article, political process doesn't match with the threat's growth speed. What can you say about it?
4. Make sentences using the following words: stratosphere, ultraviolet, mandate, fine print and despair.