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How To Rock the World. Limits to Growth and its Impact

The goal of this talk is twofold. First, as the historian on duty, I will give you an idea about what happened forty years ago when the Club of Rome published the Limits to Growth report. However, this winter school does not stop after looking back - quite the contrary, looking back is really only the first step in our intellectual journey. So the second thing that I intend to do here is to use the look back as a way to open perspectives for our discussion in the upcoming days. After all, our view on the events of the early 1970s and our work program for the next few days are closely intertwined: how we see the study of 1972 frames our view on the challenges of the present, and vice versa.

The year 2012 is certainly a good one for reflections about past and present scenarios, and not only because forty years provide for some distance. If we look around us today, we see a world that is quite similar to that of 1972. We see a changing world; we see things that we took for granted being challenged; we see the hegemony of Western societies shrinking; and we are confronted with, and probably scared by dark outlooks for the next decades. Over the last years, historians have come to see the early 1970s as the key turning points of the post-war years, essentially dethroning the year 1990 that previously had figured as the decisive watershed. Of course, no one knows whether our present will look like a similar time of change a few decades from now, but there is a sentiment that we are currently witnessing profound changes around us. Therefore, it might be a good idea to look at the "Limits to Growth" in the light of these unfolding events: can we see this study as a case study for finding orientation in times of change? And what have we learned over the last forty years about the side effects and the implications of such an endeavor? In short, when we approach the Limits to Growth after forty years, we probably should do so in two ways: we should ask questions again - but we should also ask ourselves whether these questions are still the right ones, or whether we should rephrase questions, or add new questions to our list.

However, before we come to these current events, I would like to give you an idea about what happened back in 1972, and specifically why these events became so important that we are holding this winter school forty years later. After all, what happened back then was, in some respects, perfectly normal: the Volkswagen Foundation funded a research project, and the results were published. To be sure, the project was a big one - it cost the Volkswagen Foundation a little less than a million Deutschmarks. It was also a rather short one, taking only fifteen months from start to finish. And yet this was, at its core, only one of many projects that the

Volkswagen Foundation has financed over the fifty years of its existence, except for one thing: this study rocked the world. It gained worldwide attention and sold twelve million copies in some 30 different languages.

Interestingly, the project did not look like a guaranteed success from the outset. Ten years ago, the Volkswagen Foundation gave Helga Nowotny access to the internal files for the research grant, and what she found was plenty of skepticism: referees expressed doubts about the methodology, about the prospective results, and also about the prospective project director, Dennis Meadows - after all, the original person of choice was the Turkish-born economist Hasan Ozbekhan, one of the co-founders of the Club of Rome; but his proposal was met with criticism and he stepped down as project director. Jay Forrester of MIT, who was the big man in system dynamics and Computer Simulation at that time, recommended a Student of his, Dennis Meadows, who was only thirty years old when the report came out.

The key attraction of the research endeavor lay in the methodology: the computer-based Simulation of the earth's processes. Now others will speak about this method today, and I gladly yield to their judgment. But allow me to point out that, this was a branch of research that was by all means fashionable at that time. This was the age of cybernetics, where the investigation of communication and system dynamics were all the rage; Computers were finally able to conduct complex calculations, thus boosting the prospects of computer-based modeling. So there was a hope around that modern Computers, if programmed with skill, would boost the cognitive powers of humanity, and that was certainly a key motive for the reception of the "Limits to Growth": there was a widespread feeling, or perhaps worry, that maybe the Computers at MIT know more about the future of mankind than mankind itself.

The early 1970s were also the highpoint of long-range planning. The future was now subject to careful, science-based design - or so was the hope of many a person in charge. We see that in economics: Keynesian economics promised to secure constant growth rates, and almost everybody subscribed to this theory. But planning was far more than an economic theory - every part of modern society was supposed to be amenable to the wisdom of far-sighted planners. Of course, the underlying assumption was that ongoing trends would basically continue for the foreseeable future. Furthermore, long-range planning rested on the idea that the general path of society was beyond dispute - that people basically agreed that they wanted a more modern society. Both assumptions would soon be challenged profoundly, and we will come to that in a minute. But in order to understand why the Limits to Growth created such a stir, it is important to recognize that planning still had the trust of the general population - and particularly planners armed with Computers working at the renowned Massachusetts Institute of Technology.

So that is the first part of the story: a new approach that drew on the academic fashions of the day. The second part has to do with the report's sponsors: the Club of Rome - a peculiar Organization that is not hard to define. It was founded in 1968 by Aurelio Peccei, an Italian industrialist who had previously been a manager at Fiat and Olivetti, and Alexander King, who was working for the Organization for Economic Co-operation and Development OECD; the place of the founding meeting was, as you might have guessed, Rome, Italy. In 1970, the Club of Rome described itself as "an informal, multinational, non political group of scientists, economists, planners, educators and business leaders". Members were handpicked by the Club's Executive Committee, and to this day, membership is limited to 100 people. When the Limits to Growth were published, the Club of Rome had about 70 members in 25 countries.

The Club of Rome was not a powerful organization in the classic sense - all the more so since membership was deemed incompatible with holding a political office. However, the members certainly had prestige and connections, and they were not shy of showing it: the Club of Rome saw itself quite matter-of-factly as a kind of global avant-garde. As a historian, the concept looks a bit reminiscent of nineteenth-century politics; wise, concerned men coming together to discuss the world's problems.

It is a bit of an irony that this Organization was founded in 1968. Of course, we tend to associate the year 1968 with Student rebellions all over the world today. Democracy and emancipation were the slogans of the time, and, to cut a long story short, there was very little of that in the Club of Rome: elitist as it was, it was as far removed from a grassroots Organization as one could possibly be. And their work was almost as traditional as their composition: while students were taking to the street, the Club of Rome commissioned a report and presented it to the interested public. To this day, the Club of Rome has released 33 reports - though none of them received the kind of resonance that the Limits to Growth achieved, the very first report to the Club of Rome.

One thing that I should probably stress here is that the Club of Rome did not define itself as an environmental Organization, and does not to this day. The Website of the Club of Rome declares that its members are concerned with the future of humanity and the planet - which is probably a nice way of saying that they are concerned about everything. It is a bit ironic that this Organization came to be associated with a study that was one of the landmark events in the history of environmentalism; but then, the development of environmental NGOs was still in its infancy. There was nothing of the transnational network of civic organizations that we know today. Many environmental advocacy groups were still about to get started on the national and regional level, and they could only dream of the kind of global networking that the Club of Rome could practice.

Of course, the Club of Rome's members were influential in securing worldwide recognition for the report, and so was the prestige of the MIT (and the prestige of the Volkswagen Foundation surely did not hurt either). But then, I do not think that this, by itself, can explain the enormous attention that the report achieved. We must not lose sight of the fact that the initial reaction was rather ambiguous. On the one hand, the report received immediate attention - there was none of the awkward silence after publication that so many authors are painfully familiar with. On the other hand, many reviewers were uncertain as to what to think about the book and its sponsors - not least because none of the readers were used to the genre: for most readers, this was the first computer-generated doomsday scenario. Furthermore, the doomsday scenario came from an unexpected angle: previously critics of modernization have written from a conservative standpoint, nourishing a sense of nostalgia for a disappearing world where everything was better - but that was not the theme of the Club of Rome. The members of the Club of Rome were not speaking in a nostalgic vein, and theirs was not the lament of cultural despair. This was a new kind of critique, and many observers were uncertain as to their reaction.

With that, I am at the third thing that made the Limits to Growth report into a modern myth: perfect timing. It came at precisely the right moment, building on ongoing trends and reinforcing them, and that was what made the Limits to Growth such a landmark event. Let me highlight three points:

1. The early 1970s were a boom time for environmentalism, and perhaps even more: it was the time when environmentalism as we know it today was born. Of course, people had appreciated nature long before, and a first wave of associations had formed around 1900 for the protection of nature and the fight against pollution.

However, these traditions changed into a new type of movement around 1970, in a number of ways. The new environmentalism was broad, as it embraced a wide array of issues from pollution and garbage to the extinction of species; the new environmentalism was holistic in that it thought of these problems as interconnected, and ecology was the concept of choice in highlighting these interconnections; and the new environmentalism was more aggressive than anything before: what had previously been a struggle against nuisances and isolated problems was now a fight to save the planet.

The upswing of environmentalism had started in the late 1960s and was in full swing by 1972. One of the first key events of global environmentalism was the environmental summit in Stockholm, Sweden, in 1972, the first global summit on the environment. Many Western countries had used the occasion to polish

their environmental credentials, passing laws and creating ministries and institutions to express their concern. At the same time, civic organizations were forming in growing numbers against all sorts of things: large infrastructure projects, pollution, waste, loss of habitats, nuclear power - in short, against all these issues that we regard as environmental nowadays. In fact, the environmental sentiments were already boiling to such an extent that some authors were putting forward dark apocalyptic scenarios; to give just one example, the English magazine "The Ecologist" published a "blueprint for survival" in January 1972.¹ probably do not need to elaborate any further: the nascent phase of environmentalism provided fertile ground for concerns about the future, and particularly for dark, authoritative prophecies of doom.

2. The economy was in trouble in 1972 - and as you know, an economy in trouble is always something that makes people nervous. In retrospect, the crisis was rather lame, especially with a view to the crises that were still to come. But then, the people in the early 1970s were accustomed to strong growth rates. Since the end of World War Two, the industrial economics of the West had been humming along like never before, creating a type of affluence that the world had never seen: mass consumption became a defining feature of post-war societies. However, the boom had been fading out since the mid-sixties: growth rates were shrinking, and cyclical crises returned. From today's perspective, growth rates were still solid, but that is not how contemporaries saw it. For them, economic growth had become second nature, and an interruption of growth was received as a dark, unknown threat. Once more, it goes without saying that this was making people receptive to a book about "limits to growth". In fact, it was the perfect title: after two decades of seemingly unlimited possibilities, societies were facing limits. And then there was the imminent shock that preceded the publication of the report: in 1971, the United States government had suspended the convertibility of the U.S. dollar into gold, which prompted the collapse of the Bretton Woods system of fixed exchange rates that had been one of the pillars of the post-war boom. Clearly, people were in a mood that suggested doom.
3. The third contemporary development had to do with a key resource of modern consumer societies: oil. Few people realized it in 1972, but there were signs of trouble in the oil market. In 1970, the United States ceased to be a net producer of oil; the U.S. was now consuming more oil than it produced within its borders, which created a dependency on Imports that, as we all know, lasts to the present day. That was the trigger for the oil crisis of 1973, an event that actually consisted of two things: an export embargo against several Western countries that Arab nations imposed after the Yom Kippur War between Egypt, Syria and Israel in the

fall of 1973; and a price increase of the Organization of the Petroleum Exporting Countries (OPEC), a cartel that drove oil prices into unprecedented heights. I will spare you remarks on the economic repercussions, which were great, and leave it as saying that the two measures created a Situation on the verge of panic: for the affluent societies of the West, the reliable supply of cheap oil was a must, and seeing that threatened created a deep feeling of anxiety all over the West.

The oil crisis had an important effect on the reception of the Limits to Growth. Just a year after the publication of the report, the oil crisis bestowed the study with an almost prophetic quality: the horror scenario of resource exhaustion seemed to become reality with frightening speed. Furthermore, the wide variety of issues that the report had touched upon faded into the background, to be replaced by that single issue, resource exhaustion, or even more specifically running out of oil - that one issue was now dominating the popular understanding of the Limits to Growth. That was obviously a narrow reading, but a reading that was helpful, at least in the short run: oil prices remained high, a second oil crisis followed in 1979, and all that gave credibility to the warnings from the Club of Rome. It also brought researchers to take resource efficiency much more seriously, and that was certainly a rewarding field of activity. After a quarter Century where oil had been both cheap and available in every desired quantity, the potential for savings were enormous.

However, oil prices collapsed in the mid-1980s, and that prompted many observers to rethink their view of the Limits to Growth. It looked as if the report had totally missed the point: rather than facing scarcity problems, societies all over the West were facing the problems of affluence, as cheap oil encouraged wasteful use. And this was part of a broader problem that environmentalists were facing since the eighties. The Limits to Growth were just one of numerous doomsday scenarios that environmentalists had embraced since the seventies: environmentalism defined itself to a great extent through gloomy visions for the future, far more so than other social movements. However, this approach inevitably turned into a liability over time as prophecies underwent a reality check. The visions that had energized environmentalism in the seventies now looked increasingly like false alerts.

Now when it came to the Limits to Growth, the notion of a false alert was certainly mistaken. The Limits to Growth were never about exact predictions — in fact, the book included warnings that the world model was exceedingly simplistic. The Limits to Growth were certainly never in the business of predicting prices - after all, resource prices depend on an almost impenetrable jungle of factors, and material scarcity is just one of them. Finally, the figure on the available oil reserves was not even from the MIT researchers or from the Club of Rome: the researchers had used estimates that oil companies put forward at that time. The real merits of the Limits to Growth lay

elsewhere, and they had little to do with figures: in my view, the key innovations of the original Limits to Growth were exposing the folly of exponential growth and the fateful interactions between different trends, two issues that - I think - have lost none of their relevance. However, ignoring these things made it easier to pursue the wasteful, non-sustainable lifestyle that we have become accustomed to in the West - but I am sure that you, the participants of this symposium, will not forget about this.

With that, I have already touched on that broader goal that I alluded to at the beginning: how should we deal today with a study that is now forty years old? Of course, we have better Computers now, we have better models and better data; but I think there is more to be considered. What have we learned when it came to dealing with computer-generated scenarios of this kind? I already have alluded to one thing, and that is what one should NOT do: one should not take the report as a kind of scorebook and compare the prognosis with the reality of the year 2012 - those who do that simply do not understand what the study was about. After all, the Club of Rome has highlighted the need for more sophisticated studies itself, namely by commissioning regular Updates to the Limits study. As you know, the most recent one came out this year.

A more rewarding approach tries to highlight the differences between the year 1972 and our time, and to summarize what we have learned about prognoses in the meantime. As I have described, the year 1972 was still a time of innocence: people were not used to computer-generated scenarios; in fact, they were not even used to doubts about growth. Now that innocence is certainly gone for good, and we have made some experiences along the way.

With that in mind, I would like to offer you the following six points by way of conclusion:

1. Prophecies serve interests. To be sure, I am not talking about the Club of Rome or Dennis Meadows and his team at MIT - they were as disinterested as one could probably be. But as soon as the prophecy became a public issue, interests came into play, and one interest was particularly significant: the interest of State agencies. After all, long-range planning was a classic concern for large bureaucracies, and in some cases, the rationale for their existence. Planning is expensive, it requires an outlay for expertise, staff positions, etc. - and all of that was easier to get when there was a severe crisis on the horizon.
To be sure, this is an Observation - it is not a value judgment, or a Statement about a sinister entanglement that shouldn't have been. Interests are legitimate, and arguably omnipresent in the political sphere. And when it comes to environmental issues, there is certainly no help denying that the self-interest of politicians and bureaucrats was beneficial: after all, that is how we came to have a decent system of environmental regulation in Western countries. A popular myth depicts the State as a

dithering leviathan that did not care for the environment except when under pressure from an enraged citizenry, but that is only half the truth. Civic protest was important, but so were clever politicians and bureaucrats who seized the opportunity and achieved massive expansions of budgets and staff.

So the self-interest of politicians and bureaucrats is not good or bad in itself; but their interests are a factor that we need to reckon with. I say that particularly with a view to these long-range plans that have become strangely fashionable in the wake of the debate over global warming. When you look at the energy transition in Germany, the much-touted *Energiewende*, you see a lot of blueprints for 2030 and beyond - and that is where the self-interest of politicians and bureaucrats becomes an ambiguous thing. Drafting blueprints for decades into the future is a perfect rationale for bigger budgets and more staff. It is also easy for politicians - when these long-range plans fail, they are almost surely no longer around. Long-range plans are also less hassle than dealing with immediate problems, and the energy transition certainly has a lot of those. In short, I would see the current German debate about energy as a showcase that long-range planning can be a distraction: we discuss long-term plans because they sound good and serve certain interests - and at the same time, German politicians look strangely clueless and disinterested when it comes to the decisions of the day.

2. Prophecies need addressees. It is usually not very helpful to say that somebody should do something - appeals and suggestions are more beneficial (and more honest) if they State specifically which group of people should do what, and for what reason. And that point is particularly important when it comes to the Club of Rome, as their reports are notably vague in whom they address. They usually address humanity as such, all of mankind - a move that sounds noble and grand, but then, as the German sociologist Niklas Luhmann pointed out, a society does not have an address. Those who speak to all of humanity easily end up speaking to no one.
3. Linear trends are looking increasingly dubious. That was different in the early 1970s: constant growth rates were a matter of fact, and the experience of some two decades pointed to the likelihood that the boom would continue. In contrast, we have come to distrust linear developments in the twenty-first Century: our societies have experienced way too many crises and changes of course as to accept the idea that the future could simply evolve from the present in a straight, monodirectional way. We have come to distrust long-term trends - more so than the people in the early 1970s.
That does not mean that we have abandoned our reliance on growth. It only takes a look at a Standard newspaper to see that the expectation of growth, and the hope for

growth, is still with us. In short, the notion of limits to growth does no longer shock us the way that it did people in the seventies. We all know that limits exist - the issue is who defines them, and for what reason.

4. There is another dimension to this that I would like to stress. In times of uncertainty, we need to rethink the rationale for discussing long-range plans. After all, these discussions can be a distraction from the real challenges: in the midst of a crisis, it is strangely reassuring to let thoughts drift towards a distant future - and we have seen that happening already. Furthermore, times of crisis let us realize that trends may collapse unexpectedly - and that it may be a good idea to have some reserves for cases like these. Some societies are better than others in reacting to unforeseen events, and the conditions that improve the capacity to respond are increasingly coming into focus within environmental circles: we are talking more about resilience, and it may be a good idea to bring this thought into our debate about long-range perspectives. The ability to respond flexibly to unforeseen challenges is emerging as an important resource in the twenty-first Century.

5. For all the global reach of the Club of Rome, it is certainly fair to say that it was (and probably still is) a Eurocentric Institution; and the Limits to Growth were surely a Eurocentric document. The problem of exponential growth and the threat of resource exhaustion was first and foremost a problem of the West - the Global South had different things to worry about back then, and it has different worries now. We need to think about this carefully: the agenda of environmentalism has been defined mainly from a Western perspective for far too long, as if the problems of affluent Westernites were the natural starting point for worries about the planet. But when we look at China, for instance, we see a Situation that is completely different: in a way, China is struggling with all the environmental problems at once that the West has dealt with successively over the course of more than a Century. So can we blame China for focusing on smoke and dirt first when we, historically speaking, have done the same?
There is obviously no simple answer to this - the challenge is merely to think these things through from different angles, and to keep an open mind for unexpected viewpoints and concerns. The one thing that is clear is that in the twenty-first Century, we can no longer define the agenda and the blueprint for survival solely from the point of view of the West.

6. The Limits to Growth made history because they led to the formation of a distinct coalition that provided the warning with thrust: politicians, planners, resource strategists etc. It would be a good idea to bring this theme into our discussion, at least to some extent: when we talk about trends that we would like to support, it

would be a good idea to reflect on who might have an interest in fostering these trends, and for what reason. No idea makes history simply because it is a good one: the upswing of environmentalism in the seventies and eighties provides a case in point - environmental policy served the interests of ambitious bureaucrats and politicians, plus the interests of an embattled nation-state - environmental issues were one of the last political fields in the seventies and eighties where it was still possible to achieve a massive expansion of budgets, competences, and staff. So where is that coalition on the global level? Concerned people like the members of the Club of Rome are a good thing; but they will not save the world by themselves.

What all this comes down to is that we probably need to discuss on two levels here: we need to have a debate about the problems - and we need a debate on the debate. Are we asking the right questions? Should we ask different ones, or additional ones, or adjust our general focus? How do we define priorities and agendas in a complicated world that no longer has that one common utopia of modernization that was still around in the early seventies? And can we use the experience of past prophecies and past declarations to learn more about unintended side effects, and perhaps take them into account for a more refined Statement? We are not as innocent any more as the people were back in 1972 - we know that scenarios have blinders, that they serve interests, and that they tend to highlight some things at the expense of others. The key thing is to use these experiences.

Of course, this is a big agenda, and certainly for a winter school that lasts only one week. But then, let us remember that the original team around Dennis Meadows was working under significant constraints as well: they had little more than a year, but they jumped at the opportunity, and in the end, they created a report that people are still talking about after four decades. Maybe the report would have been more sophisticated after three years and a few more rounds of Computer modeling - but Dennis Meadows did not have all the time in the world, and neither do we. Dennis Meadows made the best out of that, and we should try that, too. So that would be my final piece of advice to you as this Winter School is getting started: do what you want, but, for heaven's sake, be hold.