

# Major Technological Risk

An Assessment of Industrial Disasters

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## GENERAL CONCLUSION

# The seriousness of our freedom

### 1. FACED WITH MAJOR RISK

Major technological risk: we have tried to explore the multiple facets of these three words, to grasp to the full the political problem raised by this challenge to the industrial societies of the western world.

In a first stage, a long one but the complexity of the issue demanded such developments, we examined the continuities and discontinuities we observed in the order of technological risk since the beginning of the industrial era. This view has permitted us better to appreciate the novel nature of contemporary risks : menaces of large scale and extreme seriousness, unknown in the past, which today are part of our world. True, no event has as yet shown this phenomenon clearly but serious warnings have already been given, we examined examples among the most significant ones in the first chapter.

From this first stage on, as we have actually announced in advance, the view was political as we have undertaken to examine the documents under the aspect of human responsibility. The conclusion is severe: the disaster must not be seen like the meteorite that falls out of the sky on an innocent world; the disaster, most often, is anticipated, and on multiple occasions. By force of deafness and blindness misfortune unfolds and throws a frequently cruel light on the often stupefying elements (at least for those who do not play ostrich and bypass the discussion of the circumstances). The history of disasters is the history of the irresponsibility of the public powers, of the vanity of their assurance/ of the derisory nature of their speech.

Can this story continue in the same manner when the risks have become more serious ? This raises a question when one passes from the mining disaster (1,099 deaths at Courrieres) to the menaces which weigh down on urban areas with several hundred thousand or several million inhabitants (Toulouse, Dunkirk, Grenoble, Lille, Lyons, Milan, Toronto ...).

One must therefore closely examine what our societies are capable of doing when faced with such a challenge.

In a second stage we then examined the institutional means and the scientific tools available for the management of major risk.

## General Conclusion

A historical view has shown the undeniable progress accomplished in this field: good adjustments have been made in matters of prevention, combat and reparation; better still: significant breakthroughs have appeared on the level of tools.

Yet, here again, the body politic is challenged. Often it still has to take notice of the very existence of these high risks and subsequently to take into consideration the numerous insufficiencies of the means of management available. For each examined point we were able to produce evidence of questions which require immediate determined actions. Even the best provided sectors, such as the nuclear sector, demand significant progress. In other cases, such as the chemical industry, the very first steps recently under- taken surprise (and this is a rather weak term) by their timidity and their belated nature.

The body politic is challenged more seriously still when it accepts to observe the very free limits of the means and tools available to the administrator and technician. The world's biggest insurance companies warn: if development is not conducted in a reasonable fashion one cannot expect reparation in case of major disaster. The experts insist: in a disaster situation at present there is hardly a chance for successful defence but only for managing the rout as well as possible. There remains prevention. There again the specialists sound doubtful: it is not possible to filter out, as should be done, all defective elements of the existing systems.

Therefore, the body politic can, less than ever, afford to leave power to the technician. Given the risks, it must decide the demands to be made on the engineer; given the limits of technique it must choose well in advance the approaches it is prepared to accept. Once the choices are made, the possible adjustments in matters of safety will be only of limited effectiveness.

However there is more. All these insufficiencies and limits must be examined *in situ*. The social and organisational realities in fact weigh down heavily on the difficulty of controlling major risk. The third stage of our exploration, devoted to the examination of the regulation of major risk has shown the social scope of the problem. In a general way the brushing aside of the eventuality of the disaster, completed by a series of in auspicious, sometimes aberrant behaviours, increases the vulnerability of the socio-economic systems, and this for a double reason. On the one hand, every one of the agents tends to put the question of major risk outside his frame of reference. On the other hand, complex social situations are not a propitious atmosphere for the control of major risk. The disaster which is made possible because of technical and institutional faults occurs because of the irresponsibility of some people and because of very general social situations which carry in themselves states of a responsibility which are no longer adequate in the era of major risk.

Faced with all this, the body politic is more than just upset, it is affected in depth. Nightmares haunt the responsible minds: has the Western World gone mad? One can understand that such questions are sometimes quickly brushed aside.

Our fourth and last stage has been devoted precisely to these brutal challenges to the body politic. We have pursued three lines of reflection and response.

The first is the one of refusal: defending progress, getting projects passed, holding up in a disaster situation.

The body politic stiffens up and uses what tactics seem suitable, firmness and authority, to ensure the pursuit of the previous tendencies.

The second is the one of questioning : what reorganisations are necessary to race the challenge? What status to give to the safety function? What decision making process to adopt in order to give the citizen again a place where he is very directly involved as soon as there is major risk?

The third one is different: it is here a question of deeper reflection on the body politic. It does no longer separate risk from its key preoccupations as in the first case; it does not only open up to questioning as in the second. It senses the deepest issues to which major risk leads. Responses of a strategic order are therefore given or sought. They are given when the firmness of the first scenario is taken up, systematised and anchored in a true project. This is mainly the project according to which the citizen will no longer be able to act out his choices. He must, more than before, leave the choice of development options to experts (the parliamentarians being content with initialing the documents put before them). This represents a new cultural era. In order to enter without too much shock into this new culture one must have, as the international organisations stressed in 1938 for the case of nuclear energy, "educative redress" and a carefully managed process of conditioning. It will be necessary that the citizen gets used to ignorance. And in case of refusal, subsequent to a disaster or not, a discourse or if that does not work the use of force will have to set him right again, this because of Reason, the reason of Power.

Side by side with this clear and simple approach, there are doubtless other approaches which are difficult to draw up and to follow but more innovating. We have given some outlines of them but the difficulty here is very big. On the one hand, social responses to such a challenge would not come from one individual or even from several which is an evidence not to be forgotten. Or, on the other hand, the attribute of a real turning point is precisely that one does not see what it hides; doubt and search are then the rule and are actually more adequate than the vain assurance of the one who brandishes a solution with the force of naivety, of shortcuts and doubtless distrust for history. We maintain that much must be done to avoid the easy temptation of authoritarianism which deceives itself by thinking that all can still be solved "as before" or that the world must be set right in the end by the few dozen most alert experts.

We prefer the approach of courageous humility which in the face of major risk does not brush aside doubt and takes up the example set by Llya Prigogine and Isabelle Stengers calling for a 'new alliance' :

The problem raised by the interaction of human and machine populations has nothing in common with the relatively simple and controllable problem of the construction of a specific machine. The technical world to the creation of which classical science has contributed, in order to be understood needs concepts that are utterly different from those of that science... The time has come for new alliances, always knotted, for a long time misunderstood, between the history of men, their societies, their knowledge and the adventure of exploring nature.\*

\* Llya Prigogine and Isabelle Stengers : *La Nouvelle Alliance – Metamorphose de la Science*. Gallimard, Paris 1979, pp. 294 and 296.

## General Conclusion

New alliances to be woven between man and nature, between societies and their techniques, between men themselves, inserted into new relationships bearing the stamp of their technological options. A new alliance to be brought to light between knowledge and power, new realities to be brought to life for the project of democracy, a project which could quickly and brutally shrivel up if the body politic did not take up the challenge of major technological risk intelligently and with determination.

## 2. WITHOUT WAITING FOR THE TWILIGHT

May we be permitted at the end of this work a more personal implication and not a classical aggregation on a problem which is in itself already rather complex. May we be permitted to face what touches every one of us and the whole world: the possibility of personal and collective death. Just aggregation, it seems to us, would be a bit artificial in the present state of our own reflection and would above all constitute, under the cover of respecting the rules, an ultimate escape, a defence mechanism of great subtlety, no doubt, because it would slip into the normal rule of the exercise, but not legitimately in relation to the seriousness of the question raised.

Yet, it is indeed an ultimate aggregation that we did for a time foresee these final pages. We want to see the philosopher, the one who is not revolted by thinking out the human experiment.

What does the thinking of those with whom he is familiar teach us?

The philosopher treated us to Plato who wanted to found power on knowledge and no longer on the false discussions of the sophists in the agora. This is a difficult perspective to uphold when knowledge vacillates in the face of uncertainty. He treated us to Descartes who wanted to reduce reality to what is measurable, to space, to the calculable, by brushing aside everything that would not fit this scheme which is operable but so impoverishing. ("The silence of these infinite spaces frightens me", Pascal sighed.) A reduction that is untenable when the measurable includes such incommensurable discontinuities. He treated us to Freud who clearly showed that there exist rationalities other than the Cartesian rationality. How does one make a world function when A may be  $\hat{A}$ , B, X or Z, parapet or umbrella?

He entertained us for a long time. That world was fascinating. On the evidence, the problems which we raised were tailor-made for these great men of thought.

But answers? None. And yet, does not the eventuality of death or of the fate of several million people, perhaps more still, because of our use of knowledge remain very real? The eventuality of the death of an area and the fact that one does not want to know about it? That one cannot know much about it?

The philosopher did not continue further except to come to the core of our quest and to emphasise to us its illusory nature. There are times when thought can no longer function. Thought cannot, at a time of discontinuity, take precedence over history and experience. We found ourselves faced with these well-known words by one of the greatest: Minerva's owl flies only when night comes.

What was left to us? Having entered the philosopher's realm full of illusory and naive confidence we went out naked, faced with ourselves and the reality which we had studied. No magic key, not even at the thinker's.

Like Candide who lived through the Lisbon disaster and whose observations on the subject we quoted at the beginning, we were left with our 'garden'. Certainly not the one that is tended by resignation, by casting down one's eyes for fear that a single question might bring the sky down on our heads. But by free and voluntary work which, carried out together with others, aims at bringing forth from the soil some food, and rather grain than poisonous mushrooms, which requires knowledge, options and involvement in the task, both personally and collectively.

Would this not be a rather brief ending? An expert, the same one who told us at the beginning about the supreme value of our societies, the economic value in its narrowest sense, suggested to us as a whim the diversion: refuge in some gloomy office or at the Antipodes, under the sun of fantasy island. Much resignation and oblivion combined with the necessary hidden cynicism to ensure for oneself a fossil freedom in secret.

We have returned to Jaspers :

The historical events lead to the unexpected, they bring with them destruction but also salvation. The formula: he who does not believe in miracles is not a realist — is, however, true only if one joins to it the other one; He who relies on the miracle is a freak ... It is certain that reason cannot claim in principle that it rules the world; but it can affirm that it must be itself and that it must act without bringing about a restriction of the strength of its means.\*

Ultimate escape? Unfounded confidence in human capacities? Or the ultimate act of will by which personal and collective creativity and freedom can still reaffirm themselves despite the possibility of colossal defeat?

The stakes call for determination. But what task to settle for as a priority? What does a Reason mean for us which must be itself and which acts without applying any restriction to the strength of its means?

Without falling for facile and illusory formulae one can take a few steps, knowing full well that the first one is the most costly but also the decisive one. Without expecting to have a clear idea of the extremely complex situation which we must face one can nevertheless try to awaken Minerva's owl within (us) before twilight comes and to act before it is too late.

A first snag is always denounced: the fall into the irrational. One will have to watch out in everything to keep sight of reality. There is certainly nothing inescapable; but one must know the price that must be paid for each degree of freedom which one wants to conquer or to reconquer.

A second snag is also difficult to avoid, and many of those who are thrashing the 'irrational' groups have not avoided it : it is the snag of the unreasonable\*\*.

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\*K. Jaspers: *La bombe atomique et l'avenir de l'homme*. Buchet-Chastel, Paris 1963, pp. 677-678 (Die Atombombe und die Zukunft des Menschen, Piper, Munich 1958.)

\*\*An action conforms to reason when it knows its preconditions, when it foresees its own consequences and when it is aware of the motivations which dictated its objectives. (G. Picht, *Reflections on the edge of the abyss*. R. Laffont Ed., Paris 1969, p. 119).

## General Conclusion

It is unreasonable to launch into innovations while hiding the risks from oneself; to count too much on the future to resolve the technical incapacities of the present and to commit the future massively on too fragile a basis

It is unreasonable to launch oneself onto the ocean of major risk and its furies in skiffs which are obviously too frail; at the first real storm we shall drown. One cannot leave the various organisational bodies in charge of safety, and their political status in particular, in their present state,- they keep — with means sometimes stingily counted out — lifeboats from another age while they should be on the bridge in order to choose together with others routes and speeds and put in their veto in case of choices which are contrary to reason. Today they are far from being pilots. They are received rather like spoil-sports that must be satisfied at minimum expense.

It is unreasonable always to smile after accidents, which are immediately qualified as 'incidents', while claiming that there has been more fear than fault and pollution only of the minds. Our examination has shown only too well: the disaster is most often anticipated. The defeat, the rout, the collapse of yesterday's smooth-talkers, the heroism of some people could have been avoided, often without much difficulty.

It is unreasonable therefore to pursue our development with this sovereign and haughty ingeniousness which one sees sometimes. It is time to ask oneself like the British expert who suggested to us as a theme for a future conference : what industrial policy after the first civilian holocaust? This not in order to succumb to fear but in order better to size up the stakes : the eventuality also of very 'strange' defeats, so big is the vain assurance of our day; the eventuality of the collapse of the organisations that should be in charge 'afterwards'; the possibility of seeing the citizen panic-stricken and abandoned (yesterday's sophists shriveling up in culpability and impotence) in search of an Imam or a Fuehrer.

To counter these tendencies must be the first task. We shall not set forth any formulae here ; we shall not line up recommendations. Only one perspective must be affirmed: suitably rearranging politics, risk and the development process, each of these terms having to be reexamined in itself and in its relationships with the other two, and this according to what is at stake.

Redefining this presupposes a first act of will.

What are the collective conditions of such an act of will? It presupposes at least a general awareness. A free and responsible awareness, open to doubt, which is the foundation of thought and intelligence.

The difficulty lies in the fact that a community, a civilisation affected to its foundations — may refuse to take notice of the means that lie in wait for it. When ignorance is bliss, 'tis folly to be wise\* ... And ignorance entertains unreason. It may also, at a moment's notice, succumb to fear and precipitate (itself) headlong into such unreason.

Making headway is possible. The first step is to give information while at the same time arousing the citizen's sense of responsibility. Information will therefore not at all be the last annex to a decision — deceptive wrapping for some non-negotiable present; information will be one of the first elements of real involvement of the citizen.

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\*Thomas Gray, 1716-1771.

We are very far from establishing this political effort to train free, voluntary and responsible citizens.

For the time being, more or less, one must bring out a little awareness in order to let some willingness well up, on the level of those in charge as well as on the level of the citizen.

This was the aim of our contribution : to offer an outline of knowledge for an outline of will.

### 3. THE SURVIVAL OF THE BODY POLITIC

A very last observation must be made: it will recall the massive and aberrant nature of major technological risk, the colossal challenge which originates not in Nature but in our decisions and on account of this provokes a direct and brutal challenge to the body politic.

One cannot hide it from oneself: when one passes the 'limit' (the watershed on which our whole effort here is situated) and this would be the case if a very large scale disaster struck, one truly realises the scope of the challenge. Major risk subverts all knowledge and all power. From there it perverts the body politic. In the face of the event, the body politic disembarks with this haggard astonishment of the man in charge paralysed in front of the 'unforeseeable' rout. In the collapse, the body politic would realise that it has controlled major risk only on a misunderstanding: by assuming that this risk was neither major nor real.

Major risk is, however, today's reality. It has been committed. How can one live under its shadow? What must be asked of the body politic?

One can no longer ask it to brush the menace radically aside. Irreversibilities have been committed. Zero probability does not exist.

All energy may be dissipated in the denial of the split, in the brushing aside of the question which is intellectually uncontrollable because major risk presents itself at the limit of the body politic as an "altérité" (the total opposite). An "altérité" which only an experience, as terrible as death, and in this case: collective death, would permit one to know.

Shall we say, as with defeat in the military field, that these are forbidden Questions because they are too serious and there is no answer to them?

At the limit of our thinking ability (here is above all, according to us, the seriousness of our freedom.

A freedom which demands responsibility: a responsibility which at least requires immediate actions towards vigorous responses in the face of the challenge, fundamental reflections on our development and its means, new dynamism in our approach and in our use of knowledge and power.

In the era of major risk the survival of the body politic is at this price.