

WORST-CASE SCENARIOS FOR A TURBULENT WORLD – MODELLING HOW FAR AND HOW COSTLY DEFENCE AND SECURITY COULD GO –

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The turbulent world we are living in now prompts planners and prospective studies specialists to address the requests of worst-case scenarios and catastrophe scenarios with low probability and high impact, to draft the level of costs of tackling such threats in the short, mid and long-term. It is also a part of the debate about costs and consequence-oriented finances of the security and defence, and resumes the level of ambition and capacity of a state to fulfil one of its basic responsibilities. A change of leadership in the US presidential race and in the administration, perspectives of NATO as a common defence organisation that ensures today's defence and security guarantees in Europe, extreme right forces in key governments of democratic European member countries, pro-Russian forces with veto rights in governmental policies, debate about nuclear umbrella possible changes, all constitute scenarios that someone would not wish to analyse. But no responsible government or leader of a country, at least from the Eastern Flank, could avoid foresee and prepare for even the tiniest possibility that such a scenario happens in 6-12 months, 3-5 years, 10-15 years. Our paper researches a number of worst-case scenarios, impact, consequences and costs in order to warn about the need for prospective studies and preventive anticipated actions for a credible deterrence and a suitable defence. Our methodology is in the prospective studies field, in the niche of the worst-case scenarios and catastrophe scenarios.

Keywords: scenarios; tipping points; relative certainties; critical uncertainties; cost oriented/ consequence-oriented security planning;

INTRODUCTION

The theory of worst-case scenarios, as that of the catastrophe or extraordinary events, gives us the opportunity to reflect on the perspectives of the long term, high intensity, full-scale war of aggression of Russia in Ukraine (Chifu-13, 2024). Discussing that low probability, high impact crisis and outcomes are usually ruled out from the analysis or marginalised, if not, of course, overrated and used for inducing panic and stress to a targeted population, when political needs require it.

That is why we need clarity even in this field and a balanced approach to this type of scenarios that need to be considered due to their high impact and the conditions and context that made them appear, in spite of low probability. This is prompted and accentuated in times of turbulence. Moreover, because of the lack of preparedness, paralysis inside the societies, even the most resilient ones, *ad hoc* interventions of decision-makers, that could even accentuate these extreme crises to heights difficult to manage, are quite possible.

We are applying our Romanian Methodology of prospective studies (Chifu-7, 2022), in order to extract the worst-case scenarios and then, applying the theory of worst-case scenarios, we extract and present only these credible and possible scenarios, that we consider to be critical for any planning, even though the public communication of such scenarios should be subject to a restricted public, with adequate warnings and disclaimers for an exact understanding of the needed warnings facing such evolutions.

PROSPECTIVE STUDIES. THE ROMANIAN METHODOLOGY

We introduced the Romanian Methodology of prospective studies in 2013¹, using the technique of the Dutch intelligence services presented in a *Global Future Forum* conference (Chifu-1, 2013; Chifu-2, 2014), and filled the gaps with solid theoretical steps that offered us this methodology applied in a number of studies. The essence is to split the work into a brainstorming phase of indicators of influence to the assessed evolution, related to both internal and external factors. The method

¹ PLATO is an abbreviation for *PLA*usible *TO*mmorrows – a plausible tomorrow, plausible future scenarios. It is originally a scenario-building tool – used for the construction of scenarios by the Dutch services AIVD, proposed and presented to a number of experts in prospective studies at a demonstration. The authors of the presentation are Marja Schinkel, analyst, and David Blum, analyst.

is linked to global security and international relations and offers a huge number of indicators to be scrutinised afterwards by specialised experts that would eliminate indicators that do not make sense or add, according to the ideas that could emerge in the debate of the brainstorming phase, new indicators².

The second phase, after clarifying the indicators, is to refine the pool on indicators such that they are creating a system non-contradictory and complete, as synthetic as possible. We will get finally 4-5-6 indicators with 2-3-5 values possible to model, with the lowest error of the model. Moreover, the full spectrum of scenarios will be divided in continuity and discontinuity ones, prompted by tipping points (Chifu, Bălăşoiu, 2018; Chifu, Getmanchuk, Nantoi, 2015; Chifu-3, 2015; Chifu-2).

For each case, we are realising at the expert level two pools of elements: critical uncertainties (Rhydderch, 2017) about the evolution of the event analysed and relative certainties (Monroe, Beruvides, Tercero Gómez, 2020, p. 51) of the same evolution. The result is used in the first case to verify the system of critical indicators selected is complete, in the second case, we are challenging each relative certainty with *black swan* scenarios. This should challenge the relative certainty obtained with propositions that all experts would consider valid. Here is the source of our worst-case scenarios, when the impact of such changes could lead to catastrophes according to Rene Thom definition (Thom, 1986)³.

WORST-CASE, CATASTROPHIC CASE, „BLACK SWAN” EVENTS. THE THEORY OF THE MOST IMPROBABLE, BUT POSSIBLE SCENARIOS

In 2012, Nigel Walpole launched the debate on thinking about the unthinkable (Walpole, 2012) based on distinct cultural and ideological horizons that are creating unexpected and unpredictable actions by the opposite side. The concept evolved in the unthinkable in the context of the opponent’s nuclear actions (Kahn, 1985) or the prospect of a dictator of the world, whom all peoples will acclaim and support, accepting him (White, 1992) and to the economic dimension of *thinking the unthinkable* (Cockett, 1995). The limits and difficulties of leadership in predicting and avoiding unexpected developments (Gowing, Langdon, 2015) and Nik Gowing in the book published in 2018 (Gowing, Langdon, 2018), consecrated the approach. Nine were the reasons for difficulties and unthinkable:

1. overwhelming of decision-makers with intense and multiple pressures;

² Iulian Chifu, *Studii prospective și metodologii alternative... op.cit.*

³ “*Modèles mathématiques de la Morphogenèse*” (1974), ed. Christian Bourgeois, Paris; “*La théorie des catastrophes*” (22 December 1976), Paris: Le Monde.

2. institutional compliance;
3. deliberate blindness;
4. group-think – compliant group thinking;
5. risk aversion;
6. fear of career-limiting movements;
7. reactionary thinking systems;
8. denial;
9. dissonances and cognitive overload (Ib.).

Donald Rumsfeld on 12 February 2002, in a briefing at the Pentagon (DoD, 2002), introduces the reference to known knowns, known unknowns and unknown unknowns – unknown knowns was missing. The concept has been previously approached: the known and unknown space was divided between the self and others, a fact resumed by Johan Galtung when he proposed the Cain and Abel model (Chifu, Lupu, 2016; Ramsbotham, Woodhouse, Miall, 2011, p. 9; Galtung, 1969, p. 168; Galtung, 2000, p. 1), but the term *unknown unknown* was used by NASA⁴ and is commonly used in project management and strategic planning (Courtney, Kirkland, Viguerie, 1997).

David C. Logan reviewed the triad of terms in the context of general scientific research, biology, in this particular case (Logan, 2009, pp. 712-714). Thus, scientific research itself can be placed in the form of the action of transforming known unknowns into known knowns. A final answer on how we identify the unknown unknowns is difficult to pronounce. If we knew how to reach these elements, in practice, we would have the immediate transformation of the unknown unknowns into known unknowns. It is an open topic.

The most important author for managing the risks of extreme events is Nassim Taleb, with his book, in 2007, on the highly improbable (Taleb, 2007). He had the proof that one single observation can invalidate a general statement derived from millennia of confirmatory sightings. Organisations failed to deal with the demands of extreme events which, by definition, are crises (Chifu-4, 2019; Chifu, Ramberg, 2007; Chifu, Ramberg, 2008), but a class with outcomes that have very high consequences (often exceeding the perceived worst-case scenario) but also have a low probability of occurrence (Fischbacher-Smith, 2010, pp. 1-8). Their unique nature makes them important for research and theory. The most current examples

⁴ See the hearings on 24-25 June 1981 that took place in the Commission for Science and Technology of the House of Representatives of the US Congress, at <https://books.google.be/books?id=dRMrAAAAMAAJ&pg=PA73&dq=%22unknown+unknowns%22&hl=en&sa=X&ved=0ahUKewjhnraJ-7XmAhVGi1wKHUioB10Q6AEIKTAA#v=onepage&q=%22unknown%20unknowns%22&f=false> retrieved on 22 August 2024.

are in aviation, space (Shuttle Challenger), but also geo-physical phenomena such as natural hazards.

The precautionary approach is often advocated within the academic literature (Calman, Smith, 2001, pp. 185-204). The likelihood of an accident required considerable investment and a loss of revenue, and the lack of historical evidence often led organisations and individuals to argue that the probability of the hazard being realised was so low that building early warning or other mitigation strategies becomes un-economic. A key element here was that this “denial” was a function of the lack of *a priori* evidence that was available to decision-makers (Dilnot, 2008, pp. 36-39).

Taleb and others suggest that instead of trying to anticipate low-probability, high-impact events, we should reduce our vulnerability to them. Risk management, we believe, should be about lessening the impact of what we don’t understand – not an attempt to develop sophisticated techniques that perpetuate our illusions of being able to understand and predict the social and economic environment (Taleb, Goldstein, Spitznagel, 2009, pp. 78-81). This means being “*crisis prepared*” or “*resilient*” (Chifu, pp. 10-21; Chifu-8, 2022, pp. 3-10; Chifu-9, 2022, pp. 5-14; Chifu-10, 2022, pp. 3-10). It should be linked especially to recognising the limits of knowledge, but it is very difficult to know what we do not know.

At the same time, another tendency is that when managers are faced with events about which they do not know anything, the process is broken, panic can emerge, lack of solutions are pushing to bad ad-hoc decisions and then there is the potential to generate “*points of inflection*” which can escalate the problem further (Handy, 1994; Handy, 1995). In some cases, these approaches could lead from an escalating crisis to extreme events and catastrophes, with the secondary crisis emerging as consequences of the very decisions that would be expected to curve the impact or the original crisis. Therefore, the study of extreme events, worst-case scenarios, or catastrophe requires a strong relation and interface with research and professional counselling in crisis decision-making.

COST AND CONSEQUENCES. EFFECTIVENESS IN RISK MANAGEMENT AND EXTREME EVENTS

Another important debate is related to reactions in times of crisis and preparedness when cost-oriented programs are applied linked to resources. The models to consider would be terrorism versus global heating (Sunstein, 2009). The idea is that resources are scarce and difficult to allocate to all threats, risks and vulnerabilities, so it must be a sequence and prioritisation. And in financing security, the first most important approach is a cost-oriented one, where budgets

are allocated according to the probability of the events to occur. But the critics have introduced a new approach, consequence-oriented, where a share of the budget, let us say 20%, are allocated to threats with low probability by high impact, including extreme events and worst-case scenarios (Chifu-6).

In the case of terrorism, another part of the game comes from perceptions. It is highly dangerous to ignore such a threat very visible, with a huge emotional and perceptive reaction from the population and it is easier to do so, from this point of view, with the global heating (Chifu, Simons, 2023). In another example, very debated nowadays, we are considering cheap drones and expensive air-defense missiles: should we intercept them? Considering the cost-oriented approach to security, some would say that it does not worth firing a missile (Viscusi, Aldi, 2003; Heinzerling, 2004). Consequence-oriented experts (Posner, 2006; Posner, 2004) would rather look at the outcomes and argue that you cannot afford let even a cheap drone destroy an ammunition storage that worth billions and otherwise supports the war effort, or that an aircraft blown up worth some billion dollars as well, so the value of a possible target and intangible costs of an impact should be equally considered in those cases.

We also have the One Percent Doctrine or the Precautionary Principle, which is specifically designed for situations in which we cannot know that harm will occur. If it goes below 1% it is not worth considering it. It is different when the probability goes above or if the costs of the impact is higher (Suskind, 2006). Even a small risk of catastrophic or irreversible harm is enough to require a serious response. But, at the same time, if the world devotes resources to climate change, for instance, on those grounds, perhaps it will not be able to use those resources to combat more serious problems like imminent terrorist attack. This is the cost-consequence dilemma.

Vice President Dick Cheney set out The One Percent Doctrine: “*We have to deal with this new type of threat in a way we haven’t yet defined... With a low-probability, high-impact event like this... If there’s a one percent chance that Pakistani scientists are helping al Qaeda build or develop a nuclear weapon, we have to treat it as a certainty in terms of our response*”. Vice President Cheney urged that governments identify and attempt to prevent, the worst-case scenario (Weber, 2006).

People and decision-making reactions to risks as well as to worst-case scenarios, come from two different angles. The first is intuitive, based on personal experience that leads to fearing the outcome of crisis that have been already occur and have harmed us. It is emotional rather than objective basis. By contrast, the other group tend to believe that we are talking about an unlikely event that is not worth

resources and attention. It is what happens with the institutions as well: paying both too much or, on the contrary, too little concern with low-probability risks. An important task is to find the right balance of exceptional events or worst-case scenarios so that errors are not influencing behaviour when assessing the worst-case scenario relevance (Ib.).

The same in the case of rational choices and bias. The absence of a type of event make decision makers and the public feel far more secure because of the “*unavailability bias*”. The terrorist threat could be neglected or treated with less interest and resources in countries that did not face currently or from a long time such events. The opposite is also true, with the “*availability bias*” after a terrorist attack, when that context would indicate and press to allocate resources exactly for this kind of possible event (Akerlof, Dickens, in Akerlof, 1984). For sure, here perception should be also considered and the sense of safety to the population. Therefore, it is important exploring risk perceptions, when preparing our responses to worst-case scenarios.

The Precautionary Principle could be amended in two ways an replacing the 1% rule: one, a Catastrophic Harm Precautionary Principle, that approaches the fact that when catastrophic risks become factual reality, they could come with more serious consequences than planners and analysts originally foresee, because of “*social amplification*”. When worst-case scenarios have catastrophic consequences, it makes sense allocating resources to anticipate or cope with consequences or avoiding the risk *per se* (Posner, 2006). The same with the Irreversible Harm Precautionary Principle, which would introduce a special attention when consequences of an extraordinary event or crisis leads to irreversible situation and post-conflict reconstruction is not going to remake things the way there were.

Risk evaluation and insurances offer another angle of approach to worst-case and to consequence-oriented allocation of resources for extreme or catastrophic low probability events. In this case, cost-oriented processes are linked to loss and destruction of industrial security interests like material assets and humans beings, in some cases to symbolic and immaterial/intangibles (Chifu-11, 2024). A method to assess risk and security is linked to the effectiveness of integrated protection system – facility operations, safety, emergency, and security systems; and qualitative prioritization scheme to determine the level of consequences relative to cost and subsequent risk (Udell, Rogers, 1998).

Human Security is rather cost-oriented (Acharya, 2001, pp. 442-460). Self-sustaining security can be seen both as a requirement and as the most urgent objective with consequence and cost oriented approach (Chivvis, Davis, 2011) alike.

Theory and empirical work as well as statistical-empirical analysis show that the “*cost theory*” of counterinsurgency leads to a consequence-oriented approach because of the need of increasing the costs of cooperating with an insurgency as the surest means to victory (Austin, 2006), but that can happen only with immense reputational costs.

SQUARING THE CIRCLE: WAYS TO PREPARE DETERRENCE AND RESILIENCE IN AN UNCERTAIN WORLD

Now the worst-cases that are subject to Catastrophic Harm Precautionary Principle or Irreversible Harm Precautionary Principle should be subject to the attention of the decision-maker and should have a suitable allocation of resources. We have done the sequence of prospective studies related to *black swan* scenarios and selected those low probability-high impact scenarios that fit into the Catastrophic Harm Precautionary Principle. So, we succeed in finding the following seven scenarios, linked to seven relative certainties:

- US will remain involved in the world affairs and in adaptation of new rules.
- Dictatorship is not an option acceptable for democratic countries.
- NATO will remain and function with both of its legs of the transatlantic/US will not withdraw from the Alliance.
- Extreme right will not rule and divide the EU countries.
- Pro-Russian forces will not veto democratic government decisions if they enter the government in a democratic country.
- US will maintain its nuclear umbrella on the European allies.
- Russia will not use a nuclear weapon.

They lead to those *black swan* scenarios:

S1. Isolationism and retreat of the US from the world through a change of leadership at the White House, in the current or next US presidential race.

S2. China and BRICS/revisionist authoritarian countries will propose alternative authoritarian regimes, embraced by the people, and this would lead to the change of the rules-based order.

S3. NATO will lose the US – being paralysed in its decisions or dissolved, or will lose the transatlantic link. Gloomy perspectives of NATO as a common defence organisation that ensures today’s guarantees in Europe.

S4. Extreme right forces entering in key governments of democratic European member countries are negotiating rights that create blockages of European policies through democratic decisions.

S5. Pro-Russian forces will have veto rights in governmental and European policies in the EU.

S6. Debate about nuclear umbrella possible changes: US withdraws from its WWII/NATO commitments (demanding money from the protected countries, asking for political and/or market advantages etc.)

S7. The use of a tactical nuclear weapon by Russia in Ukraine or in some NATO/EU country in the Eastern Flank.

What we could see is that all those scenarios come from *black swan* events, contested, with low probability of becoming facts, but with high impact if events occur. Moreover, in each case, we have either catastrophic or irreversible outcomes or huge impact. All the conditions for considering the worst-case are met, according to our precedent definitions. In that case, all should become scenarios to be considered and require planning for solutions in the event such alternative futures happen.

Debate could be raised by some of the scenarios, where the previous data could lead to a discontinuity and not a *black swan* scenario:

- S1 where we do have a president that aims at a kind of isolationism, but in his previous term, he maintained his and US position inside the euro-Atlantic community;
- S3, when retreat from the Alliance has been used in the public communications of a possible US president. But the condition of the investments in defence and security has changed dramatically and member countries are meeting, at a large respect, the Defence Pledge, with a minimum 2% of the GDP allocated for defence and at least 20% for new equipment.
- S7, where intelligence disclosed has proven that the use of a Russian nuclear weapon was discussed in 2023, during the counteractions of Ukraine, but fell short of support. Some other arguments could be discussed if there is not a discontinuity scenario rather than a *black swan* one. In all those cases, arguments sit today and in the foreseeable future in the *black swan* side of highly improbable evolutions (Chifu-12, 2024).

The solution for such a crisis, extreme event or worst-case scenario is building both resilience and a serious defence and deterrence. And it includes:

- Attractiveness of the military activity.
- A new social contract with those employed in the Army and Security positions.
- Capabilities acquired in the short term, with high technological components, and the possibility to adapt in an ongoing use in war times.
- Doctrines and strategies learnt from the first 21st century war in Europe, Russia's war of aggression in Ukraine.

- Military and defence industry, transformed at the level of a vigilance stage (an intermediary between peace and war, considering that a bloody war is evolving in a country neighbour to the EU and NATO and that direct threats from Russia are coming in a public and overt way against the West.

In conclusion, all those scenarios should be the object of the allocation of needed resources and to planning for worst-case scenarios, in a consequence-oriented approach to security in every responsible country.

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