# LES NOTES

**Institut Thomas More**

# REINSURING THE PLANET |
# TOWARDS A PRO-POOR FINANCIAL GLOBALIZATION

Michel VATÉ

Note 1 | April 2012 (4th edition)

Founded in 2004, the Thomas More Institute is an independent European think tank based in Brussels and Paris. The Institute disseminates papers, reports, recommendations and research carried out by the best specialists to political and economic decision-makers and international media. It also organises conferences, meetings and seminars on these research areas.The Thomas More Institute is a laboratory of ideas and innovative and practical solutions, a research centre, centre of expertise and opinion setter.
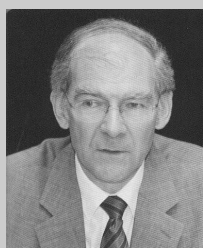
**This note was published for the first time in January, 2004. The present edition is corrected and updated.**

**The author |** Michel VATÉ, Doctor in Economics, former Dean of the Faculty of Economic Science of Lyon, is now Emeritus Professor of Economics at the Lyon Institute of Political Studies and Research Fellow of the Thomas More Institute. He has taught at three Lyon universities, in French grandes écoles (EMLyon, ENTPE and l'Ecole Nationale Vétérinaire), as well as at the universities of Tegucigalpa (Honduras) and Grenoble. A longtime researcher at $MA^2D$ (Méthodes et Algorithmes pour l'Aide à la Décision, Lyon 1 University), where he worked on decision-making, forecasting and risks, Michel Vaté also participated in the programme *Social Re* (ILO/World Bank), more specifically on the matter of risk insurability in poor countries. The Thomas More paper « Réassurer la planète » (2004) led way to a series of articles advocating a global reinsurance system in support of development strategies. He has given a number of seminars on these topics in Europe, the United States and Canada. He is the author of a number of books, contributions and articles, including *Leçons d'économie politique* (Economica), a reference book reissued eight times.

*« An effective struggle against risks is an obstacle to poverty. »*
Henry Truchy, *Cours d'économie politique*,1927

Against poverty, we have not yet tried everything... The academic world often gives an overview of the history of economic development theories: concept of vulnerability plays no explanatory role regards to development strategies; we find no trace of the idea, advocated by Condorcet, "to struggle the unstable nature of inequality and poverty in opposing the chance to itself[1]". Until proved otherwise, the growth of rich countries, as we know it today, binds to this principle. It was implemented both in the business world and in the development of social protection systems. Certainly, the extension of this principle to political risk management for the poor runs up against practical difficulties that bear the mark of the handicaps of poor countries. But these obstacles are not logical or ideological, they are practical: So Why will not we try to get through its? Thus, it would be a newcomer for development aid?

In the history of humanity, economic growth has never been stronger than in the past half-century with the emergence of new economic giants, the phenomenon tends to accelerate itself. However, the magnitude of the challenge to reduce global poverty is not decreasing, quite the contrary. At the same time, there is an increase in the frequency of natural disaster or man-made one but also the concentration of damage caused by them. In the midst of this gloomy picture, there is at least good news: the globalization of markets and financial innovation that goes. In fact, the market size has reached a quite large scale (relative to world GDP and extrem risks) for that, thanks to the ingenuity tools which treated her, no more disaster exceeds the capacity to absorb the monetary consequences. How? Simply by splitting the hazards, so that the losses of "concentration ratio" should be reduced to a supportable level by those who are carriers of last resort.

But there is also bad news that exploded in the eyes of the world that the crisis "subprimes" has triggered, but not created, in 2007: risk diversification has to follow a strict discipline, and those who implement have a huge social responsibility; yet there is no automatic fence to stop the toxic effects of further products of those who, with negligence, carelessness or greed, are a perverse use of securitization. Paradoxically, by revealing that the damage spread to the whole world, the same crisis indicates that the distribution of the positive effects of responsible use of securitization can have the same scope, including the benefit of the poor.

Before 2008, the Millennium Development Goals had already been considerably delayed. After the "crash banking", catch-up becomes a problem[2]. It takes, indeed, with the combination of three effects of the crisis: the increase needs resulting in damage to the least developed countries; the more selective and more expensive access to finance productive investment, and scarcity of public funds available for development assistance. Added to this, as with any major economic shock, the asymmetry of the time of rebuilding, still goes slower than the one of degradation. How to stay the course in these conditions, while taking care not to overload the "overhead" of the world economy faces a slowdown in growth and intense exchange rate volatility? As reported by Th. Khun, the concept which explains that "The crisis means that in front of the obligation to renew the tools[3]", has never been more relevant than today!

---

[1] Condorcet, 1793, p.273.

[2] Qc, World Bank,2010.

[3] Kuhn Th., 1970, p.113.

# | Development and the hazards

Renew the tools, in order to keep the objectives... This means keeping what works well, but do not hesitate to replace those which shortcoming is now proven, with other resources, but also other methods. The two questions are linked. Can sometimes spend more spend less, and funders are less reluctant when they demonstrate that the funds are used effectively.

This note explores an original track, starting from two fundamental ideas that are ultimately combined in the concept of Planet Re:

1° *Risk management is a development tool*. For results to be sustainable, the fight tale of poverty must seek to reduce the vulnerability of people. This is why risk management should not be seen as a luxury development would allow access, but as a determinant of strength development strategies (three levels the individual one, communities and entities national).

2° *The global financial capacity can be used to support the stabilization of systems of local risk hedging.* The "toolbox" of risk management is considerable: futures markets, securitization of risk, insurance, reinsurance, and so on. Poor countries, by definition, are not able to access it as easily as the rich countries, and in the event that they would put in place risk management tools, they can't, to deal with charges, used as a last resort to financial markets as do the rich countries to cover the charge of extreme events.

What defines the border between North and South? A world without risk is a dead world. This, all the enterprising world know, and they have long understood. But to remain enterprising, it is still necessary that the sum of the risks you are exposed does not exceed the toxicity threshold, beyond which, for its size of opportunity, the risk is more than dangerous, it becomes lethal. The illustrious Paraclese (1972-1541) once wrote: Between the medicine and poison is the dose that makes the difference. This is a very wise principle to development economics! In the North, have an entrepreneurial technology splitting extreme risk, with only limited compliance with the rules of transparency, solvency and social responsibility, the South, meanwhile, there are simply not access: everything else follows! The challenge is to cover the risks incurred that are destructive, in order to assume the chosen risks that are creative.

Unnaturally, such approach requires placing the vulnerability of people and economic insecurity in the center of any representation of economic development and, more importantly, of human development (figure 1)[4]. This is, indeed, to base the development on the autonomy of agents - which is defined as the "product" of the ability to act with freedom to act - and open the way for risk chosen rather than suffered.

---

[4] In this connection it is regrettable that the size of the "vulnerability"-or, conversely, the risk coverage - is absent from the human development indicators.

Figure 1 | **Risks & Development**
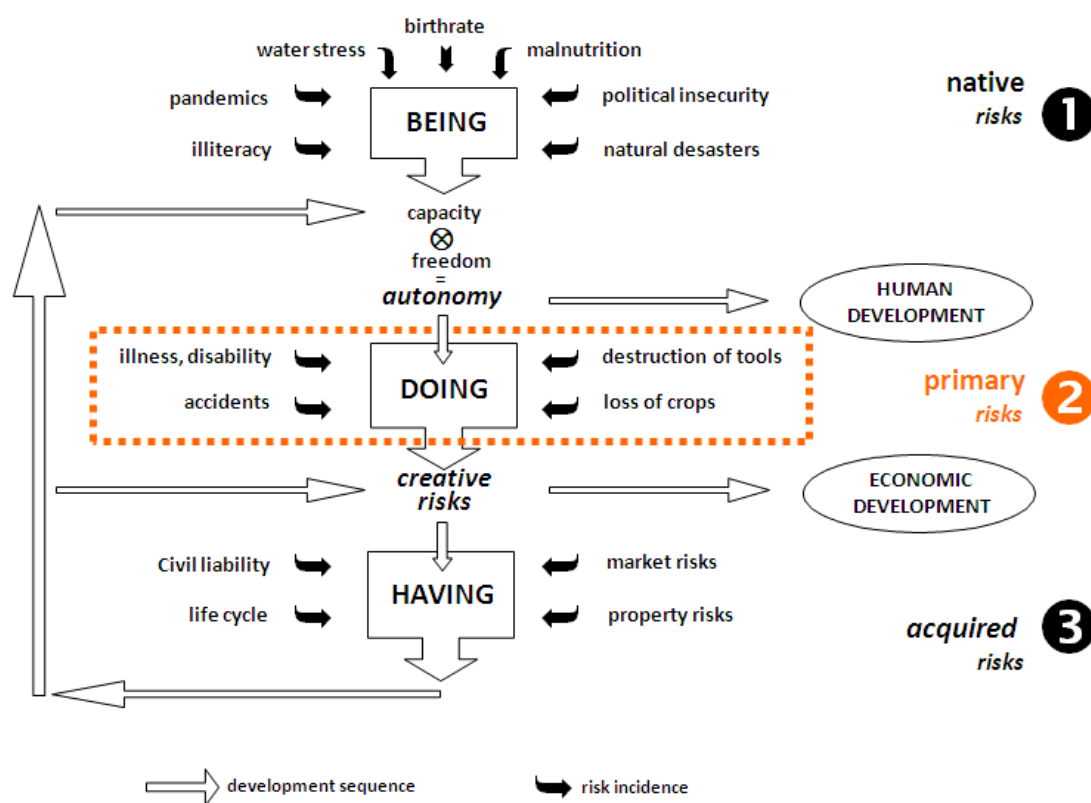
# | The spiral of economic insecurity

The spiral of economic insecurity is one of the main vicious circles of underdevelopment: if the poor individual could protect himself against the risks which impact his potential[5], he could escape from poverty; yet because he is poor, he is unable to insure himself against these risks. Economic insecurity is the cause of a poverty, which, in turn, negatively affects the capacity for development. It is, therefore, necessary to focus on the categories of risk, which are the most closely linked to people's economic capacities (primary *risks*).

"Any society that did not admit that it is legitimate to take risks and which did not to some extent create favourable conditions for this, would be doomed to decline. In this respect, insurance plays an essential role. Many risks would be too heavy for those who take them and who, without insurance, would not do so. However, taking risks does not mean taking just any risk[6]." These words are at the start of a book devoted to the new risks, which, incurred by new technologies, concern primarily the most advanced industrial countries. But this warning is also valid for developing nations where it constitutes a challenge to be met: how – in a poor country – to create conditions for productive risk-taking which will bring progress, while at the same time the vulnerability of the population is still a major obstacle to development?

Vulnerability and risk management are a more and more frequent angle for approaching the study of

---

[5] Borrowed from the economist and Nobel Amartya Sen (Sen,1985 et Sen,2000), this term refers to both the economic potential of an individual asset, but also "the only real freedom a person to choose between the different lives that it can conduct ".

[6] O. Godard et alii 2002,p. 9.

development problems[7]. In the resulting view of development, the central character is the *actor-individual*. Actor-individuals are what Amartya Sen describes as "actors of change and not passive receivers of advantages decided on by such and such structure[8]" or as "fully-fledged actors, taking advantage of the opportunities at their disposal and mastering their own destiny, not passive receivers of a development programme drawn up by experts.[9]"

On this basis, the purpose of the present document is to propose a new development-funding tool, which benefits from the stabilising qualities of reinsurance underwriting. The idea can be expressed in a single sentence: because *poverty* is a synonym of *vulnerability*, and so that *development* can come to mean *reduction of poverty*, the planet *must* reinsure primary risks, and it must do this because it *can*.

# | "Poor" means "vulnerable"

The purely monetary definition of poverty too easily hides the essential: to be poor is to be vulnerable. A person's (or a society's) vulnerability can be measured by the ratio between the extent of harm to which he/she is exposed and the means that he/she possesses to stand up to such harm. To reduce poverty, it is not sufficient to raise the monetary income of people: their vulnerability must also be reduced. The poor are dispossessed of their future[10] and the central stake of development is for them to repossess it. Nobody, anywhere, is ever in full possession of the future, of his/her future: but being poor means not having one, it means being powerless in front of *all* the risks of life.

On the scale of planetary incomes, the maximum gap between poor and rich countries is a ratio of 1 to 200 (70 if we take into account the purchasing power[11]); but this ratio is 1 to 3000 on the scale of average insurance premiums per person[12]. In addition, a secured income of $1 is "worth more" than an uncertain average income of $1. Thus, it is where there is no alternative to an insurance coverage of risks that this coverage is the least widespread. The explanation for this is the absence of demand, a consequence of poverty. But the lack of supply is also a factor, where local insurers are unable to offer contracts at an acceptable price because they do not benefit from the favourable environment of insurers in rich countries: large numbers of people insured, abundant equity, broad range of coinsurance and reinsurance, easy access to capital markets etc This initial observation is enough to place risk management at the heart of the problem of development, its funding and the reduction of poverty.

But a second observation can be made. Over the years, the planet has had to face a build-up of major disasters, natural, industrial or terrorist-initiated. The world financial system (insurance + banks + capital markets) has shown that it is now able to cope, by combining traditional insurance techniques, the liberation of massive capabilities and the access to capital markets through new risk transfer tools.

The time seems to have come to ask the following question: if we refuse the idea that we should wait until the poor countries have become rich in order to fight their poverty successfully, what mechanism should be used to connect local risks to the global financial sphere?

---

[7] Among the most noticeable illustrations of this tendency, we can quote the work accomplished or supervised by Stefan Dercon at the World Bank or *Living with Risk (*ISDR United Nations 2003) which is specifically devoted to natural catastrophes.

[8] Sen 2000, p. 11.

[9] *Id.*, p. 62.

[10] "The poor person is not his own master", *Plato Letters N° VII.*

[11] World Bank, 2003.

[12] Swiss Re 2003, chart VIII: insurance density.

# | The rich and the poor in front of risk

Let us imagine a society in which there is nothing remotely resembling what we, today, call an "insurance mechanism". Like any human society, this one has its own history – which we shall not hypothesize on – which has resulted in a certain degree of inequality in the sharing-out of wealth between its members. Let's simplify: there are rich people and there are poor people (obviously, reality is more complex). A disaster occurs, which causes severe damages to the source of their income.

What will the rich do? They will dip into their monetary reserves in order to "repair" the damage that they have suffered from, and they will hope that the times to come will enable them to rebuild their reserves. If their liquid assets are not sufficient, they can obtain the necessary resources from other rich people by offering their property as security for the loans that they contract, and they will count on future incomes to enable them to reimburse their debts.

What can the poor do? Anything, or hardly anything. Neither savings nor properties are sufficient to compensate for their losses; and even if they add to these their (compromised) future income, the conditions for a loan are not fulfilled. Far from being transitory, the stroke of fate that they have received will, at best, cause a permanent monetary loss and, at the worst, lead to a chronic impoverishment of the individual as a result of the durable deterioration of his economic potential.

> **Example** | Let us take the case of an African peasant who has 1 chance out of 1 000 of being affected by a physically invalidating disease, the total cost of which is $2000. Once this risk known, there are 3 possibilities. The first is precautionary saving.  With a risk free investment at 3% it will be necessary to save $75 per year to reach $2000 in 20 years. If he falls ill before this date, he will have to borrow the difference. The second solution is to borrow the $2000 when the disease strikes. At a rate of 4%, the annual instalments will amount to $150 if the reimbursement can be spread over 20 years. Finally, the third solution would be a micro-insurance sharing the 1 000 individual risks: the $2 pure actuarial premium (=0,001 x 2000) is put up to $5 by a security margin destined to reduce to negligible proportions the risk that the total loss will exceed total revenue. Over 30 years, the total cost of the insurance is equivalent to one year's reimbursement. The first thing that appears obvious here (the fact that insurance is much less costly than the two other solutions) is undoubtedly deceptive.  In the first case, the peasant will have a "capital" at the end of his life, is he has not caught the disease, whereas he will have nothing with the insurance. In the second case, he pays out nothing if he is not ill, while with the insurance he spends $5 fruitlessly every year. In turn, another obvious fact is deceptive: the instalments considered would add to domestic savings and to the productive savings required by agricultural activity. Out of an average income of a few hundred dollars[13], neither $150 nor even $75 could seriously be considered as outlay to cover a single risk, because all the other risks would need to be considered likewise.

# | Ranking the risks

An analysis of a person's vulnerability could make one's head spin, so vast is the diversity of risks that can threaten him personally, his activity, his family or the social groups that he belongs to (see incidence diagram, Figure 1).

Certain risks, which can be called native *risks* occur early and affect the person himself, before any action, in

---

[13] We must remember that 25% of the world population (50% in Africa) live with $ 1,25 a day, PPP (purchasing power parity). Source World Bank 2001, p. 3 and World Bank 2003, annexe.

his/her original conditions of existence: uncontrolled maternity, illiteracy, malnutrition, insecurity (pandemics, exposure to natural disasters, social and political insecurity). Against such risks the only insurance can be implicit, assumed by states and international public aid.

Downstream from productive activity, *acquired risks* affect the well being of the individual rather than the mainsprings of his ability to act. The management of these risks is an important complementary action since it tends to make the individual's living conditions safer and to stabilise the resources that allow him to carry on expanding his activity, especially by allowing him to accept the indispensable *creative* risks (initiative, innovation investment).

Here, however, we are especially interested in the category of risks that we call *primary risks* and which are those which, when they occur, strike at the foundations of the person's economic status (his/her health, means of work or the product of his/her work). They jeopardise his ability to exist as an *actor* within the economic system in that he possesses no substitute for the resources destroyed. If they are not corrected, these hazards trigger off a non-reversible process of deterioration of the economic status of both the individuals and their families.

# | Primary risks for the productive individual

A simple way to highlight the impact of primary risks on the individual is to imagine a producer who only possesses – for his basic needs – his labour and a specific capital (land, cattle, tools…). For a given level of know-how and technology, we can formulate a hypothesis of a production function with fixed coefficients (complementary factors of production). Such a function is shown in figure 2, and corresponds to the general pattern:

$$Y = \min (aK ; bL) \qquad a, b > 0$$

where K and L respectively represent capital and labour[14].

Figure 2 | **Effects of primary risks on production (fixed-proportions production function)**
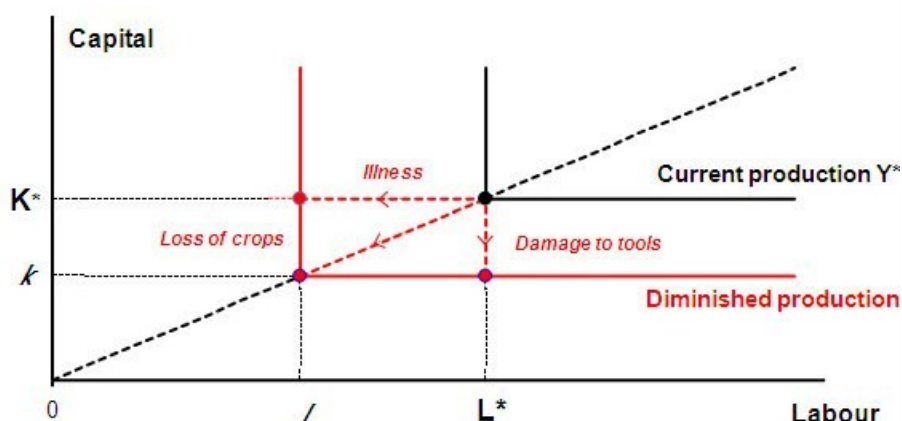
14    For an example, cf. Vaté 1999, chapter 5.

If the amount of capital and labour available are, respectively, K* and L*, the current level of production (Y*) corresponds to a combination of factors (K*, L*) which is technically efficient. The curve of equal production Y* has a specific right-angle shape, which shows that it would not be possible to obtain a benefit from further labour (or respectively, capital) because the limited amount of capital K* (respectively, labour, L*) would prevent the access to a higher level of production: each factor of production is "rationed" by the available amount of the other factor.

As concerns the current reference situation, we have shown three elementary types of disaster, a more complete analysis of which could show different combinations: illness, affecting the "labour" resource, the destruction of the means of work (tools) and partial loss of the product of work. In the third case, we observe an a posteriori wastage: the available product is equivalent to what would have been produced with fewer resources ($k$, $l$) but the factors themselves remain available for the ensuing period. In the first two cases, the factor that is not affected becomes overabundant: in case of illness, for instance, the available capital (K*) is greater than what ($k$) the individual can actually develop with a reduced quantity of labour ($l$ < L*). On a collective level, there is no compensation mechanism for the different hazards, and the total of these deviations turns into social wastage.

In any case, the actual production, capable of generating income, is lower than the potential production:

$$Y < Y^* = \min (aK^* ; bL^*)$$

From this, four types of consequence can be deduced, which go far beyond the simple framework of the given individual's productivity:

- The loss of *available income* is the most visible consequence; all the variables depending on income are negatively affected (consumption, savings, investment, the person's economic security etc);

- The second negative effect concerns the *expectations* which, interiorised by the individual, integrate the hazards in the picture of the future and give them a heightened degree of likelihood. Whatever the aversion that individuals may have to risks, "one franc promised in a situation of high likelihood doesn't have the same value as a franc promised in state of low probability[15]";

- Next, the decline in potential production strengthens the trend to hoarding (creation of precautionary monetary reserves) at the expense of consumption and also of the accumulation of productive capital;

- Finally, the individual is not alone. He/she is strongly connected to other people on whom the negative events, which affect him, can also have very destructive effects as concerns their vulnerability factors: these are the *collateral effects* on dependants, on relatives, (who, through the family or another connection, bring assistance in the name of solidarity at the expense of their own productive activity), and on creditors (who run the risk of being insolvable).

# | The cost of hazards

To analyse the impact of a negative event on an individual's capacity for development or on that of a social group, we find it useful to use a dynamic typology of risks, escaping from the more usual category of "transient random shocks". Let us imagine a magnitude called "x" which measures an economic parameter of the individual: actual production, available income, consumption, technical capital, property, monetary

---

[15] Eeckhoudt & Gollier 1992 p. 96.

reserves etc. The evolution of this magnitude may be shown by a trajectory through time x(t), and it can be easily understood that the individual will wish this trajectory to be steadily upward. We can discern :

- *Transitory* risks, which temporarily modify the value of x(t) but which have no effect on the system at dates t + 1 and after (movement without memory);

- *Cumulative* risks whose impact on "x" remains after the "t" point (step memory);

- *Tendency* risks, which impact the speed of variation of "x" and are integrated into the new tendency from "t" onwards (ramp memory).

> **Example** | I fall ill (non-chronic disease), I am treated and I benefit from a 100% reimbursement of medical care (transitory risk impacting my ability to work and a cumulative risk affecting my level of wealth owing to my temporary loss of income); I undergo medical care but am obliged to pay for it (the same, but the cumulative risk is worsened by the non-recoverable medical expenditure); I do not resort to medical care and I stay ill longer with lifelong consequences (cumulative or even tendency risk impact on by ability to work, and tendency impact on my level of wealth.

Whether a risk belongs or not to one or the other of these categories depends partly on the specific features of the event envisaged and partly on the "elasticity" of the system's reaction to this event. We may consider that primary risks never belong to the first category. For this to be the case, the *actor-individual* would need to be able to "absorb" the impact. Concretely speaking, this would mean that he would have to have at his disposal a large enough reserve for the monetary impact of the event not to exceed the average fluctuations in this reserve. This condition, which is generally difficult to meet, seems inaccessible for poverty-stricken populations. Among the expected effects of insurance, the redefinition of risks plays an essential role by bringing "tendency" risks down to the level of "cumulative" ones and even – when possible – to that of "transitory" ones. What distinguishes a *disaster* or *negative* event from all other random events is that it is a cause of damage to people and / or property. The actualisation of *primary risks* takes the form of harmful events, which are the source of four types of damage, in conditions, which are worsened by the individual's poverty:

- First of all, the event has a *direct cost*, which can be immediately measured in pecuniary terms by a drop in the individual's cash situation or by a devaluation of his assets;

- Next, the event brings a *deterioration in the person's economic possibilities* either by a direct effect on human or technical resources or through the impoverishment resulting from the first effect;

- The individual, who borrows in order to "repair" the damage he has suffered is a "bad risk" for the lender (whereas he would have been a "good risk" for the same lender if he had been insured);

- Finally, the event erects a serious obstacle for the weakened individual because of the *extra effort* that he/she will have to make, if he can, in order to get back to his previous development trajectory.

Figure 3 | **Three major economic impacts of a random shock**
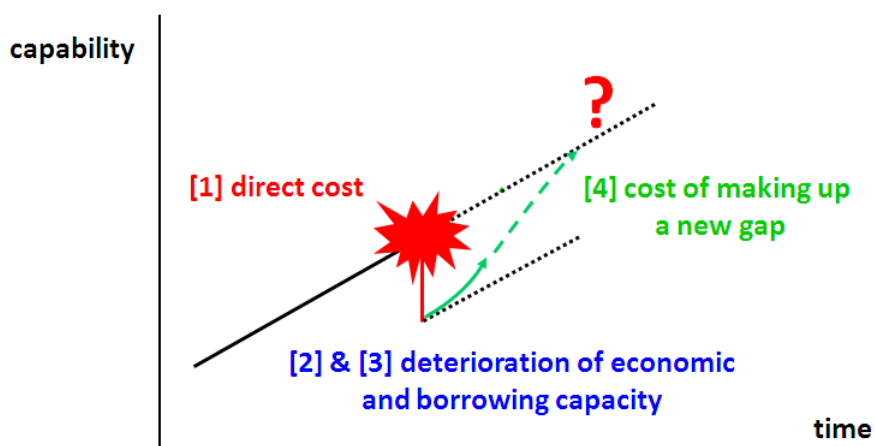


In an economy as in a mechanical system, it is the regular trajectories that consume the least energy. It is well known that the irregularity of food budgets is a cause of malnutrition (S. Brunel, 1991). And that poor countries suffer as much from the instability of raw material prices as from their absolute level. Each negative event wastes scarce resources, both as a result of its harmful effects and because of the supplementary effort required, afterwards, to get back to the previous level. And the fear of further random events is an elicitation to freeze, in the form of reserves, resources that it would be urgent to invest. This all shows that economic security is a factor of development.

# | The asset of insurance

The above can be summarized in a kind of theorem:

> *For the reduction of poverty in a sustainable region, it is necessary to reduce the vulnerability of producers vis-à-vis the initial risk (to direct impact on the production function). The condition is also sufficient if the risks native and market risks are at least stabilized.*

In a given state of the risks surrounding a priority objective is to cover the poor farmers against loss of capacity to which they remain exposed. Look to the insurance required so naturally to mind. Without insurance, the answer to a random shock can borrow one or other of the six ways:

• *The solidarity* that can be analyzed as a spontaneous form of risk sharing, but does not address long-term situations of vulnerability;

• *The prior savings*, which is accumulated at the expense of the ability to invest;

• *The acquisition of marketable assets*, the sale is done in emergency conditions, so unfavorable, and undermines the continued production;

• *The debt a posteriori*, which is unbearable for a person quickly weakened by a disaster;

• *External care,* to repair the damage but does not restore the stricken capabilities;

• Or... *the decline*

The last event, forfeiture or exclusion of the economic system, dramatically illustrates the syndrome of "double whammy": it is the penalty for a second disaster that occurs shortly after the first one uninsured loss (figure 4). *Shortly after...* it means, specifically, before the victim could recover from previous damage, yet, by assumption, this period is longer for an asset that poor for the rich, which increases the probability for him being the victim of a "double whammy".

Figure 4 | **Incidents and probability of destitution**
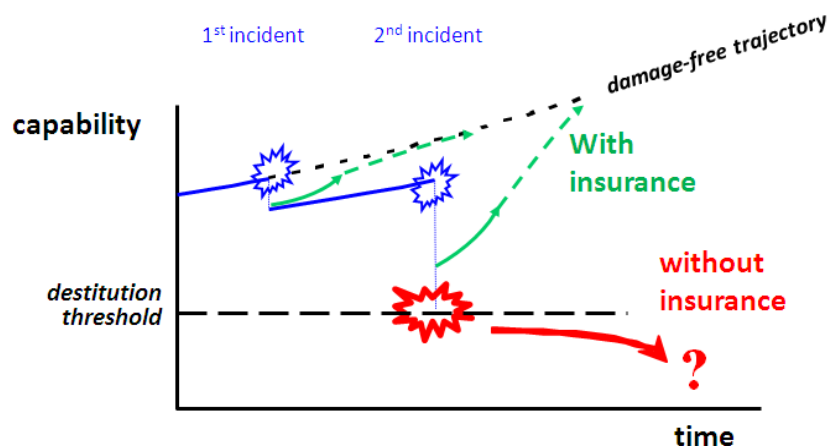


Insurance is not a cure-all, but:

- compared to current systems of subsidies (top-down), slow and expensive (outsourcing costs[16]) it speeds up the identification of beneficiaries and payment of compensation to victims of a disaster;

- it reduces the chilling effect of the risk

- it protects the achievements of previous efforts, playing a ratchet effect essential for sustainable development;

- it makes easier the renewal of economic disaster capabilities;

- it spurs the effectiveness of development aid that can be deployed;

- it strengthens the commitment of individuals;

- it goes slimmer the credit risk...

The multiplication often spontaneous experiences of micro insurance in the world shows that it is well understood: people living in poverty would they organize a sharing of risks with the costs and discipline resulting binding, if they were not aware that it is their long-term interest? Theodore Schultz (Nobel 1979) said before us: farming people in poor countries are much more rational than western economists imagine.

To the objectives of development aid, insurance mechanisms have at least three virtues, so we should be given more emphasis:

1° When an insurance system is in place, no studying, selecting, negotiating, in short to organize the award of aid, since unfortunate coincidence is responsible for designating beneficiaries, namely victims

---

[16] "Ican tell you that the recipient countries we studied each receive a mission of donors per day. This gives to you an idea of non-operating costs of public assistance." Richard MANNING, Chairman of the Development Assistance Committee of OECD- April 2007.

of the disaster that is playing insurance, moreover, from a poor, people who are victims of sinister are by nature more disadvantaged than others;

2° When bleak strikes a producer (in reaching the health and working tool or crops), it suffers economic loss whose value is much higher than that of repairing the damage only. Without insurance, the reconstruction of its economic capacity will take time, a time during which his situation and his family will continue to deteriorate. If foreign aid is used to restore the economic capacity of the victim, the cost will not be very different from that which should support insurance (assuming the cost of its management is not higher than insurance). But if it is to repair the economic consequences of an uninsured loss, then the cost will be much higher than that of insurance that would have played immediately.

3° For individuals, the fact of entering into a logic of sharing or risk transfer reinforces their responsibility as agents of development, provided that the systems in place to know contain the effects of moral hazard and anti-selection. The range of possibilities available to them is widened: hoarding sterile as a precaution may give way to an active and mobilized savings in a productive goal; the credit's access is facilitated by reducing the risk "accidental" insolvency, and so on. Thus, population is able to make better use of external reinforcements that gives him public support for health, education, infrastructure, and so on.

# | In danger of insolvability

Let us take it, on the basis of the above, that insurance of primary risks is a decisive contribution to development. The logic of insurance is not reserved for the rich in rich countries. Informal experiments in micro-insurance have been undertaken for a long time, and are more and more frequent for agricultural and health risks[17]. But it is still only the rich countries that can stabilise first-rank insurers by means of reinsurance and, if that proves to be insufficient, by resorting to capital markets. By transferring extreme risks, the first-line insurer improves his coefficient, can put down the premium without reducing his solvability and can thus push back the economic limits of insurability. (Vaté & Dror 2002). In turn, the reinsurer protects himself by traditional or financial reinsurance methods, etc. Unfortunately, in poor countries more than elsewhere, it is difficult to use the level of insurance premiums to boost security margins.

The insurer's solvability is threatened by the possibility of unusual losses resulting, by bad luck, from the magnitude and frequency of events taken into account to establish the premiums. If these extreme losses cannot be transferred to a reinsurer, the security factor integrated into the premium can only cover "normal" cases; thus, for a specific level of insurance coverage, the cost of the insurance approaches what the person can (or agrees to) pay in order to protect himself from the risk in question. This naturally has a price, which is paid to the reinsurer and which depends on the latter's ability to be reinsured himself (reinsurance, co-insurance or by resorting to capital markets). Conclusion: either the nature and magnitude of risks are such that, compared to the available income of the people to insure, no pricing system is viable, and in this case the idea of insurance must be abandoned, or a set of warranties can be defined for which the premium (including the cost of reinsurance) is acceptable for the insured individual, and the first beneficiary is then the individual himself who would otherwise remain entirely exposed to hazards.

In our context, the benefits of reinsurance are undeniable contribution of capacity, expertise (global, local), insurance more accessible, solvency and financial stability of leading insurers, dilution increased risk of overall attenuation risks, (during "bad" years, the excess losses to the reinsurer will, during "good" years,

---

[17] Nabeth, 2006 and Churchill, 2006 provide a well-made overview of the micro-insurance (current status and problems of implementation).

the surplus can go toward reducing risk by actions of education, prevention and protection[18]) access to finance higher level... Compared to the challenges of a development strategy, reinsurance provides three benefits:

- it frees up capital that becomes available for productive uses

- it reduces the cost of labor to be retained to cover contingencies;

- To the primary insurer, but especially for the individual producer, it lowers the required rate of return of capital since capital is generally less exposed to risk.

Watch out for looming! Insurance is a difficult profession whose rules are demanding[19]. The favorable effects of the couple insurance / reinsurance described above can be obtained provided that the rules are strictly adhered to, particularly the "tyranny of security ratio" to which it is impossible to escape without compromising the strength of the whole building. Thus, the insurability of risks is subject to specific criteria[20], and only those risks that are uninsurable under only the solvency test (the contract is insoluble for economic reasons) may become insured through reinsurance or securitization (alternative risk transfer). Reinsurance and a fortiori, securitization has no magical power against other breaches of insurability: the subprime crisis has provided an illustration pushed to caricature. This does not affect the securitization itself, or its value, but only use was made perverse and guilty of the failure of supervisory bodies. The virtues of insurance as a development tools are at stake.

Then there is the need to seek the highest possible ratio between the size of the reserve can be mobilized for the ultimate reinsurance, on the one hand, and the extreme size of the cumulative burden of claims that are provided locally, other. In other words, and given handicaps of poor spays capability and financial structures, should be sought worldwide.

The ideal solution would be to build a reinsurance chain, which would be complete enough to allow the premium to be as close as possible to the pure actuarial premium. This implies two things: 1° the operating costs are low; 2° the risk of economic ruin should be close to zero for the direct insurer as well as for the successive reinsurers. However, as zero risk does not exist, we can only approach this ideal situation by a maximum watering down of residual risks. Hence, the idea of creating *Planet Re*.

# | *Planet Re*, the Missing Link

On a world economy scale (a single planet, a single mankind), the reinsurance chain's only limit is the capacity of the world market, which is now the smallest closed financial space. Let us examine the orders of magnitude: the most extreme known risks (natural or industrial catastrophes, 11th September terrorist attacks) are measured in tens of billions of dollars, the total capacity of insurers in hundreds of billions, daily capital movements in thousands of billions and total stock-market capitalization in tens of thousands of billions.

The daily volatility of this market can be measured by a standard deviation, which is measured in hundreds of billions of dollars. But a suitable mechanism is still necessary to connect local risks with the global financial sphere. There is already a World Bank. Why should there not be A World Re or *Planet Re*, world-wide reinsurer? To create this missing link, a clear political will to do so is indispensable because, as the hypothesis concerns the least developed countries, the financial conditions are lacking. On the other hand, in order to avoid endangering existing solutions in these countries, the risks covered must be precisely

---

[18] Vaccination campaigns and actions against the post-harvest losses are very good examples of such interventions.

[19] On the principles that govern a reinsurance program, see Outreville, 1998 (chap.14) or Outreville, 2002.

[20] Qc. Vaté et Dror, 2002.

delimited so as not to compete with local social security.

*Planet Re* could be imagined on the pattern of a security reserve destined for coping with hazards of exceptional magnitude[21]. For the system to be viable, it would have to be able to absorb the impact of major events. Concretely speaking, as concerns *Planet Re,* it means that the reserve level only falls if the global weight of catastrophic events is so high that after having called upon different links in the chain of reinsurers, the excess loss triggers off, in the last resort, the action of *Planet Re.*

*Planet Re* does not, therefore, have an ongoing action, but only reacts to events of a catastrophic nature. If the reserve were only fed by contributions from reinsurers and the accumulation of prior results, we would remain in a purely competitive logic, and the price to be paid "at the top" would have to be reflected back to the bottom. In such conditions, it is doubtful whether insurance would remain accessible to the poor peoples to whom it is destined. Hence, the idea of feeding the reserve out of others sources.

Figure 5 | **The 4-stroke cycle of *Planet Re***
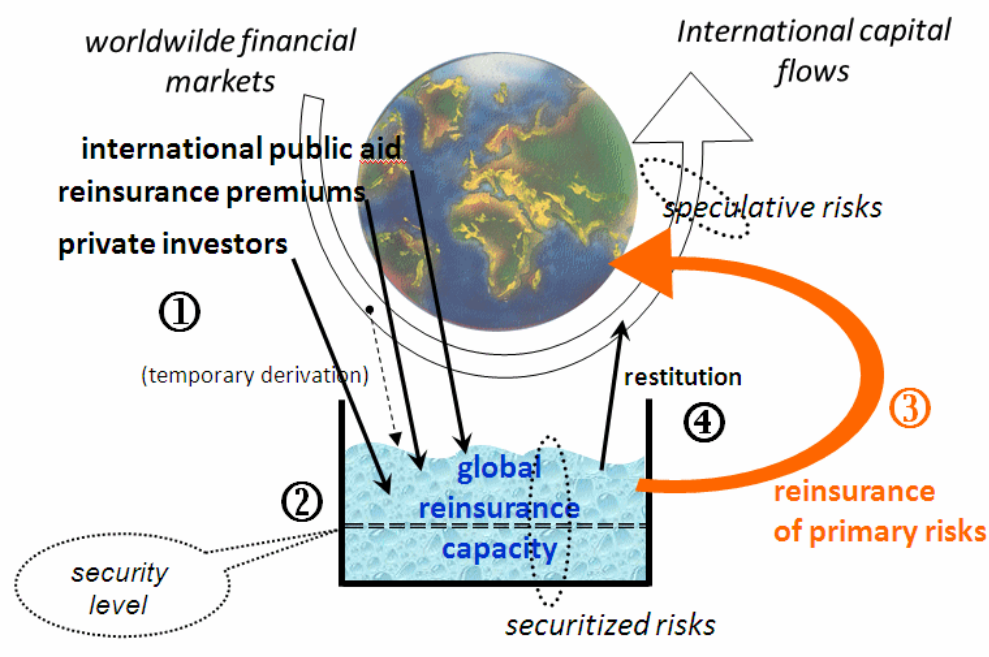


After the constitution of a starting fund, the necessary contributions could come from three sources of funding (figure 5), as well as from the reinsurers' contributions:

a) The first source is the contribution from the primary reinsurers.

b) The second is international public aid (a feeding seed funds up, reallocation of a portion of public assistance to take advantage of the increased yield that provide quick identification and compensation of the beneficiaries, and to "secure" the positive results of ODA , exceptional allocations in response to natural disasters, and so on.)

---

[21] Other technical conditions required for sustainability, but they will not be absorbed by and concern, in particular, the statistical independence of risks covered, preventing the effects of adverse selection or the segmentation of the global space into sub-regional groupings in order to limit the covariance risk...

c) The third is private investors whose assets could be selected from among the vast range of risk securization tools (on the pattern of catastrophe bonds or weather derivatives[22]). Agree to call these poverty bonds financial vehicles that are dedicated to the struggle against poverty. Structured as catastrophe bonds and weather derivatives, they build an alternative risk transfer (ART) for the benefit of the poor. Those financial products offer high performance, which incorporates a high risk premium in exchange for the risk of losing all or part of principal and / or coupons in the event of occurrence of an event specifically defined in the contract. These events are not correlated with the parameters of financial markets, the use of such securities provide attractive opportunities for diversification in analyzing risk / return portfolios (qc, figure 6, where the poverty bonds using the model of an SPV, *special purpose vehicle*).

Figure 6 | *Planet Re* based on SVP model
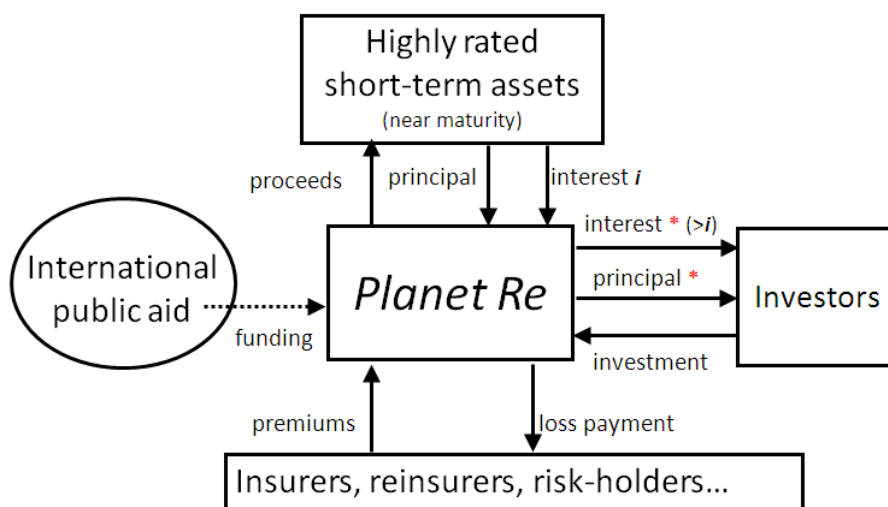


* Interest and/or principal receipt depend on a trigger event (event, special index, aggregate loss index...)

d) Finally, the level of the reserve could be "mechanically" linked to the global volume of international transactions, which gives an indication of the ultimate capacity for reinsurance on a planetary scale. This could be done by diverting to *Planet Re* a tiny fraction of international capital movements. How can this be done without the diversion taking on the predatory aspect of a tax? Like the water-mill, *Planet Re* takes its energy to international financial flows but nothing punctures because these flows are returned unless a serious event occurs. Victim compensation is then priority before the repayment of bonds. By using "reservoir" logic: the operation need only be temporary, combining the technique of compulsory deposits with that of risk securitizations.

---

[22] These financial securities provide high financial yield, combining a high risk premium in exchange for the risk of losing all or part of the principal and/or coupons in the occurrence of an event specifically defined in the contract. As these events have no correlation with parameters on capital markets, their use provides interesting opportunities and the yield/risk analysis of portfolios.

> **Example |** A European financial operator makes a forward purchase of $ 1 million. This operation involves a risk (a currency exchange risk). A minute part of this movement (say, 0,5%, that is $500) goes to the *Planet Re* reserve in the form of risk securities (similar to *cat bonds* or weather derivatives[23]. This tap-off reduces the financial operator's profit expectations on the exchange market (but also reduces his risk of a loss). In exchange, he obtains an uncertain entitlement to the sum that he will retrieve when the securities come to maturity. It will be a profit if all goes well, or a loss if, during the lifetime of the securities, a catastrophe occurs. Thus, for the diverted amount, the operator does not suffer from a tax, but undergoes an exchange of risks: a part of the currency exchange risk is replaced by the *Planet Re* risk to extent of the impact on these securities of the events covered by *Planet Re*. From the macroeconomic point of view, the smallness of the rates given the reserve does not reach a significant level. For example, on a global flow of 4000 billion a day, with a recording rate of 0.5% and a maturity limited to 30 days, 60 billion that is available, without ceasing to belong to their owners... except if there is a catastrophic event[24] (the magnitude of financial risk is comparable to the daily standard fluctuation of capitalizations exchanges worldwide).

# | Conclusion: five assets of *Planet Re* for funding development

*Firstly*, the benefit for poor people exists early on: far upstream from the occurrence of the risks insured. In fact, simple from the fact that *Planet Re* exists, the gap between the cost of insurance and their (low) ability to pay is narrowed. The reason is that those who insure primary risks, and their reinsurers, can moderate the safety loading in their prices as soon as they know that they will not have to suffer from the most unfavourable outcomes.

*Secondly,* the final risk, at the top of the insurance pyramid, is borne by the risk-takers on the capital markets (they are used to it!) rather than by a "last resort payer", which is often synonymous with subjective risk or *moral hazard*.

*Thirdly*, by financially stabilising an reinsurance chain for high impact risks, *Planet Re* consolidates what already exists and at the same time encourages the emergence of a local insurance industry.

*Fourthly*, in good years, insurers and reinsurers have surpluses at their disposal, which no longer need to be frozen in local security reserves. These discretionary budgets can be used, in the insurers' own interest, for action whose purpose would be to reduce the future frequency of hazards and/or their gravity. For instance: education, prevention, emergency funds safety nets, etc.

*Fifthly*, the creation of *Planet Re* sets up a channel of aid to development, which has the advantage of celerity and precise targeting of its effects. Instead of bringing the world economy down to level of the poor through an administrative sequence with multiple levels of arbitration – slow and costly – aid through reinsurance follows a predetermined contractual process whose ultimate beneficiary is someone who is unambiguously identified as having suffered from a random occurrence. By giving priority to the victims of hazards, poor among the poor populations of poor countries, *Planet Re* is not far from aiming at the ideal goal of a real action against poverty.

*Sixthly*, the logic of *Planet Re* is linked with the new guidelines from the World Bank that identifies the vulnerability and impact resistance as one of the three priorities of his new strategy for Africa[25].

---

[23] In practice, the operation should be split into two separate accounts: that of the financial operator with his financial intermediary, and the global account of the intermediary with *Planet Re.*

[24] Extreme events are characterized by their rarity, the difficulty to predict in advance and their impact on the insurance industry. Qc. Embrechts (1997) or Zajdenweber (2000). Less technical, reading books N.N Taleb (2004 et 2007) is a very stimulating introduction to the problem of extremal events.

[25] World Bank, 2011b.

*Seventhly*, the model *Planet Re* is clearly within the category of truly innovative financing through three singularities: the origin of its resources (poverty bonds, temporary diversion on financial transactions ...), its mechanism (a total reserve of reinsurance dedicated initial risk), and its central object (building the resilience of individuals and producers make it a factor in the development group[26]).

*Eighthly*, for the implementation of *Planet Re*, it is not necessary to act immediately on a global scale. Indeed, alternatively or successively, several patterns of unequal scope can be considered, ranging from simple to more performance-oriented:

1. A partial mechanism linking a local insurance risk initial and the global financial market contracted as ultimate reinsurer (*Planet Re* Contract);

2. An entity holding together the ultimate reinsurance capacity (*Planet Re* Alliance);

3. A specific institution or agency attached to an international organization (*Planet Re* Org).

*Ninthly*, the mechanism of *Planet Re* does not create distortions of competition, no additional cost to the global economy (swapping risks to constant mass). However, as with any insurance system, the links in the chain of reinsurance are in constant danger of asymmetric information and under threat from the effects of moral hazard and adverse selection. Therefore it is imperative that great care be made to the boundaries of permissible risk, drafting contracts, structuring of financial vehicles and above all the specifications that must be accepted by local units of insurance to be eligible for *Planet Re*.

This is an opportunity to stress that, in the interests of the populations concerned, the specific context of poor countries can not excuse the slightest weakness in respect of actuarial rules, criteria for insurability and, more broadly, solvency standards that govern the activities of insurance. Under this condition, only the fight against the risk will be effective and be really "an obstacle to poverty".

---

[26] Vaté, 2009.

# | References

Brunel S., 1991 | *Une tragédie banalisée. La faim dans le monde* [*An ordinary tragedy. Starvation in the world*], Paris, Hachette-Pluriel

Churchill C. (ed.), 2006 | *Protecting the poor. A microinsurance compendium*, Geneva/Munich, ILO/Munich Re Foundation

Condorcet, 1793 | *Esquisse d'un tableau historique des progrès de l'esprit humain* [*Draft for a historical overview of the progress of the human mind*], republished Paris, 1988, GF-Flammarion

Dercon S., 2001 | *Assessing vulnerability*, Oxford University
http://info.worldbank.org/etools/docs/library/70436/4th%20Workshop/Srmafrica/helsinki/pdf/readingmaterial/Assessing%20Vulnerability.pdf

Dercon S., 2005 | *Measuring Individual Vulnerability*, Oxford University
http://www.economics.ox.ac.uk/Research/wp/pdf/paper229.pdf

Dror D. and A.S. Preker (eds), 2002 | *Social ReInsurance. A new approach to sustainable Community Health Financing*, Washington/Geneva, World Bank/ILO

Eeckhoudt L. et C. Gollier, 1992 | *Les risques financiers*, Paris, Ediscience

Embrechts P., C. Klüppelberg et T. Mikosch, 1997 | *Modelling Extremal Events for Insurance and Finance*, Berlin, Springer-Verlag

FIDA, 2011 | *Rural Poverty Report 2011*, Roma
http://www.ifad.org/rpr2011/report/e/overview.pdf

Godard O., C. Henry, P. Lagadec et E. Michel-Kerjan, 2002 | *Traité des nouveaux risques*, Paris, Gallimard

ISDR-United Nations, 2003 | *Living with risk. A global review of disaster reduction initiatives*, International Strategy for Disaster Reduction, United Nations, Geneva

ISDR-United Nations, 2009 | *Reducing Disaster Risks through Science*, International Strategy for Disaster Reduction, United Nations, Geneva

Kuhn Th., 1983 | *La structure des révolutions scientifiques*, Paris, Flammarion

Nabeth M., 2006 | *Micro-assurance*, Paris, L'Argus de l'assurance

Outreville J.-F., 1998 | *Theory and Practice of Insurance*, Dordrecht, Kluwer Academic Publishers

Outreville J.-F., 2002 | "Introduction to Insurance and Reinsurance Coverage", *in* Dror D. and A.S. Preker (eds), 2002

Sen A., 1985 | *Commodities and capabilities*, Amsterdam, North-Holland

Sen A., 1999 | *Development as Freedom*, Oxford, Oxford University Press

Swiss Re, 2011 | *L'assurance dans le monde en 2010*, Sigma n°2/2011

Taleb N.N., 2004 | *Fooled by Randomness : The Hidden Role of Chance in Life and in the Markets*, New York, Random House

Taleb N.N., 2007 | *The Black Swan. The Impact of the Highly Improbable*, New York, Random House

Truchy H., 1927 | *Cours d'économie politique* [*Lessons in Political Economy*], Paris, Sirey

Vaté M., 1999 | *Leçons d'économie politique*, 8th edition, Paris, Economica

Vaté M., 2009 | "Microinsurance for primary risks. Getting collective development through individual resilience", *Journal of Insurance and Risk Management*, National Insurance Academy, Pune, India, vol. IV-1, 101-109
http://www.institut-thomas-more.org/upload/media/artmvate-pravartak-april2009.pdf

Vaté M. et D. Dror, 2002 | "To insure or not to insure? Reflections on the limits of insurability" *in* Dror D. and A.S. Preker (eds), 2002

World Bank, 2000 | *World Development Report 2000/2001, Fighting Poverty*, Washington D.C.

World Bank, 2010 | *The MDGs after the Crisis. Global Monitoring Report 2010*, Washington D.C.
http://siteresources.worldbank.org/INTGLOMONREP2010/Resources/6911301-1271698910928/GMR2010WEB.pdf

World Bank, 2011a | *World Development Report 2011*, Washington D.C.

World Bank, 2011b | *Africa's Future and the World Bank's Support to It*, Washington DC
http://siteresources.worldbank.org/INTAFRICA/Resources/AFR_Regional_Strategy_3-2-11.pdf

Zajdenweber D., 2000 | *Economie des extrêmes*, Flammarion, Paris