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HOW TO FINANCE THE SECURITY OF THE INTERNATIONAL TRADE ? - A GLOBAL PUBLIC GOOD APPROACH -

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How to finance the security of the international trade ?

A global public good approach

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Abstract

The aim of this article is to identify the modalities of financing international trade security. Our analysis is more specifically oriented by the issue of financing the developing countries which must make a considerable effort to attain the required level, whereas the developed countries have already largely invested in trade security since the events of 11th September 2001. We first characterise security in the context of a global public good, before studying the financing conditions and the discriminating criteria of the supply of the global public good security. We then presents a critical analysis of the various possible sources and instruments for financing the global public good security and propose different financing scenarios, each one based on a specific allocation of responsibilities among the players in security. We conclude by considering the role of the international institutions as project managers of the financing and implementation of the security of international trade.

Keywords: security, international trade, global public goods, financing, international institutions.

1. Introduction

The attacks of 11th September 2001 without doubt marked a turning point in the way that countries approach the security of international trade. In the past mainly confined to economic and financial security and to the fight against fraud and counterfeiting, the security of international trade today brings to the fore all the risks linked to the transport of illicit goods, arms, and materials of destruction. As well as the loss of human life and material destruction, a terrorist attack directed against international transport is likely to cause an interruption of services, the closure of ports and terminals and delays in the shipment of freight and passengers, with potentially serious effects for world trade (ICC, 2002).

In this way, and in light of the increased number of cases of organised cross-border crime and the threat of terrorism, initiatives implementing new forms of controlling the circulation of goods have been multiplied. The American C-TPAT[1] and CSI[2] and the Swedish STAIRSEC programmes reflect this desire manifested by numerous states to add a security section to their customs protocols without, for all that, compromising the facilitation of trade and fluidity of world trade. It is in this same perspective that the European Union is completing the community customs code to integrate the notion of international trade security. The World Customs Organisation (OMD/WCO) has adopted a resolution by which it undertakes to be the vector of cooperation between the players in international trade for the "security and facilitation of the international supply chain (WCO, June 2002).

The aim of this article is to identify the modalities of financing international trade security. Our analysis is more specifically oriented by the issue of financing the developing countries which must make a considerable effort to attain the required level, whereas the developed

[1] Customs-Trade Partnership Against Terrorism.
[2] Container Security Initiative.

countries have already largely invested in trade security since the events of 11th September 2001.

The second section attempts to characterise security in the context of a global public good. The third section studies the financing conditions and the discriminating criteria of the supply of the global public good security. The fourth section presents a critical analysis of the various possible sources and instruments for financing the global public good security. The fifth section studies different financing scenarios, each one based on a specific allocation of responsibilities among the players in security and on the role of the international institutions as project managers of the financing and implementation of the security of international trade.

2. Security as a global public good

The security tends to demonstrate a convergence of interests between the firms and the governments. It is a question of guaranteeing the protection of the international transport system and its capacity to serve international trade.

As such, security is a matter for the field of global public goods (Kaul, Grunberg, Stern, 1999). Indeed, public goods create shared advantages and public "evils" create shared costs. The spatial scope of the advantages determines whether it is a local public good (in the national sense), a regional or a global public good (Ferroni, 2001). Without a mechanism for collective action, the production of these goods would fail.

a. The characteristics of the global public good security

The positive externalities are global and benefit everyone, even if security is a mixed global public good insofar as it provides a mixture of national and trans-national advantages, both public and private. For example, a secure port is likely to capture a larger share of the traffic of goods but only the security of all ports will reduce the risk of damages; except, of course, if we accept the removal of a certain number of ports from the major international sea routes and the negative consequences in terms of the fluidity of trade and, therefore, economic efficiency.

The public good security is produced in an additive manner *i.e.* it demands that contributions be made in all countries and by all countries, and moreover by a large number of players in each country. However, security as a public good depends on the weakest link, *i.e.* the weakest national contribution to the supply of global public security. The more the countries themselves finance security, the greater their concern in ensuring that the results obtained are not reduced to nothing due to other countries failing to invest sufficiently in this public good, thus creating detrimental cross-border effects. Thus, in order to preserve the progress made, it is the duty of the countries with a high rate of provision in security to support international efforts to help other countries to increase their contribution to the global supply of these goods. It is nevertheless important to underline that the national contributions to the supply of security risk favouring the interests and advantages of the country and not the cross-border externalities. It is thus probable that only one or another form of international agreement, surveillance of the measures taken at national level and other forms of keeping those states in check which may be tempted to behave like a free rider, will be able to guarantee a sufficient supply of security.

A simple cost-benefit analysis only poorly reveals the social return of security. On the other hand, the potential cost of a serious event, or even more the simultaneous occurrence of several serious events, is without doubt exorbitant. The context of decision-making is that of imperfect information. Besides the fact that the decision-makers and players are confronted with a lack of data for the benefits of actions for improving security, the costs of security are themselves difficult to evaluate due to the very high degree of heterogeneity of the players and situations. The "optimum" degree of security could not, then, be determined by economic calculation. The level of security should result from a political decision and economic analysis should concentrate on the choice of means which allow the objective of security to be achieved in the most efficient manner.

The supply of the public good security requires both a basic activity (mechanisms aimed at developing a positive externality) and a complementary activity (measures permitting a country to absorb the advantages created by the development of the externality) (Kanbur, 2001). This point is considered in detail below (*cf.* 3).

The global public good security is the direct result of international policies; it thus depends on the efforts of various countries throughout the world and requires international coordination for its production. The production of the global public good security should be driven by the public sector in the broadest sense of the term. This does not, however, means that its production should rely exclusively on public financing.

By applying the concept of global public goods, we insist on the fact that the advantages of security are not limited to a single country, a single generation and a single population group.

b. The production of the global public good security: a problem of collective action

Thus, all public goods, be they local, regional or global, tend to be produced in insufficient quantities. The reason for this is precisely because they are public goods. For individuals, the best and most rational strategy often consists in leaving the task of providing the good to others so as to benefit from it without cost; this is the problem of the “free rider” (Sandler, 2001). On an international scale, this question of collective action is exacerbated by the gap between externalities, with an ever more international scope, and the fact that the major decision-makers remain the states or groups of players.

Production of the global public good security is also subject to the problem of the “prisoner’s dilemma”. Indeed, when economic agents do not trust one another (or do not have sufficient information about the strategy/action of the others), there is a great risk that decisions taken individually are globally sub-optimum, *i.e.* they do not allow the objective of public good production to be achieved. Production of security consequently requires a form of intentional coordination of the players, a concerted collective action.

This is where the issue of financing becomes important. The financing mechanism selected should allow these problems of collection action to be "corrected". Financing is not only a question of collection of funds, it should also be an incentive for the production of security.

3. Financing and incentive: the production of international trade security

Examining the financing modalities for the security of international trade requires that the informational context and the constraints, objectives and discriminating criteria conditioning such financing be specified.

a. The constraint and context of financing

The constraint is that of globality which means that global financing and not just partial financing must rapidly become the objective. Let us recall that the supply of the global public good security demonstrates an additive character restricted by the weakest link.

The context is that of imperfect information, and more particularly that of moral hazard. Moral hazard indicates a situation in which the uninformed agent, in this case the source of financing, can only observe the action of an agent who benefits from the financing (for example the players in a port zone) in an imperfect manner. The consequence is that the latter is tempted to behave in his own interests. Financing security is all the more subject to moral hazard as the country or the player benefiting from the financing doubts the utility of security in satisfying his own economic interests, and as the control of the use of funds is not particularly restrictive. The consequence is that the collection of funds is a necessary but insufficient condition for guaranteeing the supply of the global public good security.

b. The objectives of financing: efficiency and equity

As for any financing programme for global public goods, financing security should endeavour to combine a dual objective of efficiency and equity. The objective of *efficiency* involves considering the financing modalities from a triple standpoint.

- That of sufficient and durable collection of funds in view of the "desired" level of supply of the global public good security.
- That of the absence of distortions on competition; financing should be neutral in view of the competitive positions relating to the players and/or countries concerned.
- That of the incentive to contribute to the production of security. The idea of incentives represents a key element of the security financing measures in a context of imperfect information. It means on the one hand that the implementation of financing measures for security should not discourage those players who would already be committed to a process of creating security from pursuing their efforts. We could, for example, assume that agents who have produced the global public good security independently would see their financial contribution diminish and/or could benefit from a greater degree of trade facilitation. On the other hand, it means that the financing mechanism should encourage players who have fallen behind to contribute to the production of security by encouraging them or by penalising them financially. The idea of a modulated contribution according to security certification and/or a security "scoring" is not to be neglected in the incentive logic.

The *equity* objective requires that the existing inequalities not be exacerbated and/or that the contributive capacity of the different players be taken into account both with regard to the modalities and the levels of contributions/financing. The equity in question here is an equity referred to as vertical, implying that the agents/countries with the highest contributive capacity have the responsibility of financing a large part of the public good security.

Most international negotiations concern global public goods which are of most interest to developed countries and neglect the interests of the other countries, hence the distrust shown by the latter towards global policies. Equity is thus an important dimension in promoting global public goods. A global public good programme should consider equitably the priorities of the different populations concerned. The modalities of financing should ideally allow the gap existing between developed countries and developing countries to be reduced with respect to the question of the efficiency of goods control systems.

At this point, it is nevertheless important to specify that the objective of efficient financing may be inconsistent with that of equity. The clearly weaker contributive capacities of developing countries require, for example, the implementation of financing instruments such as subsidies which provide little incentive in the effective production of security.

c. The discriminating criteria of the supply of international security

The gradual interpenetration of the public domains leads decision-makers for global public goods to implement various mechanisms aimed at guaranteeing the supply of public goods (UNDP, 2002). By taking these experiences into consideration, we shed light on the discriminating criteria of the supply of security.

The first criterion quite logically refers to the type of country considered. Indeed if the security of the international trade represents a major economic stake for most countries and players, the contributive capacities of the countries are not without incidence on the supply mechanisms to be favoured. The distinction between countries referred to as developed and developing (and amongst the latter low-income and middle-income countries) cannot be overlooked. It alone conditions the efficiency of the global supply process.

The second criterion concerns the type of activity which provides security. As has already been mentioned, the supply of the public good security requires both a basic activity and complementary activities. We have explained that the supply of the global public good security requires an action and activities which are coordinated on an international scale with shared responsibilities, structured between the international organisations, the states and the private partners.

Three levels of action and responsibility define the architecture of the supply of the global public good security; these levels of action and responsibility logically have incidences with regard to the method of financing. These three levels of action can be identified by means of three spheres (Sagasti, Bezanson, 2001).

The global sphere. These are all the activities which do not concern a specific country and which refer to knowledge, *i.e.* identifying the externalities of security or insecurity (identifying the risks of insecurity, measuring their impact for the international community on trade, growth, etc.), to fundamental and applied research concerning security and information technologies, to international dialogue and negotiation, *i.e.* common search for solutions to provide a sufficient level of the global public good security and which can be the object of an implicit or explicit agreement (international convention, protocol, treaty, etc.).

The network sphere. Applying an agreement with a view to guaranteeing sufficient supply of the global public good security requires coordinated action of the international organisations, the states and the private partners, all the more so as the risk of free riders is high. Defining a partnership framework, operational policies (for example technical assistance in defining needs) and procedures (for example harmonisation of customs procedures and information trade) in order to guarantee sufficient supply of the global public good security at local level, and the management of international financing mechanisms, are activities which refer to the network sphere, *i.e.* international institutional cooperation.

The local sphere. This covers all activities relating to the national supply of the global public good security. It is national incentive policies, national financing mechanisms, but also, and in particular, investments relating to national capacity building: acquisition of materials for goods control, information technology, training personnel and organisational reforms. These activities can be defined within a legal framework which is more or less restrictive in relation to the network sphere.

The activities of the global and network spheres are referred to as basic as they initiate production of the global public good security. The activities of the local sphere are referred to as complementary as they allow each country, or each player, to benefit from the positive externalities of the public good security.

Let us, however, specify that the question of financing is only really an issue for the complementary activities[3] and that the latter involve spending on equipment, infrastructure (a port scanner, IT equipment, etc.) and operating costs (maintenance, labour training, etc.).

4. The main sources of financing: a critical analysis

There are three main sources of financing: payment by the users, private sources and public sources. It is possible to combine them insofar as security not only benefits the community in its entirety but also directly benefits the agents who participate in the international trade.

It is important to specify that, as a public good, security should not be financed by withdrawal from resources destined for development aid (Guillaumont, 2002). Indeed, the latter essentially consists in allocating resources per country to provide for national needs, whereas financing global public goods involves allocations on a national and international scale to satisfy trans-national requirements.

a. *Payment by users*

Because the agents who participate in the international trade benefit directly from the public good security, the "externalities" can be partially "internalised", *i.e.* part of the costs of security can be borne by certain users and beneficiaries. This payment can be effected by applying a tax or fee to traded goods.

The fee or tax can be *ad valorem*, *i.e.* it can apply to the value of the goods, or *specific*, *i.e.* it can apply to the volume (a container for example) or the weight of the goods. Financing by means of tax or fee has the major advantage of generating large regular sums in light of the volume of international trade flows, thus ensuring the durability of the supply of the public good security, but it does not guarantee a sufficient supply of public good to the weakest links. Indeed, as trade flows are asymmetric, the international trade is mainly concentrated in developed countries which therefore collect the majority of payments whereas they are not the weakest links. This modality of financing does not, therefore, allow the increase in the supply of the global public good security based on the weakest link. What is more, the capacity of developing countries to use contributions to finance the public good security is limited in light of the global budget constraint which weighs on their economies. In other respects, it provides little incentive as this type of financing applies uniformly whatever the efforts already made by the agents or countries to contribute to the supply of the public good security and whatever the risk of the transaction[4]. Lastly, it is inequitable as the majority of resources will converge towards the rich countries which already have a high level of security, and because the rate of contributions is independent of the contributive capacity of the different agents and countries.

To overcome these disadvantages, this type of financing should be differentiated according to the risk of "crime" in order to encourage the weakest links to implement a security process.

[3] Indeed, the basic activities are already financed, in part, through state contributions to the international institutions, as well as by means of the budgets of the ministries concerned.
[4] When it is applied to the *cif* value of the goods, it incorporates freight and insurance in the calculation; it provides greater incentives insofar as the insurance companies incorporate the risk when calculating the premiums. However, freight and insurance only represent an average of 3.39 % of the value of the goods

The level of the tax or fee should thus be modulated according to an agreement/security certification or to risk analysis. It could also be envisaged that the tax/fee only falls on those containers which are controlled physically and by scanner *i.e.* demonstrating a high risk. But more fundamentally, implementing a tax/fee is confronted by two major obstacles: The WTO agreements forbid the use of taxes which introduce distortions in international trade; The developing countries are not at the same level with regard to security certification and scoring, a fact which leads to their being systematically penalised whereas they do not all necessarily represent a high risk of crime.

b. Private sources

Companies can contribute directly to financing the supply of the global public good security as soon as they respect restrictive security norms either voluntarily or due to specific regulation or legislation (for example American C-TPAT and CSI programmes, the Swedish STAIRSEC, etc.). Their contribution is indirect when they finance independent foundations or company foundations[5].

The main advantage of this type of financing is that it encourages production of the public good security if the certified companies benefit from increased trade facilitation. However it provides an insufficient level of global public good security. Indeed, insofar as not all the agents (or countries) could respect the norm, the supply of the global public good security would be limited by the supply of the least efficient agent (or country) among those which do not respect the norm. It introduces distortions of competition between the operators and between the countries. This could be inconsistent with certain WTO agreements. It is incompatible with the objective of equity. The level of the criteria demanded by certification would remove the operators from countries which are behind with regard to security.

(OECD, 2002) and the insurance premium is largely fixed on a commercial, not a technical, basis (risk analysis), which reduces the incentive aspect.

Companies make an *indirect* contribution when they finance independent or company foundations. These are voluntary contributions. The companies benefit from tax advantages established in the tax legislation of each state. The main advantage of this type of financing is that it conforms to the objective of equity, as only those operators or countries with the capacity to contribute do so. However it provides an insufficient level of the public good security due to the voluntary, and therefore periodic and fluctuating, nature of the financing. It provides no incentives for companies which do not contribute. As a public good, the private supply of security is necessarily insufficient as the best strategy for individuals consists in leaving the task of financing to the others as it is impossible to prevent (without engaging prohibitive costs) the use of security by those individuals who do not contribute to the supply.

Beyond the distinction between direct and indirect contribution, taking private financing sources into account underlines the necessity of envisaging efficient public-private partnerships which would require the creation of conditions more favourable to the participation of the private sector. Facilitation (direct financing) and tax incentives (indirect financing) represent some of these conditions which would not overlook the importance of intermediary financing between these two complementary logics (public-private). This last point is developed further (*cf.* 5).

c. Public sources

Public sources are numerous. They can be national, regional or international; unilateral, bilateral or multilateral. Public sources already finance numerous public goods in the fields of environment, health, peace-keeping or the resolution of conflicts[6].

[5] Traditionally, the foundations participate in financing in fields where the degree of risk destroys private or public initiatives (*cf.* research into rare diseases in the field of health).
[6] According to the World Bank, about 30 % of public aid for development concerned the supply of global public goods during the nineties.

Financing can be *national*. Each state finances the national supply of the global public good security. The increase in supply of the public good security can be achieved through the redistribution of budget allocations, *government budget credits*, as is the case today in Europe and even more so in the United States. But it does not guarantee sufficient production of the global public good security as there is the problem of free rider states. Certain states can employ the strategy of leaving the task of supplying the public good security to other states, either because they have a less serious vision of the risk of terrorism or because they have a lower "capacity to pay" due to significant budget imbalances (the case of developing countries which constitute the weakest links). In other words, it provides little incentive to produce the global public good security insofar as the vision of the risk and the risk itself differ from one country to the next. Finally, it does not conform to the objective of equity as the resources generated are proportional to the wealth of the country (GDP) whereas production of the public good security should be independent from this.

Financing can be *international*. The financing modalities can be very diverse: grants, loans at single or differentiated rates and conversion of debt into security spending. Each financing modality has its own advantages and disadvantages.

Grants are a source of financing the main advantage of which is that they contribute to the objective of equity as they have no effect on the already large debt of developing countries for which the effort of upgrading the supply of the global public good security is considerable. But they do not guarantee the durability of financing due to the risk of non-reconstitution of the donor's resources[7] and they provide little incentive in the absence of a guarantee of good usage of the grants allocated to "security" projects. Allocation does not, indeed, prevent fungibility[8] of the funds in the presence of moral hazard: instead of contributing to an

[7] With a risk of substitution of security spending for public aid for development.

[8] The concept of fungibility refers to the possibility that a government may use all or part of the allocated aid to ends other than those targeted by the financing.

additional national supply of the global public good security, the grants could indirectly finance other spending.

Loans are an incentive instrument in a context of differentiation of risks and of incentives. The rate of the loan can be modulated according to the efforts already made or to the risks in order to encourage the states to make the necessary efforts to supply a sufficient quantity of the global public good security[9]. They guarantee the durability of financing through the reconstruction of the loaning organisms' funds. However, they are inequitable as they contribute to excessive debt of countries insofar as it is the developing countries, with the heaviest debts, which must make the largest relative effort to produce the global public good security. In addition, loans are insufficient to guarantee a supply of the public good security from the weakest links at the required level as the already high level of debt in numerous developing countries limits the borrowing capacity of the states (and also the private sector). In this case, financing the supply of the public good security is in direct competition with the financing of other state expenditure.

The *conversion of debts*, either public or private, into security spending can be envisaged as the public and private creditors are concerned by this global public good. This particular financing modality thus contributes to the production of the global public good security but also to the production of the global public good "international financial stability" (Wyplosz, 1999) by reducing the indebtedness of the countries most heavily in debt. This type of financing provides double the incentive since it slackens the solvency constraint for countries which convert their debt and in so doing it contributes to international financial stability. Lastly, it is consistent with the idea of equity since the level of financing depends on the level of debt, on the condition that the structure of the debt permits the conversion.

[9] In the absence of differentiated rates, loans and grants must be suitably combined to favour production of the public good security. It means using hybrid financial products linking loans, with or without liberal conditions, to a co-financing based on grants.

The major disadvantage is that it does not necessarily guarantee sufficient financing for the supply of the public good security as the latter depends on the level of indebtedness of the country[10].

Financing can be *regional*. It relies on budgetary contributions from regional organisations and on loans from regional development banks.

Thus public financing, be it national, regional or international, runs the risk of not achieving the desired supply of the global public good security. The question of security should consequently be considered as a question of national public goods requiring international cooperation.

When financing results from *bilateral cooperation*, the supply of security risks favouring the interests and advantages of partner countries and not cross-border externalities as a whole. In particular, it is inequitable as only those countries benefiting from the bilateral cooperation have access to the sources of finance. It excludes certain links and thus does not contribute to a sufficient global supply of the global public good security.

These disadvantages may disappear if a leader country initiates and organises the supply of security through a "spider's web" effect *i.e.* by means of multiple bilateral relationships. In this last case, and on the condition that no country escapes the web, all the links will provide a sufficient supply of the global public good security. There is the risk, however that the countries concerned reject bilateral cooperation due to too great a "loss of sovereignty".

Financing within the framework of *regional cooperation* has the same disadvantages as a bilateral framework. The regional development banks have the advantage of being closer to the needs of the countries.

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[10] Implementing this type of mechanism is complex. Moreover, the problem of fungibility in the presence of moral hazard of expenditure remains from the moment that the budgetary constraint remains strong in numerous countries.

Financing which results from *multilateral cooperation* has the two main advantages: It provides all countries with access to sources of financing following the idea of equity; It modulates financing according to the needs of each link in such a way as to produce the "desired" level of the global public good security.

d. *Which mechanism(s) should be favoured?*

None of the sources of financing presented alone guarantees a satisfactory supply of the public good security. Certain sources are better adapted to financing the supply of the global public good in developed countries, others in developing countries. Some sources are more suitable for financing infrastructures and others for training and running costs.

Table 1 provides a summary of these mechanisms using two fundamental criteria, described above, for the supply of security (type of country and type of activity) and two objectives (efficiency and equity).

5. Financing the production of international trade security : some propositions

It is now a question of highlighting the different financing scenarios. These scenarios are, more specifically, constructed around the problematics of financing in developing countries where a considerable effort must be made with regard to the supply of the global public good security, whereas the developed countries have already invested heavily in the security of the international trade since the events of 11th September 2001. Three main scenarios can be envisaged.

a. *Scenario 1- Local predominance*

The objectives of this scenario are, on the one hand, to limit the responsibility of the global/network to defining the "security norm" and, on the other hand, to involve a local control of the financing and production of the global public good security with the participation of private sector both in the financing and supply of the public good security.

As the level of supply of the global public good security depends on the level of the weakest link, an “optimum level”, in the sense corresponding to the level “desired” by the international community, must be defined by the activities of the global/network sphere (multilateral institutional cooperation). The financing for this basic activity relies on obligatory and voluntary public contributions from the states to multilateral institutions.

Table 1 - The modalities of financing the supply of the global public good security according to the type of complementary activity

	Infrastructure/equipment	Training/operation
Developed countries	Payment by users: *Tax/fee on the value of the goods or on the movements of containers* Private sources: *Spending on respect of norms, certification, security agreement* *Financial arrangements by commercial banks and equipment manufacturers* National public sources: *Governmental budget credits*	Payment by users: *Port fees modulated according to a security agreement* *Tax/fee on the value of the goods or on the movements of containers* *"Additional tax" on containers controlled*
Middle-income developing countries with	Payment by users: *Tax/fee on the value of the goods or on the movements of containers* Private sources: *Spending on respect of norms, certification, security agreement* *Financial arrangements by commercial banks and equipment manufacturers* *Foundations* National public sources: *Governmental budget credits* Multilateral public sources: *Loans at differentiated rates* *Debt conversion*	Payment by users: *Port fees modulated according to a security agreement* *Fees collected by the port authorities or security companies* *Tax/fee on the value of the goods or on the movements of containers* *"Additional tax" on containers controlled*
Low-income developing countries	Payment by users: *Tax/fee on the value of the goods or on the movements of containers* Private sources: *Foundations* Multilateral public sources: *Grants* *Debt conversion*	Payment by users: *Fees collected by the port authorities or security companies* *Tax/fee on the value of the goods or on the movements of containers* *"Additional tax" on containers controlled* Multilateral public sources: *Grants*

Once this level of supply has been defined, the financing and production of the global public good security can be left to the initiative of each state in partnership with the private sector. In this context, each state controls the finance mechanisms. The different mechanisms in table 1 can be used according to local specificities.

The risk of this scenario is insufficient local production of the global public good security by the weakest links, essentially due to free rider behaviours and the problem of fungibility of funds in the presence of moral hazard.

a. *Scenario 2 – Extended cooperation*

The objectives of this scenario are, on the one hand, to extend the responsibility of the network sphere to defining the financing mechanisms likely to guarantee the "desired" level of supply of the global public good security and, on the other hand, to involve a local management of the financing and supply of the global public good security.

Payment by users appears here as probably the most efficient financing mechanism in terms of collecting funds. Moreover, its management is relatively simple at the local level. The mechanism chosen should conform to the international commitments of the countries with the WTO. For this reason, a specific fee per container would surely be preferred to an *ad valorem* tax. Indeed, an *ad valorem* tax on trade could be compared to an additional tariff inconsistent with the measures of the GATT.

This scenario assumes that for spending on equipment and infrastructure, an international fee is created where the level and modalities of application are defined by the activities of the network sphere and the collection and use are the responsibility of each state (local sphere). This fee should be applied to each container and to the volume for loose goods. For spending on training and operations, the initiative of financing mechanisms is taken at the level of the states in collaboration with the private sector (local sphere).

The international fee allows simple and considerable levying of funds in view of the spending on equipment and infrastructure necessary in the security of the international trade. As annual container traffic represents about 280 million units, a specific fee of 1 dollar per container would provide 280 million dollars per year, which represents only about 0.005 % of the fob value of the goods[11].

Moreover, due to its simple administration and the amount levied, this fee could also be used to finance running and training costs in the developing countries.

This international fee does not prevent the other sources of financing from being collected at local level, especially for developing countries which only compete for about 30% of world trade and which only collect resources corresponding to this participation although they have to make a considerable effort to achieve a sufficient level of supply of the global public good security.

This scenario thus allows considerable funds to be collected on a worldwide scale, but in no way guarantees that the supply of the global public good security, notably by the weakest links, will be sufficient due, on the one hand, to the asymmetry of global trade flows which limit the financing possible in developing countries and, on the other hand, to the fungibility of public funds in these countries.

b. Scenario 3 – International funds and equity

The objective of this scenario is that the responsibility of the network sphere be extended to the international administration and management of the financing mechanism with a view to guaranteeing sufficient and durable local supply of the global public good security for all the links and, more particularly, for the weakest links. This scenario, which is essentially based on the idea of equity, involves a dual-level financing mechanism.

[11] World exports amounted to 6,112 billion dollars in 2001 (UNCTAD web site).

The first level aims at the durable collection of resources to guarantee the desired level of supply at an international level. The favoured instrument is an *international fund* supplied by an international fee on containers and by voluntary contributions of the states and the private sector.

The second level aims at the equitable and incentive-providing redistribution of the resources of the *fund* with a view to sufficient local supply of the global public good security, considering the level "desired" by the international community. It therefore concerns the administration and management of the *fund*.

This second level is the keystone of scenario 3. The objective of the administration and management of this *fund* by the network sphere is to make the necessary resources available to all the links for the local supply of the global public good security whilst guaranteeing the effective allocations for the projects of security of the international trade. According to the types of country and activity, different mechanisms allow the resources of the *fund* to be allocated to financing the local supply of the global public good security.

For spending on equipment and infrastructure, loans at differentiated rates are to be favoured for developed countries and middle-income developing countries. They allow resources to be made available whose cost can be modulated either according to the risk or according to the efforts already made in terms of security. For the middle-income developing countries, the availability of resources can also take the form of relief on loans obtained from traditional bilateral, regional or multilateral sponsors. Grants should be favoured for low-income developing countries due to the limited borrowing capacity of most of these countries and their lower level of supply of the global public good security.

With regard to spending on training and running costs, the financing mechanisms should be left, for developed countries and middle-income developing countries, to the initiative of the states in collaboration with the private sector (local sphere). For low-income developing countries, this spending can be financed on the basis of local mechanisms as for the other countries. However, spending on training which accompanies spending on equipment and infrastructure should be financed by the *international fund* by means of grants due to the low contributive capacity of these countries.

The revenue from the international fee is collected by the public authorities of each country (customs administration) and is transferred to the *international fund*. A variant of scenario 3 can consist in leaving part of the revenues from the fee in the country that collected it in order to establish a certain flexibility in financing the local supply of the global public good security. This part should necessarily be limited in order to guarantee both equitable and efficient financing allowing the "desired level" of supply of the global public good security to be reached.

Table 2 presents the three scenarios. The shaded area indicates the responsibility of the network sphere in financing the supply of the global public good security.

The decisive point which structures this entire scenario resides in the necessity to reinforce the capacities of the international institutions by creating an *International Fund*. The expected gains in this scenario *i.e.* by the intermediary financing of the international institutions in financing the complementary activities, logically refers to the objectives of efficiency and equity of financing.

The intermediation of the international institutions in financing security should first and foremost allow the problems of moral hazard to be limited *i.e.* poor use of funds and opportunist behaviour of the players. Indeed, to ensure the financial participation of all the states, as well as companies, organisations of the society and people, two elements are necessary: efficient incentives for entry and a credible system of surveillance to verify that each player fulfils his part of the contract. It is here a question of benefiting from the "information producer" dimension of the international institutions causing it, thanks to its central position between the different players in the international trade, to be the vector of harmonisation of local (national) security norms, to filter requests for financing – in relation to the security norm(s) – from agents requesting funds and thus to minimise the costs of researching and verifying the information necessary for financing. This activity of producing information will, moreover, make the necessary control of the use of funds easier and less costly[12]. The repetition and continuity of the relationship between these institutions and the players likely to benefit from financing should furthermore facilitate the detection of opportunist behaviours (continuity of the relationship) and dissuade these players from practising this type of behaviour (the renewal of financing is subject to the respect of the rules).

The creation of an *International Fund* also has the decisive advantage of bypassing the problem of free riders as the *Fund* is mainly supplied by a fee (even if voluntary contributions should be encouraged).

The intermediation of the international institutions in financing security also has the advantage of eliminating all risk of under-supply of the global public good security. We know that this risk exists in the absence of coordinated financing decisions of the different players (this is the problem of the "prisoner's dilemma" mentioned earlier). Indeed, in the absence of perfect (and thus shared) knowledge of the strategies of the players, the different players adopt at best a "lemming" behaviour which leads them to take individual decisions regarding production of the public good, the aggregated level of which is lower to the global level of production which would have been achieved in a context of active cooperation. The international institutions, an informed and informative (*i.e.* which informs) coordinating body, is ideally positioned to serve as a vector of coordination between the players involved in security.

[12] The cost would in any case be lower than in the case of bilateral control.

Table 2 – The financing scenarios of the supply of the global public good security

		Basic activity	Complementary activities: Equipment/infrastructure	Complementary activities: Training/functioning
Scenario 1	Developed countries and middle-income developing countries	Obligatory and voluntary public contributions from the states to the multilateral institutions	Governmental budget credits Private financing Bilateral and multilateral public loans	Local fees
	Low-income developing countries	Obligatory public contributions from the states to the multilateral institutions	Bilateral and multilateral public grants	Local fees Bilateral and multilateral public grants
Scenario 2	Developed countries and middle-income developing countries	Obligatory and voluntary public contributions from the states to the multilateral institutions	International fee on the movements of containers, managed locally	Local fees
	Low-income developing countries	Obligatory public contributions from the states to the multilateral institutions	International fee on the movements of containers, managed locally	Local fees Bilateral and multilateral public grants
Scenario 3	Developed countries and middle-income developing countries	Obligatory and voluntary public contributions from the states to the multilateral institutions	1st level: *international fund* supplied by an international fee on the movements of containers 2nd level: loans obtained from the *fund*	Local fees (or part of the international fee)
	Low-income developing countries	Obligatory public contributions from the states to the multilateral institutions	1st level: *international fund* supplied by an international fee on the movements of containers 2nd level: grants obtained from the *fund*	Local fees (or part of the international fee) Grants obtained from the *fund* for training activities

Finally, the intermediation of the international institutions in financing security represents a guarantee when confronted with the problem of distortion of competition. As the measures and opinions formulated by these institutions are by nature based on the supra-national and multilateral framework, it is the general interest in its entirety which is the structuring objective of these institutions.

It is important at this stage to underline the fact that if scenario 3 pursues an objective of efficiency, it is not to the detriment of equity. On the contrary, the intervention of the *International Fund* in the financing of training and operating expenditure for low-income countries reflects a desire to follow the two key objectives of financing together. The distinction between loans to finance infrastructure spending in countries with a high contributive capacity and grants to finance this same type of spending in countries with a low contributive capacity is the second illustration of this desire. A third illustration is the accent placed on the voluntary contributions of developed countries to finance the basic activities, and a fourth is the fact that the funds are mainly supplied by an international fee for the movements of goods (idea of redistribution).

It would be in this idea of equity, which is certainly desirable, that the *fund* could serve to finance the upgrading programmes in the field of security by modulating the modalities and levels of finance according to the contributive capacities of the players/countries (idea of equity) as well as the efforts deployed by these same players to commit themselves to a real idea of security (idea of incentive).

Overall, the creation of an *International Fund* acting as a support for scenario 3 and managed by the international institutions fulfils the majority of the characteristics of the "ideal" mechanism for financing a public good (Sagasti, Bezanson, 2001) that is: sufficient collection of funds, the durability of financing, equity of financing based on contributive capacities, flexibility and a capacity to adapt the modes of financing which require the permanence of the institutions which implement them, and administrative simplicity inversely proportional to the number of intermediaries in the financing.

Of course, more than any other thing, the necessary condition for this scenario to be implemented is strong political support.

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