

## GLOBAL SAFETY

**Dorien J. DeTombe**

Chair International Research Society on Methodology  
of Societal Complexity

Amsterdam, The Netherlands – Europe

[detombe@nosmo.nl](mailto:detombe@nosmo.nl)

[www.complexitycourse.org/doriendetombe.html](http://www.complexitycourse.org/doriendetombe.html)

*Recebido em 03/2009; aceito em 05/2010 após 1 revisão*

*Received March 2009; accepted May 2010 after one revision*

### Abstract

Global Safety is a container concept referring to various threats such as HIV/Aids, floods and terrorism; threats with different causes and different effects. These dangers threaten people, the global economy and the stability of states. Policy making for this kind of threats often lack an overview of the real causes and the interventions are based on a too shallow analysis of the problem, mono-disciplinary and focus mostly only on the effects. It would be more appropriate to develop policy related to these issues by utilizing the approaches, methods and tools that have been developed for complex societal problems. Handling these complex societal problems should be done multidisciplinary instead of mono-disciplinary. In order to give politicians the opportunity to handle complex problems multidisciplinary, multidisciplinary research institutes should be created. These multidisciplinary research institutes would provide politicians with better approaches to handle this type of problem. In these institutes the knowledge necessary for the change of these problems can be created through the use of the Compram methodology which has been developed specifically for handling complex societal problems. In a six step approach, experts, actors and policymakers discuss the content of the problem and the possible changes. The framework method uses interviewing, the Group Decision Room, simulation models and scenario's in a cooperative way. The methodology emphasizes the exchange of knowledge and understanding by communication among and between the experts, actors and politicians meanwhile keeping emotion in mind. The Compram methodology will be further explained in relation to global safety in regard to terrorism, economy, health care and agriculture.

**Keywords:** global safety; multidisciplinary research institute; policy making; terrorism; credit crisis; complex societal problem; Compram.

## 1. Introduction

Global Safety is a container concept referring to various phenomena. Although all dangers are in essence man made they can be categorized as natural threats and man made threats, local and global threats. Global natural threats are threats caused by viruses like the flu pandemic, bird plague and HIV/Aids. Local natural threats are threats such as hurricanes, avalanches, floods, tsunamis and earthquakes. Man made global threats are threats like terrorism, increased CO2 emissions and threats caused by internet use and manipulations of stock exchanges. Climate change seems to be a combination of natural and man made threats. Man made local threats are wars, terrorism, traffic, pollution, nuclear power plants and agricultural business threats like such as Bovine Spongiform Encephalopathy (BSE). Safety is, next to food and sleep, one of our most basic needs for living. We organize our democratic societies in such a way that the government takes care of our daily safety. In order to create a safer society one needs to know from where the danger comes and what causes the threats. Each threat has different causes and different effects on different elements in society. A careful analysis of the situation is needed to see the causes and effects, to see which elements are involved and how they are related, to see which power groups are involved and to determine which package of sustainable changes can have the desired effect. In order to be able to find out what we know about the problem, who is effected by it, which parties are involved, who benefits and who suffers, what emotions and political vulnerability are going on, one has to analyze the problem thoroughly through a multidisciplinary approach. A multidisciplinary group of knowledge experts should analyze the situation and discuss possible changes. Then actors<sup>1</sup> should discuss the issue and give their opinion on the situation. Together the experts and actors should find fruitful changes. The interventions should be carefully implemented and evaluated based on their desired effect on the problem. Each complex societal problem has knowledge, power and emotional elements. Handling societal problems in a multidisciplinary way has become a must for our society, and needs a special approach. The challenge is to combine knowledge from the social sciences, various technologies and the natural sciences in such a way that new knowledge and insights are created.

The problems confronting society are difficult to handle. There is a growing gap between the complexity of these problems, the need for interdisciplinary and the way that knowledge development has been organized. Consider for example the organization of our universities into specialized departments by discipline. There is a need for better methods and tools, more knowledge and more imagination, and more interdisciplinary work. Scientific knowledge is needed to survive and overcome these problems.

Therefore the development of methodology for working with complex societal problems has become a needed field for scientific attention. This relatively new field combines knowledge from different sciences. Some of the scientific and real life reasons for this special approach are that complex societal problems are seldom completely defined, change during their development, involve many actors each with different views of the problem, with different interests and with different 'solutions' in mind. These problems have large impacts on society and involve huge amounts of money.

The Compram methodology is specialized in combining knowledge from different fields, stimulating thinking beyond the regular boundaries, in handling emotions along the problem handling process as well as taking into consideration the emotions that the problem itself provokes. As well it includes actors in the problem handling process and, in this way takes

care of the power differences among the different interest groups while developing policy strategies and guiding and evaluating the problem handling process. In the following sections we provide some examples of threats to global safety and recommend using the Compram methodology to handle these as complex societal problems.

## 2. Terrorism

The man made local threat of terrorism is frequently emerging in all kinds of ways and in all kinds of places of the world. Since the 9/11 attack<sup>2</sup> the attention of the United States was suddenly drawn to terrorism and, subsequently, they succeeded in drawing the attention of the whole world to terrorism. Although many continents<sup>3</sup> had already had a long history of dealing with terrorist attacks without any help or interference from the USA, the USA forced these countries to put terrorism high on their political agenda since the 9/11 attack. Suddenly there was a worldwide urge for handling terrorism globally. This led to a larger demand for global safety.

The attacks of 9/11 in New York were the start of many interventions. Some of the solutions the Bush administration proposed and implemented to diminish the threat of terrorism consequently lead to more government control over the individual. The first step in controlling the individual is the identification of a person. To prevent attacks all kinds of control seem to be allowed. In order to prevent terrorist attacks politicians start to create total control over individuals by giving the state the right to follow individuals in all their activities, especially their travel activities by tracking them down by Geographic Information Systems (GIS), by following people through the use of their cell phones, credit cards, and by millions of hidden cameras.

In the USA, these surveillance activities do not end with their own civilians but include all persons who want to enter the USA as innocent tourists. The inspection starts with border controls. Border control not only includes passport control, but also includes luggage inspection by X-rays and inspection by opening and checking baggage. Further inspection may require stripping a person of his or her belt and shoes, and identification through eye scan and/or fingerprints<sup>4</sup>. These checks are likely to be further extended to include identification on demand of a person in the street, by watching what books a person reads by viewing the buying systems of the bookstores, the lending system of the libraries, surveillance of the internet and telephone communications of an individual.

Laws are rapidly changed to make these state actions legal. The Bush administration initiated a law, the Patriot Act<sup>5</sup>, one month after the attack. This Act severely limits the civil rights of the people in the USA and those who wanted to visit the USA. This Act is politically accepted under the umbrella of defense against terrorism or 'war on terror' as George W. Bush called these interventions in the years from 2001 to 2005. Many ideas of the 'Patriot Act' were exported to Europe and other parts of the world to extend the fight against terrorism globally. Previously, these intrusive activities of governments were reserved for (potential) criminals.

This huge surveillance of people by technological interventions cost a lot of money and requires many new technological devices. By choosing to spend money on the anti-terrorist surveillance, there is less government money available for health, education and social services as shown in the budgets of the Bush Administration.

Is this the price that the western societies have to pay for their safety? Have these highly technological devices the effect of preventing terrorist attacks? Is this an effective measure? This one-sided answer on terrorism encouraged by the USA and by the technology businesses focuses on controlling people through advanced technology, like GIS system, eye-scans at the border and handbag checking via x-rays will not prevent terrorist attacks. Identification of a person assumes that the state knows where the danger comes from. The state assumes that the danger comes from small groups of vaguely identified persons, who might plan or are on their way of performing an attack. In reflecting on the attacks of 9/11 in USA, which were at the start of many of the demonic measures, one should realize that all these above mentioned measures could not have prevented this attack. Some of the persons performing the attack on 9/11 were partly trained in the USA and were already in the USA long before the attack.

The surveillance of the people has not had the expected effect of preventing terrorism. Legal governmental inspection threatens the privacy of civilians, and by this it threatens the democracy. The civilian is under surveillance before he or she has even thought of an illegal act or wanted to do any illegal act at all. Its effect is in awakening fear of terror and in abusing the rights of people. Is this the actual goal of all these interventions? Surveillance has a direct negative effect on the civil rights of people, their feeling of freedom and the democracy of the state. Surveillance provokes fear and fear provokes the demand for safety and thus legitimates enlarging the defense budget of a state. It is striking that these freedom restricting activities of governments have been initiated by the country of liberty and democracy. Instead of freedom, the USA is moving in a direction unfortunately well-known under the former USSR and clearly shown in East-Germany in the period of 1945-1990, where almost every third civilian watched the two others<sup>6</sup>. One knows what effect this had on the economic production, the behavior and the feeling of the people.

In handling complex societal problems, technology supported by science can play a role; however this technology should extend human capacity, but not make human situations worse. This control over civilians, mostly technology driven and encouraged by technological business, misses the real causes of terrorism. The measures taken by politicians are too shallow and are only one answer to the effect. The real causes and relations to terrorism are not thoroughly investigated. The 'war of terror' legitimizes abuse to the privacy of citizens in and beyond the USA, including controlling the financial flows within the USA and in Europe. Governments often give easy and technologically based quick 'solutions' to these threats. Many of the interventions described above are rather fake interventions against terrorism, which in essence leave terrorism un-attacked. The people are severely misled, however, and more serious is that terrorism is taken less seriously in this way.

The 9/11 attack is used to justify the Iraq war and Iraq occupation. The (second) Iraq war started in 2003 by the USA with the help of England and other European countries with the idea of fighting terrorism (NRC, period 2003-2008; New York Times, period 2008-2009). However the 'war on terror' was only a way to legitimize an attack on Iraq, that was necessary, in the view of the Bush administration, to keep the oil supplies safe for the American businesses (DeTombe, 2002). The occupation of Iraq by the USA and its allies was 'sold' to the people as 'the war of terror' and as a way to bring peace and democracy in Iraq.

Like all complex societal problems some people benefit from a problem, while large groups have to pay. The war industry and the reconstruction industry of the USA and England have

benefited from the Iraq war, as the technological business has benefited from civilian surveillance. The people of Iraq and the military personnel of many countries have been the victims of the war. The financial stability of the USA has also been threatened by this war, because the USA borrowed huge amounts of money from China and the Arab countries to subsidize the war, meanwhile reducing the people's own tax money from the healthcare, education, and social service budgets.

Terrorism should be attacked by prevention and by really fighting the causes. There are many kinds of terrorism and many different causes of terrorism. Looking at suicide bombers we see that they are very hard to detect and even harder to prevent from doing their terrible acts. In order to make the world a better place to live in and to increase global safety we must know where the threats really come from. What provokes the terrorist to do these acts? What and who encourage them to do this? What are the causes? And, when we know some of the causes of terrorism, what can we do to change this situation? It is necessary to get insight into what really is the matter and how things are related, before one can make sustainable changes and interventions. This is where a thorough analysis based on the Compram methodology is needed. By handling terrorism as a complex societal problem and applying the Compram methodology, the deep causes and real sustainable interventions may be discovered. For example, more sustainable interventions can be uncovered if one realizes that an aspect of terrorism comes from the power game between the Islamic and Christian worlds; another aspect extends from the economic game between haves and have nots. A safer world has a direct link to education and the poverty gap on micro, meso and macro level. Decreasing the poverty gap and by increasing the level of education including the freedom of acting and education of women will be a good step forward towards world peace (Gökmen, Kayaligil, Weber, Gökmen, Ecevit, Sürmeli, Bali, Ecevit, Gökmen, DeTombe, 2004). These measures take time, and will require profound changes in many countries particularly in the Arab, and African countries and in India where the position of women is far away from independence, and where the riches and goods of the country stay in the hands of some families, and where governments are often highly corrupt.

### **3. Economy**

Global safety is severely threatened by the man made global threat of the credit crisis in the economy since 2008 (NRC, 2008-2009). The credit crisis has like all complex societal problems several causes. The process started around 1980 with the Thatcher-Bush governments' deregulation. It follows the pattern of business management with short term goals that enrich the managers, operations with borrowed money inflate the value of businesses and real estate. Not only the stock holders of many firms became fabulously rich but also the employers of the firm, small individual investors, and pension funds that promised to support the workers after retirement became extremely rich. It is based on the business management models which had been in practice for the past 15 to 25 years. It continued to spiral out of control until fall 2008. In fall 2008 things really start to fail; the lenders cannot loan any more and collapse occurs.

An important cause was the selling of too high mortgages to relatively poor people. These mortgages were in the beginning very profitable for the banks, and were at the start also attractive to the people who bought them because of the low monthly mortgage payments. However after a few years the payments for these mortgages increased quickly, and this, combined with losing one's job, prevented people from paying their mortgage payments.

This left the bank with loans that could not be paid, and people who had to leave their homes. Meanwhile the bank had resold their mortgages to other banks, which in turn resold combined mortgage packages to other financial firms. In the end this made the status<sup>7</sup> of the mortgages unclear and made it difficult to determine whether the loans could be paid back. As a result some banks and mortgage insurers became bankrupt, or nearly bankrupt. As the situation continued a downward spiral occurred which subsequently led to a deep decline in the global stock markets.

On all level of society money was led. For instance by lending too much private money in the USA on large scale combined with increasing the interest and losing jobs ended up into the crisis of October 2008, world wide known as the credit crisis.

Another cause of the credit crisis includes ruthless activities of the managers of hedge funds and private equity funds. The hedge funds and private equities easily took over huge companies all over the world. Companies which had been built up by the hard work by local people over the last 50 to 100 years have been brought to bankruptcy as sources of credit diminished. Recently many firms were bought with only 1 to 10% of their value in cash<sup>8</sup>, the rest of the purchase price borrowed. After the deal the firm which was taken over often had to pay all the expenses for closing the deal and was billed for ‘advising’. The CEO<sup>9</sup> of the firm himself often benefits largely from the deal<sup>10</sup>. Companies have been sold out by their own managers who actually had little or no interest in the continuation of the firm beyond their own personal gain. These managers have been extremely well paid through salary and bonuses, which lack little relation to their actual achievements. As well many of these managers received golden handshakes in spite of obvious mismanagement, and moved on to carry on their tricks in other firms. Often these managers have not been raised in the firm, and are therefore cultural outsiders. It is easy for them to sell the firm because they have not made long term investments in the firm, and have had neither a personal loyalty to the firm, nor any emotionally connections. They lack any feelings of responsibility to the employees<sup>11</sup>. Such cultural outsiders as managers can be a threat to the firm. In these cases the short term interests of these managers prevail over job security for the employees, as well as the long term interests of the shareholders.

Yet another cause of the credit crisis is the gambling on the stock market by scrupulous although often highly esteemed men from large well respected banking offices and organizations, where the people in charge seem to have an endless greed for money, and ruthless disrespect for the negative consequences of others<sup>12</sup>. It is obvious that the governments currently have little or no control over the actions of firms on which 30-50% of the society is dependent. Thus, the world seems to be on the mercy of big gamblers<sup>13</sup>. More and more there comes a plea for worldwide institutions which can control the financial markets worldwide in favor of the majority of the people.

Suddenly after October 2008 the apparently local credit crises in the USA became a world wide economic crisis due to a huge reduction in the value of the shares of the banks in the stock market. This created many panic reactions by the governments. The governments in Europe and USA felt that they should hand out enormous loans to support banking system<sup>14</sup> or, in some cases, to change a private bank temporarily into a state owned bank<sup>15</sup>. By doing this the government put enormous amounts of money into the hands of obvious incapable managers, almost without any guarantees of performance or restrictions on their behavior<sup>16</sup>. Subsequently, these ‘loans’ will cost the people a great deal of tax money. Money that could be spent on education, healthcare, social services and culture. Where do these enormous

amounts of money come from? Is the people's money well invested? Did the government get enough stable guarantees? There are many uncertainties in answering these questions. What is needed is a thoroughly analysis of the problem and only then one is able to take sustainable measures. The credit crisis is another situation that should be handled not as a financial problem but as a complex societal problem and be treated as such. This provides another example of a possible application of the Compram methodology.

#### **4. Healthcare**

Another threat to global safety is in the field of healthcare. Here are global natural threats, local natural threats and man made threats. Unfortunately the governments of many countries do not provide adequate healthcare services to protect their population.

A global natural threat is the threat of the virus of HIV/Aids. In Africa, the people of southern Sahara have already suffered for more than 20 years from the HIV/Aids epidemic. The African governments are very reluctant to recognize this threat as well as reluctant to provide adequate education or treatment for it with or without the help of the richer countries<sup>17</sup>. The HIV/Aids epidemic also is emerging strongly in Asia (China) and in Russia. Meanwhile other diseases like malaria and typhus have still not been wiped out. Typhus appears every time crowds of people are forced together such as in the case of refugees from a war or a disaster and the standards of sanitation are diminished. The local natural threat of malaria also arises too often up from the swamps in warm climates.

Local man made threats to healthcare are for instance seen in Turkey, which has high quality (usually private) hospitals in the large cities, while many small villages lack even the simplest level of healthcare services.

In the USA millions of people can not afford to pay the price of the privatized health insurance, or, when they are insured have only access to simple treatments because the more expensive interventions are not included in their healthcare insurance package. Although knowledge, skilled employees, medicines, technology and hospitals are nearby, available good treatment is often too expensive for large parts of the population in the USA.

In West-Europe, although healthcare is better taken care of in general, there are also healthcare threats that could have been easily avoided. Taking The Netherlands as an example, there is a reasonably good healthcare system and almost all of the people are completely insured at reasonable prices. But still there are yearly 23000 unnecessary injuries from the wrong treatments in the hospitals, starting from the administration of the wrong amount of medicine to the amputation of the wrong leg. These errors lead to 1700 avoidable deaths (Wal, van der, 2007). These casualties are avoidable because the knowledge exists to treat the illnesses correctly; however, they are due to human mistakes based on miscommunication, carelessness and ignorance. Miscommunication may often be due to unbalanced power between male doctors and female nurses, combined with high work loads and stress. Other factors influencing healthcare are the greediness of people working in the medical world, over confidence of health professionals, and the meanness of insurance companies. Healthcare is thus a complex societal problem which should be treated as such by using a methodology like Compram.

## 5. Agriculture

The agricultural business which provides food for all the people in the world can sometimes be a threat to the health of people and thus to global safety.

A recent example of a global natural threat is bird flu originating in South-East Asia and spread by wild ducks migrating to other parts of the world. As a consequence this disease has been transmitted to duck and chicken farms in Europe.

An example of a local man made threat through agriculture is Bovine Spongiform Encephalopathy (BSE)<sup>18</sup>, also known as mad cow disease, a disease seen in cows in England in the years 2001 and 2002. This disease may be transmitted to humans through the consumption of infected beef. In humans it develops as the Creutzfeldt-Jakob disease, a disease that damages the human brain and is ultimately fatal. This disease was inadvertently spread by feeding cows a mixture of feed to which the ground bones of sheep were added to provide calcium.

In the Netherlands in the last decade of the 20<sup>th</sup> century the pig manure problem was created. Because of government intervention in the form of subsidies to farmers too many pigs were raised. These pigs produce huge quantities of manure, which pollute the ground water and runoff water, subsequently polluting the streams, rivers, lakes and sources of drinking water for animals and humans. All forms of monoculture in the raising of animals as well as in raising of crops produces situations in which the food supply is very vulnerable to the onset of a sudden disease. A single disease can then easily attack whole areas of the agriculture business and consequently limit the human food supply.

Gene manipulation has been introduced into many aspects of agriculture and there is much uncertainty of how the results will affect human health. Now and then a serious problem in agriculture arises and gets some attention in the news media and then gets the attention of the politicians and government. However, as soon as the media attention is withdrawn, most of the political interest also rapidly declines.

Again, agricultural business can be considered as a complex societal problem and should be handled by using the methods and tools of the field of societal complexity such as that provided by the Compram methodology.

## 6. Policy making

Politicians make decisions and strategies in guiding all the problems mentioned above. However their view on the problem is often shallow, narrow minded and mono-disciplinary instead of being open and multidisciplinary. All the real life problems mentioned above are multidisciplinary problems and should be handled as such, beyond the boundaries of their primary field. Most politicians directly jump to conclusions and start formulating interventions without taking the time to really see what is going on. By doing this they are not aware of the real causes and the many complex relationships involved in the problem. This deeper understanding is crucial to the development of sustainable and satisfactory changes. Politician must take time to formulate the problem first and should not handle the problem as a simple mono-disciplinary issue but consider this kind of problem as a complex societal problem which should be handled through a multidisciplinary approach.

Most real life problems are complex societal problems and must be treated as a multidisciplinary and multi actor issue, which means a multidisciplinary knowledge approach, a multi actor power approach and including the emotional aspects of the problem. One must take time to define the problem before considering interventions. Defining the problem means making a model (e.g. a system dynamic model) of the relationships among the phenomena involved in the problem, which leads to an overview of the related phenomena and also indicates the strong and weak power groups that are involved. This must be performed by a group of multidisciplinary experts. Power groups are invited to give their view of the problem. Experts and power groups together have to find acceptable changes, trying to formulate interventions based on the development of various scenarios presented as possible changes to the problem. These requirements are met by the Compram methodology.

It is very hard for politicians who have almost all been raised in the traditions of mono-disciplinary problem solving to handle a multidisciplinary problem. However, even when they are willing to handle a problem from a multidisciplinary perspective, the whole infrastructure of the government and the society in general has a mono-disciplinary structure that inhibits and makes it difficult for willing politicians to adopt multidisciplinary approach. Therefore multidisciplinary knowledge institutes should be created which enable experts and politicians to study complex societal problems using multidisciplinary approaches. These institutes should be based on the Compram methodology approach.

## 7. The Compram methodology

The Compram methodology<sup>19</sup> is a methodology for handling complex societal problems in a transparent and structured way. Handling in this case comprises analyzing, policymaking, decision making and guiding and evaluating the interventions. The Compram methodology is developed by DeTombe in 1994 and has been extended since then (DeTombe, 2001, 2008). The Compram methodology focuses on the whole spectrum of the problem handling process from awareness of the problem to evaluating the interventions.

The Compram methodology consists of six steps (see Figure 1). These six steps give the main guidelines for handling a complex societal problem. Within the steps there is room for applying a number of methods and tools.

Step	Action
Step 1	Analysis and description of the problem by a team of neutral content experts: accumulates knowledge from several perspectives
Step 2	Analysis and description of the problem by different teams of actors: power
Step 3	Identification of interventions by experts and actors: focus on the power game.
Step 4	Anticipation of the societal reactions: emotions
Step 5	Implementation of the interventions
Step 6	Evaluation of the effects of the changes

**Figure 1** – The six steps of the Compram methodology.

In the first step, the problem is analyzed and described by a team of neutral content experts, who accumulates knowledge from several perspectives. In the second step, the different actors analyze and define the problem, and describe their desired changes. In the third step the experts and actors try to find interventions, which are mutually acceptable. In the fourth step the societal reactions to the selected interventions are anticipated. In the fifth step the interventions are implemented. Then in step six the changes are evaluated from the original perspective as well as from the changing perspectives that develop along the process. Also the problem handling process itself is evaluated in this step. Through the whole process emotions play a significant role, as well as in the problem handling process itself, as well as in the reactions of the society towards the problem<sup>20</sup>.

The Compram methodology is created to handle complex societal problems. A complex societal problem is a real life problem, which has a large and often varied impact on different groups of society. The problem has often an impact on all the levels of the society on micro, meso and macro level. Often it seems that the problem suddenly ‘pops-up’ or suddenly emerges. The problem is dynamic, it changes during its development and the future development of the problem is uncertain. It is often difficult to become aware of the problem, and difficult put it on the political agenda. It is difficult to get grip on the problem, to handle the problem and find an acceptable change to it. Only changes are possible, not ‘solutions’. The problem has knowledge, power and emotional components. The problem consists of many phenomena which are intertwined with each other in a complicated way. Often there is a lack of knowledge and the data are incomplete, uncertain or in contradiction with each other. The problem is interdisciplinary and is necessary to use theories from different knowledge fields to explain what is happening. There are many parties involved. Each party has a different view on the problem, a different definition of the problem, and has different goal and desires relative to the problem. The different parties involved have different power relationships within the problem field. Consequently, the parties often have different ‘solutions’ to offer for the problem. The problem often provokes strong emotions among the greater society.

Compram methodology is a framework method. This means that the method provides an overall approach to handle the problem, rather than a detailed step-by-step specification. For supporting this process it uses all kinds of supportive tools. The method is based on the three basic elements in handling complex societal problems: knowledge, power and emotion. Different data analyzing tools and knowledge elicitation tools, such as brainstorming and interview tools, are used to elicit and analyze the data. There are methods and tools for selecting participants, for data retrieval, data manipulation, and simulation, as well as for reflecting on the results. Games, for example, can be fruitful instruments for reflecting on the consequences of an intervention. Some tools, for example the seven-layer model (DeTombe, 1994), are developed specially to support the knowledge exchange and communication between the members of the interdisciplinary teams.

A facilitator guides the problem handling process. The facilitator must decide what methods and tools can support the problem handling process, in addition to following the prescribed steps of the framework method, depending on the specific problem, the problem handling team, the moment in the problem handling phase, the time and money available. This demands that the facilitator has knowledge of a variety of methods and tools that can be applied. Next to methodological expertise, computer knowledge is required. However, the facilitator should also be able to guide group processes, be aware of knowledge confusion, power differences and emotions, and issues such as hidden agendas, envy and group-think. Group-think in decision making, which is by definition negative, occurs when the individual

critical thinking is surrendered to conform to a mutual decision. In large problem handling processes, facilitators do not have to know how to perform all the support methods and tools personally. They may be assisted by other specialized facilitators, who guide the teams with the support of a specific method or tool.

## **8. To a safer world**

What can be done to create a safer world? Creating a safer world needs more and other things than technological innovation only. A safer world is connected to nature and culture. It needs protection from threats from nature wind, water, sun and earth quakes, and is connected to all cultural elements in society like people, government, organizations, industry and infrastructure. Reflecting on problems of global safety is reflecting on complex societal problems like earthquakes, floods, tsunami's, flu pandemic, war, terrorism, healthcare, economy and agriculture. Multi-disciplinary knowledge on how to handle societal complexity is highly needed.

In order to develop and combine the knowledge, the methods and tools for handling societal complexity problems, like global safety, special multidisciplinary knowledge institutes should be created that can become aware of future and now-a-days dangers and threats. These institutes perform multidisciplinary research and advice policy makers on how to handle global safety issues using an integrated multidisciplinary, multi actor approach. In order to accomplish this, each country should establish multidisciplinary centers for research on societal complexity. These institutes should focus on their own specific local complex societal problems in cooperation with the already existing alike institutes on global threats.

These centers should be closely connected to the university. Inside the university a department for societal complexity may be established. In order to give some ideas this department can start with a team of scientists consisting of a full professor with an associate professor, two assistant professors, some PhD students and a supporting staff. In this way the body of knowledge can grow. This department can develop methods and tools for handling complex societal problems further and combine the knowledge of different fields necessary to handle a special complex problem. For analyzing a complex societal problem this team should work closely together with scientists from relevant disciplines concerning the special problems they are addressing. The university department should also take care of the introduction of the field of societal complexity to students of other disciplines. After graduation many students will be confronted with complex societal problems in their field: problems that go beyond the limits of their discipline. Introducing the students during their education in how to handle societal complexity in issues related to their field is very important. For instance, introducing future engineers to flood problems, agricultural students to bird flu and BSE, economics students to the problem of credit crisis and medical students to HIV/Aids and mismanagement in the hospitals, not as a mono-disciplinary problem but as a complex societal problem, makes it possible for them to know how to begin handling a complex societal problem later in their carrier. In this way the knowledge about handling societal complexity is transferred to society.

The institute JST-RISTEX<sup>21</sup> in Japan is a good example of this. Outside but closely connected to the university scientists of different disciplines work together to map the complex issues. In December 2005 there was a workshop on Global Safety held in Japan co-organized by this institute and the OECD<sup>22</sup>. At this workshop experts discussed the necessity to handle global

safety in a multidisciplinary way, using a bird's-eye view on the problem. The workshop on Global Safety recognized that interdisciplinary complex societal problems should be multidisciplinary approached. The Compram methodology of DeTombe provides a way of accomplishing this<sup>23</sup>.

In order to be able to handle safety as a complex societal problem the 'Final consensus report on Science and Technology for a Safer Society from the OECD Global Science Forum Workshop<sup>24</sup>' agreed that each OECD country is to establish an institute of safety closely connected to the university that connects all kinds of safety issues in the country and in the world. A quote from the report:

*“Transfer of knowledge of the field of societal complexity and social science to real life: It is important to transfer the scientific knowledge of how to handle societal complexity to the government and politicians. A special program, developed by the departments or institutes described above should be established to take care of this. Some of the transfer of knowledge can be done via students during their university education after the above described university departments are established. To transfer the knowledge of ‘how to handle societal complexity’ should also be transferred to the contemporary decision makers and politicians.”*

Scientific social research is not highly appreciated in the area of people who make decisions in complex societal problems, for instance to politicians. This is a serious problem which should be addressed. Social research, including research of societal complexity, has reflected in great detail on how to handle these kinds of complex societal problems. Handling the problem according to the knowledge of this field would save lives, problems and money. Nevertheless politicians and decision makers persist in neglecting the major body of knowledge for handling complex societal problems. Understanding societal complexity is absolutely needed in order to get a safer world.

Recommendations for establishing a Research Institute for Global Safety<sup>25</sup>

A. Global Safety is a Complex Societal Problem

Global Safety issues should be handled as complex societal problem. This means handled like an integrated problem, where the parts of an issue are interrelated. One should look at the problem as a whole with 'a bird's eye view', not only looking to single aspects, but handle the whole problem integrated.

B. Integrated Approach

Handling complex societal problems, in casu Global Safety needs an integrated approach, not only handling single aspects, but handling the whole problem with all its aspects at the same time, such a economic, social, political and behavioural aspects.

C. Multidisciplinary Knowledge Approach

Because the problem consists of many aspects, which are too difficult to overlook by one person, one needs a multidisciplinary approach. A multidisciplinary team of experts is needed where each expert sees a part of the problem and together these experts, supported by knowledge exchange with the use of simulation models and scenario's, overlook the whole problem with all its aspects: all its phenomena, the past of the problem, the possible future development, the actors, the power and the emotions.

#### D. Integrate Actors: the Power Relationships

The power relationships of the complex societal issues are in the hands of many actors. In order to be able to intervene, to change something, the cooperation of the other actors is necessary. The actors should be integrated into the policy making process at an early phase.

#### E. Include the Emotions and Effect

Complex societal problems have a huge effect on many aspects of the society. This provokes much emotion. This emotion should be carefully considered in the problem handling process. Most decision making processes exclude emotions and assume decisions are taken on rational behavior. However in problem handling people act primarily driven by their emotions, which are rationalized later on. A fruitful methodology should include the emotions into the problem handling process.

#### F. Beware of Technological ‘Solutions’

The safety issues are composed of not only technical aspects but social aspects as well. In fact, in most cases the latter are dominant, and any purely technological solution cannot be fully effective if it does not adequately account for the human dimension. “Many safety challenges are inherently multi-disciplinary, but, unfortunately, the body of accumulated useful knowledge (principles, theories, techniques, devices, best practices, etc.) is largely fragmented.”<sup>26</sup>

All these requirements are met by using the Compram methodology of DeTombe.

### 9. Safety in The Netherlands

Each country encounters particular special threats to global safety issues that need special attention. The government of The Netherlands oversees healthcare to assure the safety of medical treatment, and assures safe food supply, a relatively safe environment, traffic and transportation safety and, in a country like The Netherlands provides means to prevent drowning. In order to do so the government created special institutes to take care of our safety. To name a few: the Ministry of Transport, Public Works and Water Management, institutes like TNO<sup>27</sup> and RIVM<sup>28</sup> for technological safety and environmental and healthcare safety, and institutes closely related to universities like a risk and disaster institute in Leiden<sup>29</sup>, several institutes for quality of food in Wageningen, and special task forces in preventing terrorism. Each institute is specialized in and responsible for a special item concerning safety. However not all threats are covered in special institutes and new threats are not directly integrated<sup>30</sup>. Real life problems may not be restricted to one of our specialties, often they combine two or more specialties. Modern day threats are not restricted to the limits of our scientific fields and may require new approaches to the accumulation of knowledge. As in all the OECD countries The Netherlands must create a special multidisciplinary knowledge institute for handling complex societal problems like those that provide safety. This institute should coordinate and combine the knowledge of the different institutes concerning all kinds of threats to people in the Netherlands. This institute must also educate students and train policy makers in the handling of complex societal problems, as advised in the OECD report of July 2006.

## 10. Conclusion

Since 9/11 the focus on safety is primarily centered on terrorism, not so much because terrorism is the biggest threat to safety, but because it is the main threat to the stability of the state. However, as we have seen there are many threats to our safety besides terrorism. Handling complex societal problems needs a multidisciplinary and multi actor approach from the moment of defining a problem to changing a problem. A complex societal problem is a multidisciplinary problem. For understanding the problem one must combine knowledge from different disciplines. This should be done by a multidisciplinary team of mono-disciplinary educated scientists. Together this multidisciplinary team can make a model and a description of the problem in order to see what the causes, the effects and emotions are and which power groups are involved. Then the related power groups should be invited to give their view on the problem and to see which interventions they want to have. Taking the emotions into account, changes can be suggested and interventions can be implemented into real life.

For a long time the governmental departments for handling issues for safety were separated and mono-disciplinary, although the reality has always been multidisciplinary. Dividing the world into mono-disciplinary fields of knowledge starting about the year 1500 was probably a good idea and led to a multitude of important discoveries, and the development of several improvements to quality of human life. However, now it is the time to reconsider this approach and to combine the knowledge gathered in separate disciplines through fruitful cooperation. No matter how difficult it is to do this, simple solutions are not the answer to real life complex problems. Politicians, experts and scholars should not continue to oversimplify the complex societal problems. Doing this, they miss the real problem and waste much human energy, tax money and other resources, while the actual threats to the safety of the population remain. The creating and development of special knowledge institutes for handling multidisciplinary research aimed at handling complex societal problems is a good step forward in dealing with the ever growing complexity of the world, and searching for sustainable answers to complex problems. This problem handling process can be performed in a structured, transparent and democratic way according to the guidelines of the Compram methodology of DeTombe.

## References

- (1) DeTombe, D.J. (1994). *Defining Complex Interdisciplinary Societal Problems: A theoretical study for constructing a co-operative problem analyzing method*. Thesis Publishers, Amsterdam.
- (2) DeTombe, D.J. (2001). COMPRAM, a method for handling complex societal problems. *European Journal of Operational Research*, **128**(1), 266-282.
- (3) DeTombe, D. (2002). *War on terror*. Lecture given at the New York State University Purchase October 2002.
- (4) DeTombe, D. (2008). Towards sustainable development: a complex process. *International Journal on Environment and Sustainable Development*.
- (5) Galbraith, J. (1954-reprint 1997). *The great crash: 1929*.

- (6) Gökmen, A.; Kayalığıl, S.; Weber, G.-W.; Gökmen, İ.; Ecevit, M.; Sürmeli, A.; Bali, T.; Ecevit, Y.; Gökmen, H.; DeTombe, D.J. (2004). Balaban Valley Project: Improving the Quality of Life in Rural Area in Turkey. **In:** *International Scientific Journal of Methods & Models of Complexity*, ISJ M& MC, SISWO, Amsterdam. ISSN-0928-3137, <<http://www.fss.uu.nl/ms/cvd/isj>>.
- (7) Kets de Vries, M.F.R & Miller, D. (1985). *The neurotic organization: diagnosing and changing counterproductive styles of management*. Jossey-Bass, San Francisco.
- (8) Kets de Vries, M.F.R. (1996a). *Een zaak van de familie*. Academic Service, Schoonhoven.
- (9) Kets de Vries, M.F.R. (1996b). *Organisatie paradoxen*. Academic Service, Schoonhoven.
- (10) Kets de Vries, M.F.R. (1997). *Op leven en dood in de directiekamer*. Scriptum, Schiedam.
- (11) Kets de Vries, M.F.R.; Carlock, R.S. & Florent-Treacy, E. (2007). *Family business on the couch: a psychological perspective*. Wiley, Chichester.
- (12) Kets de Vries, M.F.R. (2007). *Leiderschap ontraadseld*. EAN 9789052615882.
- (13) OECD (2006). Final consensus report on Global Safety. Report on the Workshop on Science and Technology for a Safer Society, 20-Jul-2006. <<http://www.oecd.org/dataoecd/29/2/37163745.pdf>>
- (14) New York Times (period 2003-2008) (USA Daily quality Newspaper). *Second Iraq war*.
- (15) New York Times (2007) (USA Daily quality Newspaper). *Global Warming*. New York, February 2, 2007.
- (16) New York Times (period 2008-2009) (USA Daily quality Newspaper). *Credit crises*.
- (17) NRC (2000a) (NRC Dutch Daily quality Newspaper). *AIDS in Zuid Afrika*. 9.10, 11 March 2000.
- (18) NRC (2000b) (NRC Dutch Daily quality Newspaper). *Oorlogen in Africa*. May 2000.
- (19) NRC (2001) (NRC Dutch Daily quality Newspaper). *Pharmaceutische industrie verlaagd prijs AIDS medicijnen in Africa*. Spring 2001.
- (20) NRC (period 2003-2008) (NRC Dutch Daily quality Newspaper). *Oorlog in Irak*.
- (21) NRC (2008-2009) (NRC Dutch Daily quality Newspaper). *Information on the credit crisis among that of Madoff, the Fortis bank and the ABN Amro*.
- (22) NRC (2009) (NRC Dutch Daily quality Newspaper). *AIG*.
- (23) Shilts, R. (1986). *And the Band played on. Politics, People, and the AIDS Epidemic*. St. Martin's Press, New York.
- (24) Smit, J. (2008). *De prooi: blinde trots breekt ABN Amro*. Prometheus, Amsterdam.
- (25) UNAIDS (2000a). *Enhancing the greater Involvement of People LIVING with or affected by HIV/AIDS in Sub-Saharan Africa*. UNAIDS, Geneva.
- (26) UNAIDS (2000b). *The International Partnership Against AIDS in Africa*. UNAIDS, Geneva.
- (27) Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act (2001). *H.R.3162 USA PATRIOT Act Public Law 107-56*.

- (28) Utsumi, T. (2003). Globally Collaborative Environmental Peace Gaming. *Global Peace Through The Global University System*. University of Tampere Press, Tampere, Finland. <[http://www.friends-partners.org/GLOSAS/Global\\_University/Global\\_University\\_System/UNESCO\\_Chair\\_Book/Manuscripts/Part\\_IV\\_Global\\_Collaboration/Utsumi\\_Tak/GCEPG\\_D10\\_Web/GCEPG\\_D10.htm](http://www.friends-partners.org/GLOSAS/Global_University/Global_University_System/UNESCO_Chair_Book/Manuscripts/Part_IV_Global_Collaboration/Utsumi_Tak/GCEPG_D10_Web/GCEPG_D10.htm)>
- (29) Wal, van der G. (2007). Preoperatief traject ontbeert multidisciplinaire en gestandaardiseerde aanpak en teamvorming. Onderzoek naar het preoperatieve traject van het operatief proces in algemene en academische ziekenhuizen. The Hague, GGD rapport February 2007. Public healthcare report 'Pro-operative route lacks multidisciplinary and standardized approach and teamwork'.
- (30) Wikipedia (Dutch). <<http://epic.org/privacy/terrorism/hr3162.html>>.
- (31) World Bank (1999). *Confronting AIDS. Public Priorities in a Global Epidemic* (rev edn). Oxford University Press, New York.

## Notes

- <sup>1</sup> In this article we make no difference between the term actor and stakeholder. The term indicates a party with a certain interest in the problem.
- <sup>2</sup> In September 9<sup>th</sup> 2001 there was an attack in the USA on the Pentagon in Washington, the Twin Towers (centre of financial business) in New York and on a third object by flying planes with passengers into buildings, assumedly performed by an Al'Qaeda group.
- <sup>3</sup> In Africa, Egypt and Algeria, in Asia, Turkey and in Europe by the IRA in northern Ireland, the Basks in northern Spain, the RAF (Rote Armee Fraction) in Germany.
- <sup>4</sup> For entering the USA from 2003 on. Air travel safety and the checking of individuals has been conveniently combined to provide the state with more information about the movements of its residents and visitors.
- <sup>5</sup> The Patriot Act is the popular name of 'Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act'. The law (Public Law 107-56; <http://epic.org/privacy/terrorism/hr3162.html>) has passed the House of Representatives October 24, 2001 and is accorded by the Congress in 2003. This act is followed by the Intelligence Authorization Act signed by George W. Bush at the end of 2003 (source Wikipedia). This last act is an elaboration of the Patriot Act and allows the FBI even more research freedom.
- <sup>6</sup> These activities were guided by the Stasi (Ministerium für Staatssicherheit) Ministry of State Security from 1950-1989 in East Germany.
- <sup>7</sup> The status of a loan can be a risky or a solid investment.
- <sup>8</sup> Buying without having the money to buy is an action that now and then arises in the world. Galbraith report that this kind of behaviour was performed just before the bank crash of 1929 Galbraith (1954, 1997, p. 16-20), in 1926-1928 in Florida by buying land acres only for speculation with down payment of 10% and full profit of reselling.
- <sup>9</sup> CEO is chief executive officer.

- <sup>10</sup> In 2008 the ABN/Amro a huge well respected Dutch bank was sold out by its manager Groenink who benefit from this deal by getting 23 million Euro (about 36 million US dollar) (Smit, 2008).
- <sup>11</sup> Kets de Vries (Kets de Vries & Miller, 1985; Kets de Vries, 1996a, 1996b, 1997; Kets de Vries, Carlock & Florent-Treacy, 2007) indicated in research to managers of firms that 19% of the managers are psychopaths.
- <sup>12</sup> Mostly men are CEO of these institutes. A special event was done by Madoff (USA). Madoff was well respected in his circles of friends but gambled for decades with billions of dollars from private persons and charity funds. He finally was brought to justice in the end of 2008, leaving many funds and private people with a lost of billions of dollars. He pleaded guilty in March 2009, however without paying back the money that was left over (New York Times, 2008-2009; NRC (2008-2009) period October to December 2008 and March 2009).
- <sup>13</sup> George Sores who bankrupted many businesses in Asia in 1995 which resulted in huge poverty and tragedy by many people in Asia.
- <sup>14</sup> A system bank is a bank which deals with private money of the people.
- <sup>15</sup> The Fortis Bank, October 2008 the Netherlands (NRC, October 2008).
- <sup>16</sup> See the protest in the USA to the bonuses of the AIG in March 2009 which is supported by tax money of the government of billions of dollars in the year 2008. This firm hands out bonuses to their managers to a total of 165 million. These are the same managers whose behaviour had caused the company's downfall (NRC, 2009).
- <sup>17</sup> In Durban, South Africa the infection rate of people with HIV is 40%. Some information about HIV/Aids: Shilts, 1986; World Bank, 1999; UNAIDS 2000a, 200b; NRC, 2000a, 2000b, 2001.
- <sup>18</sup> BSE stands for Bovine Spongiform Encephalopathy which can cause disease in the brains of animals and humans. For humans the disease is called Creutzfeldt-Jakob disease. Animals were infected in England in the years 2001 and 2002.
- <sup>19</sup> Many articles are published on the Compram methodology. We take the liberty for those who want to read more about this methodology to refer to some of these articles for prevention of the repetition of too many things and for taken up to much space in this article. For a simple over view of the Compram methodology DeTombe (2001). For a more elaborated piece of the Compram methodology DeTombe (2008). For the development of the Compram methodology and the theoretical background DeTombe (1994). See for more information general information about The Compram methodology: [www.complexitycourse.org/doriendetombe.html](http://www.complexitycourse.org/doriendetombe.html).
- <sup>20</sup> For more information about complex societal problems and the Compram methodology see: [www.complexitycourse.org/doriendetombe.html](http://www.complexitycourse.org/doriendetombe.html).
- <sup>21</sup> JST-RISTEX, guided by Prof. Dr. Horii, is created around 2001 as a cooperation between the government of Japan and the university of Tokyo. The ideas of JST-RISTEX are based on the ideas of the Compram methodology of DeTombe, created after a visit of a group delegates of the University of Tokyo to DeTombe in the Netherlands in early 2001.

- <sup>22</sup> The OECD is The Organization for Economic Co-operation and Development and includes Europe, USA and Japan.
- <sup>23</sup> In the report of this workshop the qualities of the Compram methodology of DeTombe were recognized by the OECD for handling interdisciplinary complex societal problems. In the report about Global Safety, Japan December 2005, in which DeTombe strongly participated, the reasons and motivation are explained.
- <sup>24</sup> The ‘Final consensus report’ is published in May 2006, page 1 and 2, point 2 and 3. [http://www.oecd.org/LongAbstract/0,2546,en\\_2649\\_34269\\_37163752\\_119666\\_1\\_1\\_1,00.html](http://www.oecd.org/LongAbstract/0,2546,en_2649_34269_37163752_119666_1_1_1,00.html) (OECD, 2006).
- <sup>25</sup> The author takes the freedom to quote some pages of the report in which content she had a large part in winter 2005/2006 in cooperation with Japan and the workshop on Global Safety of the OECD, December 5,6 2005 (OECD, 2006).
- <sup>26</sup> The ‘Final consensus report’.
- <sup>27</sup> TNO stands for The Netherlands Organization for Applied Scientific Research. Dutch: de Nederlandse organisatie voor toegepast natuurwetenschappelijk onderzoek.
- <sup>28</sup> RIVM stand for Rijksinstituut voor Volksgezondheid en Milieu Dutch Governmental Institute for public Healthcare and Environment.
- <sup>29</sup> COT Dutch: Instituut voor Veiligheids- en Crisismanagement BV.
- <sup>30</sup> Recent examples of threats to safety in The Netherlands are: floods of the river Rhine (this is already a long time, but always returning issue, more than 500 years). New problems are related to immigrants in the large cities, climate change in relation to flooding with water protections and the possible terrorist acts within the country.