

Sustainability Management Based Approach to Global Warming: Cgw Model and Global Warming Factor Score Formula

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Abstract

The global warming is a kind of sustainability factor. For this reason, Global Warming should be considering in Sustainability Management concept. The global warming based events and factors must be managed effectively since its consequences threats for sustainability of our world. While this is understandable by all of us, a broader view is necessary to manage this risk in both the short and long-term. Sustainability management mentality is useful to the best managing of global warming based factors and events. In this study, the global warming is discussed within sustainability concept. The sustainability management-based model and global warming factor scoring formula has been developed to global warming. This model is entitled as Cgw (Sustainability Management Model to Global Warming), introduced as a useable way for a systematic and effective managerial approach of the global warming issue. Every factor has two dimensions as threat and opportunity in the holistic management concept that it is considered in the Cgw model.

Keywords: Global Warming, risk, Sustainability, Sustainability management

1. Introduction

While sustainable development and sustainability risks are not necessarily new, it is only recently that their impacts are being felt by businesses. Environmental and social risk costs, which for years were externalized, are increasingly internalized to the firm (Anderson, 2006).

In recent years, global warming and its consequences have become a key international issue for both industrialized and developing countries. The global warming risk looks to be the serious threat to our species and all living beings on the world. Its consequences are numerous and varied. As it is obvious by its name, Global Warming is a global phenomenon with a number of effects on the global level. Global warming has various effects, ranging from the effects to the atmosphere to the economical, environmental as well as the health life of human beings. There are also a number of effects to the nature and atmosphere. One of the most serious effects of Global Warming that humans have to think about is the effects on the health of individuals, nations and therefore civilizations (D'Silva, 2008).

This paper presents a suggestion model to integrating global warming based factors and its impacts into sustainability management and other strategic planning activities in public and private sector organizations. The study is aimed to support current management efforts about sustainability and global warming in the world. This study is also aimed to contribute to management and organization literature regarding to the sustainable development and global warming subjects.

Sustainable management is defined as value focused management based on a vision of creating a sustainable enterprise in a sustainable society. The article describes the integration of the goal of sustainable development in corporate strategy. The steps in the strategy process are discussed and relevant management models are presented.

The basic idea in the article is that sustainable management demands a three dimensional management system including the environmental, social and economic dimension. The conclusion is among other things that sustainable management is an *extended ethical responsibility* where there is no distinction between business, ethics and politics. The superior goal will be *sustainability*, which involves satisfying all stakeholders, instead of a bias towards profits or value maximisation for the present owners.

The article divided into four main sections. The following section describes sustainability, global warming and risk management concepts and their relationships. In the third section is given importance of sustainability management. The new sustainability management process to global warming and risk score formula are given in fourth section. Overall conclusion is given last section.

2. Understanding Link between Sustainability and Global Warming

Events can have negative impact, positive impact, or both. Events with a negative impact represent risks, which can prevent value creation or erode existing value. Events with positive impact may offset negative impacts or represent opportunities. Opportunities are the possibility that an event will occur and positively affect the achievement of objectives, supporting value creation or preservation (COSO, 2004).

In the context of global warming factor assessment, uncertainty arises because, we do not know certainly the magnitude of the global warming and their associated impacts and in some subjects it is not clear. Also, uncertainty may arise because decision makers do not know the threshold at which global warming impacts have a particular level of consequence for organization.

Sustainability Management (SM) is not a fad or one time event. SM being embedded in the culture is necessity to the effective risk management implementation. Holistic SM, in the environmental, health and safety functions, is important to any organization, but especially to the sustainability of the world.

Global warming is threats sustainability to the world. Impacts of global warming is creates important negative results to social, economic and environmental systems. Global warming risk is managed by holistic risk management and provides sustainability. For this reason, risk management is key factor between global warming and sustainability (see fig. 1.).



Fig. 1. Link between global warming, sustainability and risk management. (Kucuk Yilmaz, 2008)

Sustainability management is the process that the systematic application of management policies, procedures and practices to the tasks of communicating, establishing the context, identifying, analyzing, evaluating, treating, monitoring and reviewing risk (The Australian Greenhouse Office, 2006). Sustainability management deals with factors emanating from the environmental and social justice areas (Anderson, 2006). It is include global warming issue.

The sustainability management approach allows companies to save money by anticipating and avoiding expenditures arising from global warming. In addition, operating costs can be reduced through waste minimization, pollution prevention and the elimination of health and safety hazards (BSD Global, 2008).

3. Sustainability Management

As explained by the Global Footprint Network, "Sustainability is a simple idea. It is based on the recognition that when resources are consumed faster than they are produced or renewed, the resource is depleted and eventually used up. In a sustainable world, society's demand on nature is in balance with nature's capacity to meet that demand" (<http://www.sustainableinnovation.org/corp-sustainability-mgmt.html>).

Sustainability is core to business strategy and practice, creating both opportunities and threats. Sustainability is possible via determination of priorities. Sustainability issues in business

management are growing exponentially. The fundamental aim of sustainability management is estimate and handle to environmental, social, and economic threats and opportunities. This definition can adopt for any organization or company. Initially referring to environmental considerations, sustainability now also encompasses social, ethical and economical responsibilities.

For the business enterprise, sustainable development means (see fig 2) adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future (A.T. Kearney, 2008).

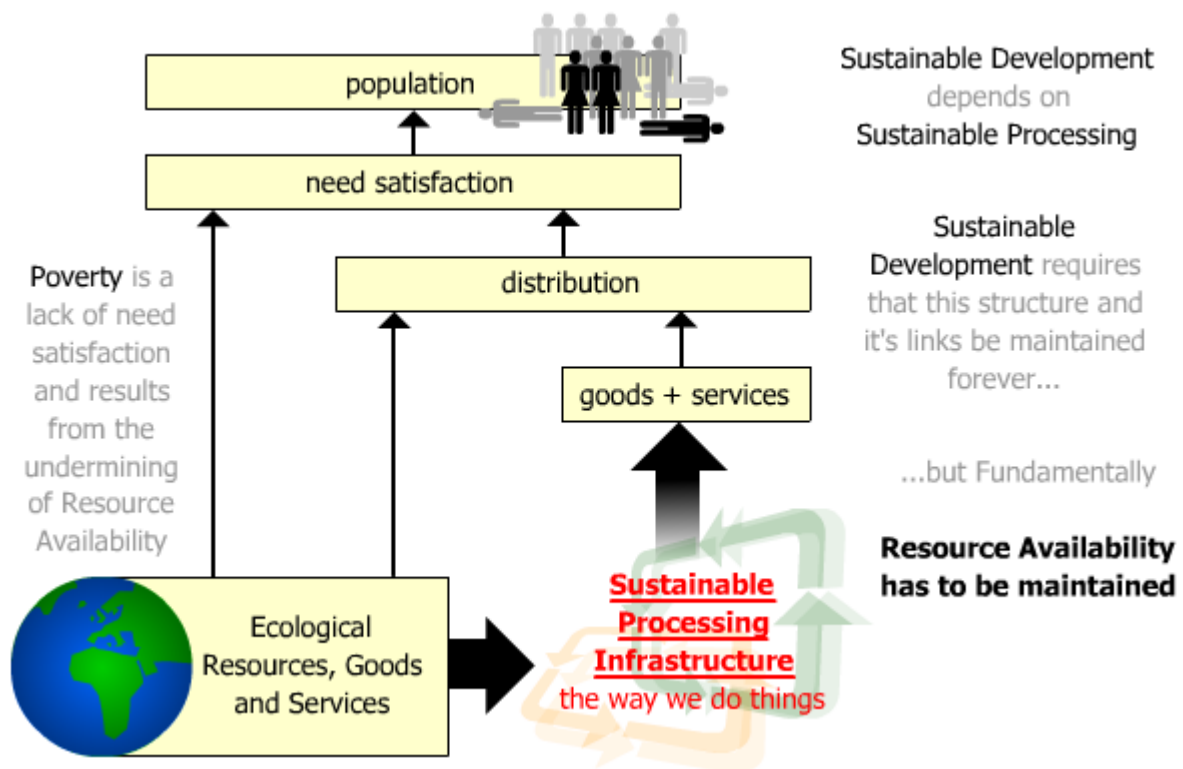


Fig 2. Total Sustainability Management (TSM.org.uk Team, Total Sustainability Management, Sustainable Development Philosophy, <http://www.tsm.org.uk/philosophy/sd.htm>, September 3, 2008)

Sustainability considerations cover how we design and manufacture products, what we offer customers, how we engage suppliers, how we assess threats and opportunities, and how we behave in the communities where we operate and towards one another (ABB Group, 2008(<http://www.tr.abb.com/sustainability>)).

Organizational performance now requires sustainability measures across social, environmental and economic factors, which in turn requires the vital steps of integrating and analyzing data to achieve new goals and transform internal organizational cultures. The most strategic enterprises will use data, and the intelligence gained from it, to their competitive advantage – driving increased brand value through innovation, improving internal efficiencies and accountability, and engendering loyalty of consumers, employees and other

stakeholders (<http://www.sas.com/solutions/sustainability/>) Conducting business in line with the principles of sustainability should be a key element of corporate strategy. Sustainability requires addressing the big picture, which means that the concept behind it extends well beyond our environmental protection activities.

Business Reasons for sustainability management to both doing right job and be right citizen is given as following by Schaltegger (Schaltegger, 2003);

- i. Reduction of technical, economic and social threats
- ii. Cost savings through dematerialization and eco-efficiency
- iii. Integration of parallel activities to increase efficacy and efficiency
- iv. Reference point to create business innovations
- v. Realization of market opportunities
- vi. Responding to social needs and demands of stakeholders
- vii. Social legitimating of business activities
- viii. Role of companies as drivers of economic and social development
- ix. Intrinsic motivation of management

Sustainability management has much threat during its implementation. For this reason sustainability management is also a kind of threat management. Implementation threats about sustainability management are listed by Schaltegger as following (Schaltegger, 2003):

- i. The **analytical** challenge -How sustainable are we? What is a sustainable product? Etc.
- ii. The **values** challenge -What values do our customers, employees, etc. have? What are the firm's values? How do they match? Etc.
- iii. The **tools** challenge - What methods exist? What are their strengths and weaknesses? Which shall we apply? Etc.
- iv. The **integration** challenge - How can we integrate environmental and social management into core management processes and systems? Etc.
- v. The **advocacy** challenge - How can we contribute to a sustainable political framework?

4. Research Methodology: The Sustainability Management Model

Sustainability is a term often used by corporations, politicians and environmental groups to evaluate industrial processes, economic systems and corporate policies (Philips, 2008). Australian government defines Corporate Sustainability a little bit closer to the "Daly Rules." They see corporate sustainability as, "encompassing strategies and practices that aim to meet the needs of the stakeholders today, while seeking to protect, support, and enhance the human and natural resources that will be needed in the future" (Carewren, 2008). These are clearly indicated that risk management is directly linked and interested with corporate sustainability and risk management is highly supported and helped for best corporate sustainability management efforts.

Risk management and sustainable development are frameworks for studying and managing the environmental impacts of human actions; as such each requires indicators for monitoring, decision-making and communication. This paper compares the two frameworks as used in practice, and their experience of using indicators. Sustainable development is a systems-based concept with a long time horizon, a tendency to apply precaution in decisions, and a positive normative 'mission' (development). Risk management focuses on specific, linear chains of cause and effect over short time periods, is typically associated with cost-benefit decision-making, and concentrates on avoiding negative outcomes. However risk management is also potentially a tool for informing and implementing sustainability. Both risk and sustainability are multidimensional constructs which can be indicated in varied ways. The selection of indicators in both fields depends on technical (e.g. robustness, problem-orientation) and communicative criteria (e.g. truthfulness, informativeness, relevance, clarity and resonance) (Gray and Wiedemann, 1999).

Sustainable Management can be applied to global warming subjects. Integrating global warming into Sustainability Management requires a systematic approach, commitment leadership, team work and a systems approach that enables establishment and management strategy and its implementation to best managing of global warming based factors.

The sustainability management implementation is continuous and iterative, requiring an on-going process of factor identification, prioritization, mitigation and reporting (Comgate Engineering Ltd., 2008). This new sustainability management (Cwg) model provides direction and guidance to help managers and decision makers integrate global warming into their daily decisions and to better understand and manage social, environmental responsibilities and corporate performance (see fig-3.). Sustainability Management require to understanding the sustainable development context truly.

Fundamentals and aims of Sustainability Development and Sustainability Management are considered to determination of the steps of Cwg model. Basically, the new model is offered to do best global warming related management practice. The model can provide a reasonable assurance for achieving of sustainability objectives. Cwg model has been developed by Authors according to this model that it is designed as the 6 key components and their sub components.

The context for Cgw model sets up a framework for identifying, assessment and prioritization sustainability factors. It places the assessment on a clear foundation so that everyone works from a common understanding of the scope of the exercise, how risks are to be rated and how the analysis is to be approached.



Fig.-3. Sustainability Management Model to Global Warming entitled "C_{gw} Model" (Kucuk Yilmaz and Karakoc, 2008).

Establishing the context consists of five main parts (The Australian Greenhouse Office , 2006):

1. Global warming and its impacts scenarios
2. Scope – defining the scope of the assessment including activities to be covered, geographic boundaries and the time horizon.
3. Stakeholders – determining whose views need to be taken into account, who can contribute to the analysis and who needs to know its outcomes.
4. Evaluation framework – defining how global warming based risks will be evaluated by clarifying the objectives and success criteria for the organization and establishing scales for measuring consequences, likelihoods and risk priorities.

5. Key elements – creating a framework that will assist in identifying global warming factors by breaking down the organization's concerns into a number of areas of focus and relating them to the global warming scenarios.

To manage the global warming based factors it is necessary to define how global warming is projected to change in the future. This is achieved by using global warming scenarios. Global warming scenarios provide a plausible summary of the global warming variables that could apply in your geographical region and timescale of interest. Scenarios can provide a consistent and efficient basis for assessing global warming-related risks across different organizations without affecting the integrity of the analysis.

Growing environmental concerns, coupled with public pressure and stricter regulations, are changing the way people do business across the world. Industry is on a three-stage journey from environmental compliance, through environmental risk management, to long-term sustainable development strategies (BSD Global, 2008).

Cwg model is shaped according to the sustainability fundamentals, requirements and related efforts. Also, Cgw model encompasses:

- Enhancing sustainability and global warming risk response decisions via combination of both the proactive and reactive approach
- Reducing impact severity of global warming threats
- Seizing opportunities (renewable energy, new technology, etc.)

The Cwg model process consists of a series of steps that, when undertaken in sequence, enable continual improvement in decision-making. Communication and consultation will be reflected in each step of the process. Monitor and review is an essential and integral step in the risk management process. The basic model steps are:

i. **Analysis of Global Environment:** the step can be called as Internal/external environmental scanning regarding to the global warming and related issues such as climate change and sustainable development. Analyze will give useful information and data to truly and holistic understanding and comment of global environment issues and risks resources. This step is comprehensive evaluation of global environment's existing (present) and potential issues.

ii. **Establishment of Normative Management requirements:** Normative management: This is the domain of the founding principles for the purpose of viability and development. The criterion organizational fitness, at this level, is legitimacy or fulfilling a valuable role within the more comprehensive system (Schwaninger, 1996). The step covers sustainable constitution of related organization or company, sustainability culture, sustainability policy and procedures. This must be considered in setting of vision and mission statement of related organization or company. It may be understood as context setting in many management frameworks.

iii. **Establishment of SM System-** GW based approach: The step includes strategic and operative management concepts. Strategic management: This is the domain of orientation, the goals being value potentials, the criterion of organizational fitness being effectiveness (in the collaborative and cooperative senses). Operative management: This is the domain of

realization, the goals being value (provided to different stakeholders - customers, employers, shareholders etc.), the criterion of organizational fitness efficiency (e.g., in the sense of productivity) (Schwaninger, 1996). This step contains are illustrated in figure 4.

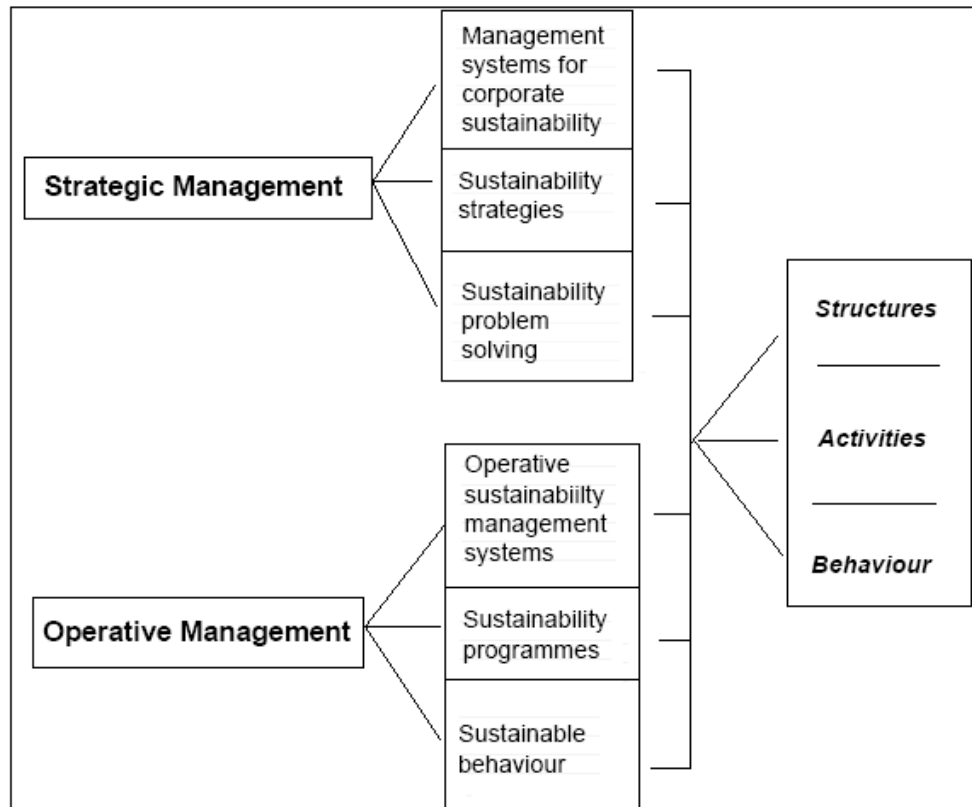


Fig. 4. Step 3 of C model (Bieker, 2002)

Choosing strategy is a decision under uncertainty. Strategic decisions involve a long term perspective. If the strategy is to be successful, the future has to be estimated somewhat correctly regarding trends in society and market development (Svae, 1996).

iv. Global Warming based factors assessment:

The assessment of global warming based factors consists of the two components: risk identification and risk prioritization. The factor identification activity focuses on determining current and possible events about global warming. This step includes creating scenarios. Factors are categorized into tree group according to the Cgw model. They are social risk group, economic risk group and environmental risk group. So, they are categorized into more manageable groups. Resources can share more effectively according to these grouping.

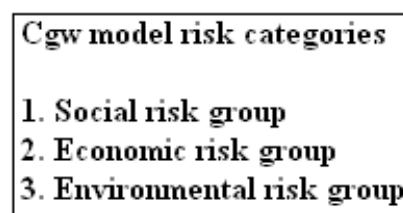


Fig. 5. Basic risk group in the Cwg model (Kucuk Yilmaz, 2008).

Global warming based factors are divided manageable parts via Cgw model risk categorization (see fig. 5.). Resource allocation to effective managing of global warming based factors will more truly and effectively via this systematic approach of event identification and categorization approach. Cgw model is encompasses that all global warming based factors in the social, environmental and economic groups) are interrelated with each other. Also risks are highly linked each other. For this reason events should be handled with holistic approach.

There is given top 40 risks to global warming (see table 1.). Global warming-based events/factors are categorized and listed in the Cgw Model-Global Warming based factors list. Events are considered both threat and the opportunity in Holistic Sustainability Management philosophy. This is showed difference and dominance of management managerial approach. There is, some opportunities are identified according to the global warming issue by authors and placed in the following categories. These are also presented as opportunity to sustainable world.

Table 1. Cgw Risk Categories

Cgw Model- Global Warming based factors List	
Social Risks	1. Threatened cultures 2. Increased disease 3. Opportunity to Respect for the human being and the environment 4. Opportunity to Humans and all nations will join to one aim 5. Opportunity to Effort to peaceable world 6. Opportunity to setting of best national and international communication - Human related risks: Physical and psychological 7. Political risks 8. Adaptation risk 9. risks of growing socio economic impacts
Economic Risks	10. Reduced tourism 11. Reduced yields 12. Unsustainable development 13. increased economic and social cost 14. War risk 15. Opportunity to Investment of sources for the benefit of human instead of the war economy: renewable energy, new production techniques to nourishment, protective works to the ecological environment, Transfer to undeveloped countries. 16. Opportunity to cooperation between peoples, nations and companies to sustainability efforts 17. Opportunity to produce sustainable energy sources with new Technologies

	18. Opportunity to Developing renewable energy sources such as wind, sun and geothermal developed renewable energy projects 19. Opportunity to Production of the environmental friendly products 20. Opportunity to More rational and fair sharing of scarce and limited sources to peaceable world
Environmental Risks	21. Severe storms 22. Species losses or Loss of biodiversity, 23. Heat waves 24. Reduction in sea ice 25. Water Related Risks 26. Reduced growing seasons 27. Changing forests 28. Risks to Agriculture and Food 29. Risks to human health of increasing frequency of extreme events 30. Risks of Displacement and Conflict 31. endangered ecosystems and increasing ground instability 32. Rising sea levels 33. changes in the frequency and intensity of extreme weather events 34. Decreased snowpack 35. Temperature changes 36. Opportunity to Increasing of health, safety and environmental awareness by human 37. Opportunity to Development of Environmental Management System 38. Changes in the distribution of plants, animals, chemical contaminants and infectious diseases 39. Changes in local air pollution 40. Increased erosion (due to storminess and sea-level rise).

Our civilization will and must seize opportunities to be universal and peaceable world. So, our civilization and culture will rise. Global peace and global sharing is important opportunities these can and should emergent opportunities by global warming to all of us. Otherwise, we will face with new and important threat in the history of human kind. The sharing scarce source can be new war reason. Increases the risk is emergent since some countries going into war to get control to managing scarce source. This is not humanistic and civilized attitude.

Nations, companies and every one have environmental responsibility. All of us are responsible towards our world. We should develop our sustainability culture to the peaceable world. “Everyone is sustainability manager to managing of global warming, protect and save our world.”

The global warming based factor’s prioritization activity considers all aspects of all risks and

then prioritizes them (for the purposes of risk management). Although the two are distinct activities, they are often carried out simultaneously (Rai University, 2008). New risk score formula has been developed for the calculation of global warming risk (see fig. 7). This calculation can give holistic picture of current situation of global risks. Required action for top risks will handle via Cgw model.

Global warming based factors/events must be prioritized because no project has the resources to eliminate every factor. In addition, factors must be continuously prioritized because of changing circumstances or external forces that change the priorities of particular events. The most important factors must be identified because most organizations can only actively mitigate a certain number of factors at a time (Galorath, 2006). Prioritization helps the manager to focus efforts and resources on the most critical factors.

Quantification and prioritization of global warming based factors will help to design controls, resource allocation policies and minimize the total cost using the Cost Minimization model (Shah, 2004). Factor prioritization is very important to effectively using of world sources to handling factors. For this reason the formula can support to prioritization efforts as holistic approach to global warming based factors. Factor scoring is the efficient way to set up factor priorities as timely and truly.

Generally, the objective of factor prioritization is to prioritize the identified factors for mitigation. Both qualitative and quantitative methods can be used to categorize the global warming based factors as to their relative severity and potential impact on the world. To effectively compare identified factors, and to provide a proactive perspective, the factor prioritization method should consider the following factors (Comgate Engineering Ltd., 2008):

1. the probability of the event occurring,
2. the consequence of the event, and
3. the cost and resources required to mitigate the event or factor.

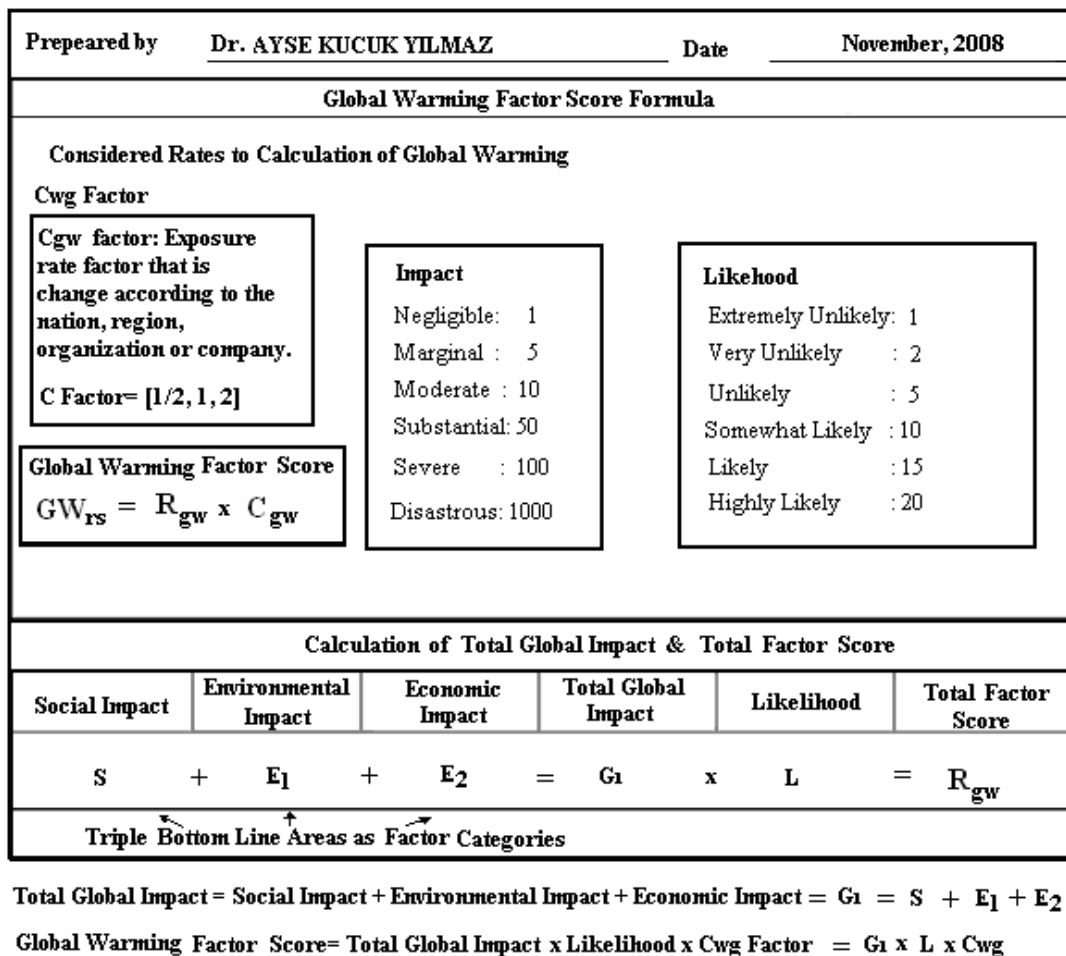


Fig.6. Global Warming Factor's score formula (Kucuk Yilmaz, 2008)

v. Optimal handling options to Global Warming based factors

This step is firstly aimed to developing effective event response to best managing of global top risks. A number of alternative strategies are available when planning factor/event responses, which can be described under four headings (Hillson, 1999):

- *Avoid* – seeking to eliminate uncertainty
- *Transfer* – seeking to transfer ownership and/or liability to a third party
- *Mitigate* – seeking to reduce the size of the risk exposure to below an acceptable threshold
- *Accept* – recognizing residual risks and devising responses to control and monitor them.

There is no single “best” response strategy, and each factor must be considered on its own merits. Some global warming based factors may require a combination of strategies and multiple responses, whereas others may need only one strategy with a single response. Strategy selection should be driven by consideration of the type and nature of the event, manageability and amenability to reduction or control, the degree of severity of impact, available resources and cost-effectiveness (Hillson, 1999).

Sustainability management options are usually cited as factor handling options subdivided as: avoidance, control, assumption, transfer, and knowledge and research (Bower, 2008). Events

and factors must also be communicated. Once event and factor are understood, factors and related management strategies must be clearly communicated to organizational management in terms easily understandable to organizational management (Elky, 2006).

The step also includes following activities:

- a. Update and improvement of the system
- b. Providing of the effective and well-timed data flow and feedback line
- c. Assessment of the organizational sustainability practice performance.

Event monitoring and reporting ensures that the managers and other stakeholders are aware of the status of top ranked factors and the plans to manage them. Effective monitoring, reporting and communication helps to ensure events are identified and tracked throughout all levels of the sustainability management project.

Sustainability management performance assessment is the process to enhance management begins with a current state evaluation of the alignment of key factors to various management functions as well as management competencies within the organization. The evaluation should include a review of sustainability management activities and the foundational components that are necessary to align and coordinate management across the organization. Maturity models and benchmarks of leading practices can help management determine the current state of sustainability management competencies and also define the desired target state.

The sustainability management performance assessment maps the responsibility for key factors across functions and business processes and identifies gaps and potential inefficiencies. Additionally, the process evaluates the effectiveness of the activities to assess, improve, and monitor management within existing infrastructure and organization activities.

The sustainability management performance assessment approach determines if a functional or process area of the business is effective and efficient in its management activities. The assessment also identifies opportunities for alignment and coordination across the organization. The assessment focuses on responsibilities for key factor/event across functions and business process, effectiveness of activities for assessing, improving, and monitoring the way factor is managed, and the degree of alignment and coordination across the organization.

The output from this evaluation is a clear definition of focus areas and the associated efforts that can help management drive specific sustainability management enhancements into the business or organization or project. The focus areas are determined by management's goals for desired levels of sustainability management competency (Ernst & Young, 2008).

vi. **Improvement of the Sustainability Management system:** this step is to providing the continuity of both the Sustainability management system and its development. Also this step is include restarting of the SM process over loop to new and developing factor and environment natural disaster losses have been increasing at an alarming rate, and it is prudent to consider what practical steps can be taken today. The following are some suggestions (Mills, 1998):

Educate: Managers and insurers alike should educate themselves and their customers on the climate change issue and options to help minimize potential exposures. They may choose to participate in the public policy process with other industry groups.

Articulate a policy: Many firms have published policy statements concerning environmental issues. For example, General Accident's Statement of Environmental Principles asserts: "As a successful commercial business, we consider minimizing resource use, energy use and waste production to be integral to good business practice."

Lead by example: Many companies have initiated efforts to manage energy in their own buildings. Swiss Re (see side-bar), Storebrand and other insurers have adopted environmental criteria for purchasing office products and equipment. The voluntary ENERGY STAR and Rebuild America programs offered by the U.S. Environmental Protection Agency and Department of Energy are open to risk managers seeking technical assistance in this realm.

Mobile disaster preparedness technology and planning: Many of the losses sustained during natural disasters stem from inadequate building codes or poor compliance. The IBHS has advanced a major initiative that includes special training for code officials and working with ISO to implement a community-level code rating system. In another example of fostering disaster preparedness, Arkwright has recently provided weather-warning radios to its large customers. Also, the tendency to locate buildings and populations in high-risk areas must be addressed.

Support climate monitoring and research: While on the one hand climate research is arguably not the domain of insurers and risk managers, Mr. Nutter has noted that "it is incumbent upon us to assimilate our knowledge of the natural sciences with the actuarial sciences." To this end, 13 insurers formed the Risk Prediction Initiative in Bermuda in 1993. The members collectively fund a \$1.3 million annual research program aimed at understanding the risks posed by hurricanes. Some insurers are also hiring staff climatologists.

Make green investments: It helps to invest in environmentally sound ventures. Capitalize on energy-efficiency and renewable energy: Energy consumption is the largest contributor to human-induced greenhouse gas emissions. Fortunately, there is a class of energy-efficient and renewable energy technologies that also helps mitigate insurance risks. For example, efficient refrigeration equipment minimizes the likelihood of food or pharmaceutical spoilage following power outages and solar energy systems can help keep lights on following natural disasters. Risk managers should encourage their insurance providers to assist them: in implementing such technologies.

5. Conclusion

Global warming is and will have serious impacts on the environment, agriculture, human health, eco-system and on society. Mark Twain might as well have been talking about global warming when he famously remarked, "Everybody talks about the weather, but nobody ever does anything about it." For years we have heard so much about the causes of climate change, that we've missed the fact that there are simple, practical solutions that can slow this growing problem (Union of Concerned Scientists, 2008).

We Must Act Now. We should do something as global sustainability managers. Still we have hope. We must implement sustainability management to global warming since we have no much time. If we get started today we can tackle this problem and decrease the unpleasant outcomes that await us if we do nothing. The world is our, we have to assume our responsibility.

Sustainability management is provided effective solution to sustainable development and global warming issue. Cwg model is presented fresh approach to best prioritization and management of sustainability and global warming factors. Cwg model can change to current reactive culture and current mentality about global warming and risk management issue by everyone since the model is presented proactive and systematic approach. It is should be considered to save the world. These are is represented to basic contribution of this study. Also, The study can support to “think global act local” statement since model can tailored related nation, region or organization. For this reason model can produce effective results according to the implementation field. This model and factor formula can use in global warming issues and related factors via local and regional priority-setting.

Cwg is considered a kind of combination three management concept in this study: social risk management, environment risk management and economic risk management. This paper proposed and applied a social risk management and asset-based analytical framework to increase the capacity of society to manage climate risks with a view to reduce the vulnerability of households and maintain or increase the opportunities for development. This framework offers a unifying lens to examine the links between risks, adaptation, and vulnerability and is consistent with IPCC definitions of vulnerability and adaptation.

Therefore government- and private citizen policy around committed relationship, rather than individual competition, is a prime recipe for dealing with the health effects of global warming. Next, renewable energy technology may have some answers to living with the now unstoppable effects of global warming, but without being grounded in such social strategies the end result will probably be a planet where the strongest survive.

And that is no sustainable way to live for living being on the world since we have only world to live. We have no any other earth to go. We have to assume our responsibility as global risk manager. Sustainability Management model can guide for managers since this model provide efficient, systematic and proactive process.

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