Training,
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"Omdat mensen ertoe doen"

In opdracht van het ministerie van VROM, afdeling klimaatverandering en industrie

"Haalbaardheidsonderzoek naar het betrekken van burgers bij emissiehandel"

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Chapter 1 Introduction and Management Résumé

Klimaatverandering en armoede in de wereld zijn gigantische problemen die urgente oplossingen vragen[1]. We kunnen niet langer dralen: alles moet uit de kast, we moeten bereid zijn het lang vol te houden en we moeten nu beginnen. De problemen zijn zo groot en zo omvangrijk dat onorthodoxe routes moeten worden onderzocht. Naast voldoende reductie in geïndustrialiseerde landen zijn ook maatregelen nodig in ontwikkelingslanden. En in het Westen moeten alle maatschappelijke actoren worden betrokken; de problemen zijn te belangrijk om over te laten aan de overheid en de markt. Ook burgers, of consumenten, verdienen een plek.

Maar ja, hoe betrek je burgers bij deze mondiale problemen? Met een weifelende overheid die op zoek is naar een nieuwe invulling van haar rol. Met een globaliserende wereld die de grip op de markt verkleint. Met bedrijven die deze vrijheid niet altijd aankunnen. En met vele burgers die zich verschuilen achter blinde consumptie.

Op basis van het Kyoto-protocol is vorig jaar het Europese CO_2 handelssysteem operationeel geworden. Hierbij speelt de overheid en het meest emitterende deel van het bedrijfsleven een rol. Pas na 2012 (*post-Kyoto*) zou de burger eventueel kunnen aanhaken. Maar wat gaat die burger dan doen? Op welke manier wordt hij aangehaakt?

Wij zijn met dit rapport tegen de tijdgeest in op zoek gegaan naar nieuwe en oude oplossingsrichtingen voor burgers om bij te dragen aan oplossingen voor klimaatverandering en armoede in de wereld. Daarbij werd aansluiting gezocht bij Kyoto en ideeën over post-Kyoto. Wat kan de overheid doen om burgers die graag iets willen bijdragen te ondersteunen in hun zoektocht? Hoe kunnen burgers zich organiseren, versterken, in nauwe dialoog met overheid en markt, zodat ze grip krijgen op deze grensverleggende vragen. Zouden Verhandelbare Emissie Rechten voor burgers of consumenten hierin een rol kunnen spelen?

In hoofdstuk 1 starten we met een overzicht van de vragen rond de klimaatverandering, het Kyoto-protocol en het systeem van Verhandelbare Emissie Rechten. Gezien de enorme omvang van het klimaatprobleem en de overweldigende effecten (daar en hier), concluderen we dat we alle zeilen bij moeten zetten om "binnen een aanvaardbare gevarenzone" komen. De voortschrijdende inzichten van de laatste tijd laten zien dat de Kyoto-doelstellingen hiervoor onvoldoende zijn. Iedereen die dat ontkent, ontkent zijn toekomst van zijn bedrijf en die van ons nageslacht. Ook wij hebben de plicht onze bijdrage te leveren. Het systeem van Verhandelbare Emissie rechten lijkt een kansrijke oplossingsrichting te zijn die we verder kunnen uitbouwen. Door het betrekken van meer sectoren en consumenten, en door het verlagen van de totale toegestane uitstoot van CO_2 (Cap) binnen dat handelssysteem.

Tot voor kort dachten vele ambtenaren en politici dat de burger een terugtredende overheid wenst; verder waren ze hun geloof kwijtgeraakt in het eigen vermogen sociale dilemma's op te lossen. Onder meer uit de Duurzaamheidsverkenning 2004 van het Milieu- en Natuurplanbureau[2] blijkt echter dat 70% van de burgers vindt dat de overheid verantwoordelijkheid moet nemen en het sociaal dilemma moet oplossen. In hoofdstuk 2 pleiten wij daarom voor nieuwe arrangementen tussen burger en overheid. Wij zien een verschuiving van het "oude industriële denken" naar een nieuw paradigma, dat zich ontwikkelt door de integratie van de rollen van burgers *en* consumenten *en* medewerkers in onze samenleving. We willen daarbij leren van de methodes die zijn ontwikkeld binnen bedrijven die zich bezighouden met Maatschappelijk Verantwoord Ondernemen (MVO). Daarbij komt een "nieuwe"

[1] In de MVO-agenda die is opgesteld door MVO-Nederland staan deze thema's op nummer 1 en 2. Zie Maatschappelijk verslag 2004, MVO-Nederland, Utrecht.
[2] Milieu- en Natuurplanbureau 2004, rapportnummer 500013009 226, ISBN: 9012107148

burger/consument in beeld, als authentieke persoon. We komen tot de conclusie dat huishoudens een belangrijke bijdrage kunnen leveren aan een CO_2 neutrale samenleving mits zij *empowered* worden en hun aandeel kunnen leveren, bijvoorbeeld via het systeem van verhandelbare emissierechten. De ontwikkeling van de economische vraagkant, zal de aanbodkant meetrekken; het zal bedrijven stimuleren CO_2 neutrale producten aan te bieden. Aangevuld met scherpe normen, heldere verplichtingen en eventueel financiële prikkels kunnen lagere reducties worden afgedwongen en kan technologische diffusie en innovatie worden gestimuleerd.

CO_2-rechten gedragen zich als een uniform, internationaal erkend oriëntatie punt voor de samenleving. Net als geld vertegenwoordigen CO_2-rechten een waarde; maar in tegenstelling tot geld kunnen CO_2-rechten ons op weg helpen naar een CO_2 neutrale samenleving. In hoofdstuk 3 verkennen we een systeem van verhandelbare emissie rechten per hoofd van de bevolking. Een duurzame samenleving kan een aantrekkelijke visie worden, met CO_2 als het merk waaronder we het mondiale klimaatprobleem aanpakken. Deze drager van het ideale eigenbelang heeft de potentie om een mondiaal gedeeld besef te creëren dat we in onderlinge samenwerking klimaatverandering en de armoede kunnen oplossen. Het verlegt de focus van het probleem naar de oplossing.

Ons oorspronkelijke plan was het oprichten van een vereniging van huishoudens die CO_2-rechten opkopen. Hierdoor wordt de druk op de markt opgevoerd, en worden bedrijven gestimuleerd tot energie-efficiency en hernieuwbare energie. We komen echter tot de conclusie dat dit systeem nauwelijks invloed heeft op de markt. Het bevat echter wel waardevolle elementen die we in hoofdstuk 4 verder onderzoeken. Deze elementen dienen in hoofdstuk 5 als basis voor een aantal nieuwe modellen. Onder welke voorwaarden kunnen huishoudens betrokken worden bij de CO_2 handel? Hoe kunnen we huishoudens *empoweren*? Hoe leidt dit tot een CO_2 neutrale samenleving?

In hoofdstuk 5 presenteren we drie modellen en vier submodellen. Ten eerste *Domestic Tradable Quota*s, een *cap-and-trade* systeem voor consumenten. Zij krijgen CO_2-rechten die ze verplicht moeten besteden bij aankoop van gas, elektriciteit en autobrandstof. De rechten kunnen worden verhandeld. Voor dit model is een sterke overheid nodig, die de verplichting oplegt. Ten tweede het *Community Model*, dat vrijwillig is en als belangrijkste kenmerk heeft dat het de deelnemende huishoudens *empowered* en de overheid dit stimuleert. Deelnemers krijgen een soort subsidie op basis van een CO_2-reductiebelofte. Als de reductie wordt gehaald komt de deelnemer voor een nieuwe ronde in aanmerking. Ten derde de vier marktmodellen, waarbij de rol van de overheid veel kleiner is. Deze modellen worden gedragen door groepen consumenten, winkels, of beiden, en zijn gericht op CO_2-compensatie en *loyalty*.

We eindigen dit rapport met een aantal aanbevelingen. Uiteraard stellen we voor om ze allen uit te voeren, dit omdat:

- de urgentie het vereist;
- het de collectieve (inter)nationale learning curve zal versnellen;
- *learning by doing* van de verschillende demonstraties ons op korte termijn inzichten kan verschaffen die leiden tot (nieuwe) modellen/systemen die grotere bijdragen aan CO_2 reductie kunnen leveren.

Er gebeurt veel op allerlei niveaus en in vele landen. Tijdens onze speurtocht kwamen we vele internationale organisaties en individuen tegen die net als wij op zoek zijn naar nieuwe antwoorden op de deze mondiale vragen. Om een bijdrage te leveren aan deze internationale groep van "omdenkers" hebben wij daarom gekozen dit rapport in het Engels te schrijven.

David Beaty, Edgar Kampers, Peter van Luttervelt en Hugo Schönbeck

Chapter 2 The context of CO_2 reduction

Introduction

This opening chapter sets the scope of the feasibility study. In the proposal (September 2005) we began with a series of assumptions in our approach, and we committed to provide a number of answers. We will provide an executive summary of these expeditions, and outline the specifications for feasibility that we seek to meet.

We reached the conclusion that the magnitude of the issue requires a wide scope approach to the issue of feasibility. A target of 460 ppm emission targets, the highest level deemed safe for our way of life, requires a 50-60% reduction in present CO_2 emissions. Such a shift requires involving 6.4 million households in the Netherlands in significant life-style and societal change. At the same time, societies and citizens are overloaded with the pressures of the complex economic and societal demands and expectations for quality-of-life that constitute our modern world. Feasibility is not a question of method, but a question of meaning. In what ways can individuals and communities agree to change over to different habits of living, buying, traveling, that would reduce our 'footprint' to the level that gives our successors a viable, sustainable environment within which to develop? The question of feasibility has to do with societal motivation and agreement.

The Netherlands, with its long history of environment management, its 'green' leadership of the last forty years, and its compact, collaborative social history (Luctor et Emergo), has an important role to play in this planet-wide challenge. Feasibility has to do with tradition, and it has to do with innovation.

Our focus is a socio-economic approach to empowering households. We refer briefly to this larger context and the current models of global societal change to set the background without going deeply into the explanation and details of these models. Nevertheless, we take as a given that there must be a basic change of paradigm to cope with the high uncertainties produced by the chaos of change that characterizes the modern world.

Welcome to our study.

"Never, ever, think outside the box"

This chapter briefly describes the current global context in which this study engages. In particular, we focus on the Kyoto framework in which householders are invited to participate in accelerating the CO_2 emissions in Netherlands and outline the case for early and meaningful partnership with citizens to invent a Minimum CO_2[3] future that works for all (Kyoto4All). We have mentioned the aspects that we feel are most relevant to our feasibility study and we appreciate questions and suggestions that emerge from the many experts among our readers. We assume that our VROM readers will be more familiar with the details than we are. This report is the first part of a conversation.

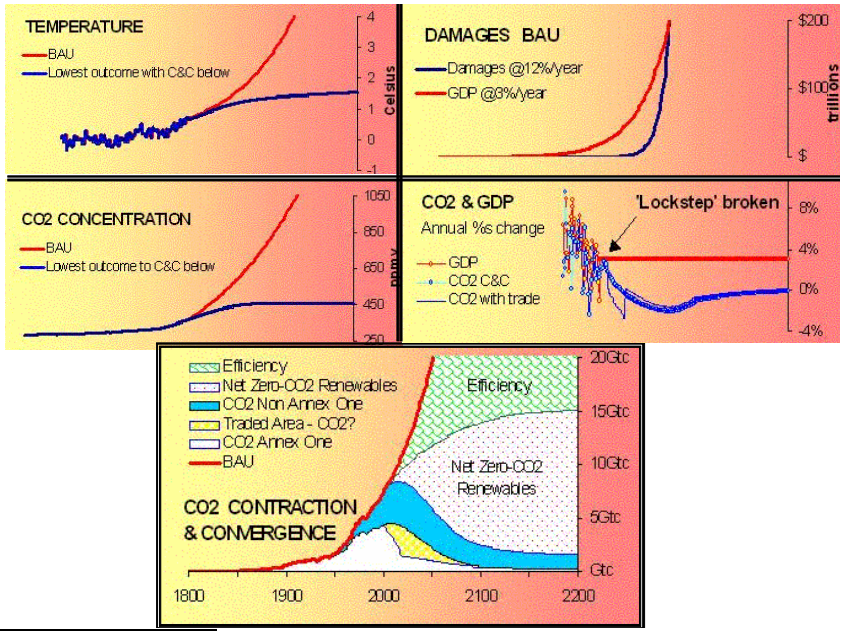
2.1 Our Warming Planet

Although it has taken more than a decade to reach scientific agreement, the twelve largest scientific academies in the world (including the U.S. National Academy of Science) submitted a report for the G8 leaders in July 2005 that concluded:

> "There is now strong evidence that significant global warming is occurring. It is likely that most of the warming in recent decades can be attributed to human activities...
> "The scientific understanding of climate change is now sufficiently clear to justify nations taking prompt action. It is vital that all nations identify cost-effective steps that they can take now, to contribute to substantial and long-term reduction in net global greenhouse gas emissions."

If global warming continues, the consequences for the next generations will be a world of climate shifts, generating significant long-term negative consequences (e.g. water scarcity in Southern Europe and United States) and more frequent, sudden, extreme weather occurrences. (floods, hurricanes, ice melt, etc.). Even if CO_2 emissions are reduced to meet the Kyoto targets of 2012, we must reach a 70% reduction by 2050, and even then, it looks like it will be 50-100 years for the accumulated CO_2 to work itself back to safe levels.[4]

Figure 2.1 Exponential curves from the Global Commons Institute[5]



[3] It is not easy to choose the appropriate words. Co2 emissions should be minimum critical—what is necessary, and no more These limits must fit within the boundaries required to reach 60-80% reduction by 2050, meeting the targets in between (e.g. %6 below by 2012).

[4] There has been a notable increase in the reporting of extensive changes, and the predictions are moving towards higher probability of higher temperatures, oceans, and disasters. Time Magazine issued a special report on Global Warming: devoted a whole issue to the theme.: Be Worried. Be VERY worried

5 The next report to the IPCC is going to indicate even higher rates of warming due to newly emerging global climate data. (Tim Flannery, The WeatherMakers, Atlantic Monthly Press, 2005.) The rates vary but they all indicate high adverse consequences if CO2 emissions do not level out to 70% below of the 1990 level.

We are designing for futures that must be quite different from a world where climate was relatively stable.

There are increasing experiences of planetary weather dynamics in all parts of the globe affecting all aspects of climate infra-structures. Ice melts, deserts double, species disappear, the Conveyor Belt slows, and CO_2 emission is still on the increase. Season shifting destroys habitats for birds, insects, and animals. Ice is melting rapidly. It is becoming probable that climate adaptation will be the driver for the planet over the next 40 years.

Our growing recognition of this context shift led to the following assumptions in our approach:

- CO_2 emission reduction will become a core value and core business of our society. It will be a major 'driver' of (Dutch) identity**,** and a major common denominator with citizens across the European Union
- CO_2 household emission measures, and what is feasible for engaging householders in time to make a difference will be greatly influenced by the state of the world and the state of mind of citizens all over the world for the next 5 years. What CO_2 reduction means for Netherlands should be a question of widespread discussion for the 2007 elections. It will be an active, public arena for Kyoto champions to give leadership.
- The increasing frequency of climate disasters, and their consequences for the societies in which they occur, has mobilized organizations such as the Red Cross[6], Munich Re and Swiss Re insurance companies and many other members of the Corporate Social Responsibility movement, to become pro-active leaders for climate change response and adaptation. Resiliency is emerging as a strategic necessity.
- The engine of the global economy-fossil fuel energy has reached 'the peak oil' point, and will force more and more change towards renewable energy uses. The society has invested billions of Euros in the transportation, urban, and distribution systems based on this 'cheap' energy. As prices rise, the ability of companies and citizens to succeed in their aspirations, will be stressed[7]. CO_2-reducing technology will become more and more attractive.
- Nevertheless, from the climate point of view, there is an estimated $600,000,000,000 in investments and contracts for petroleum products oil scheduled over the next 20 years to find new oil fields to fulfill the needs of countries such as China and India, and to improve refining technology to process poorer quality oil. How these two forces will inter-play to determine government policy generates uncertainty (e.g. the recent debates and decisions over nuclear policy and investment). News headlines will feature oil, water, and CO_2 issues---all

6 The Red Cross has made Climate Change and Disaster Risk Reduction one of its top priorities. For example, see the report of the 2nd International Work Conference on Climate Change and Disaster Risk Reduction, the Hague, Netherlands, June 2005 (www.climatecentre.org)
International Strategy for Disaster Reduction, 060206, reported that in 2005 170 million people where involved in disasters due to Climate Change, the costs in 2004 were 92 billion dollars, in 2005 it increased to159 billion dollars

7 The recent report by the Ministry of Economic Affairs, "Energie Rapport 2005, Nu voor Later", highlights the energy supply concern of Netherlands and the consequences for national viability. Growing dependency on Russian and Middle East oil supplies of European Society (from 74% in 2002 up to 94% in 2030), produces an increasing instability due to oil price increase and reliability of supply. At the same time, developing countries growth will use 2/3 of the expected growth for their needs. Thus, the issue of CO2 and long-term climate policy of the Netherlands is tied in with the long-term energy security of an economy dependent on fossil fuels.

intertwined as dimensions of global sustainability. Resource efficiency initiatives will continue to improve[8]

- The NGO's continue to mobilize for climate-related issues[9]. The 20,000,000 euros investment in climate change awareness for 2006 in the Postcode Lottery creates an opportunity to engage citizens in going further

- With television and Internet, we are in daily contact with the disparity between the secure and the insecure, rich and poor. On many fronts (Millennium Development Goals, G8 meetings, Disaster Relief initiatives, etc.) educated people around the planet are recognizing the challenges to transform personally, locally, nationally, and regionally to live in sustainable balance with our ecosystems. The rises of the "cultural creatives" movement and the increase in spiritual and value-based imperatives (e.g. the triple bottom-line) are growing force in the electorate.

These tensions will continue to mount and be part of daily life and politics in the coming years. The recent book, *High Noon: 20 Global Problems, 20 Years to Solve Them*, by J.F. Rischard, former Deputy Director of the European Department of the World Bank, lays out the magnitude of these challenges clearly.

In summary, in doing our scan for the contexts in which a meaningful Kyoto4All Association could arise, we realized that the CO_2 'problem' is part of a larger planetary 'mess', and will be heavily influenced by major climate events and the debates they will trigger about the state of planetary, regional, national and local life-support systems. Feasibility has to do with speed of response, proactive adaptation, and the re-engineering of our core infra-structures. Feasibility is also concerned with the possibility of locating opportunities to move CO_2 reduction from the 'under stream' of society into the 'way we do things around here', a vision orientated approach.

2.2 The Kyoto Protocol

The Kyoto Protocol became official in late 2004[10] following the sign-on of Russia, which surpassed the 55% of world CO_2 emissions level required for ratification. Signatories commit to reduce their CO_2 emissions to 5% below their 1990 emissions by 2008-2012. The European Directive to enable and facilitate trading in greenhouse gas emission allowances was enacted in October 2003. Different countries have differing rates, e.g. European Union as a whole has 8%, while Netherlands has 6%. The agreements on 'caps' created quite different scenarios for different countries, and one can expect re-negotiations of the terms of reference as the 'promises of performance' consequences and the recognition of the magnitude of risk become clearer.

Distinctions are made between richly industrialized nations and developing nations. This recognition is expressed in a program called Clean Development Mechanism (CDM) where developing countries can sell their CO_2 emission credits in return for funding targeted to clean development projects. Another program is Joint Implementation, where industrialized countries can invest in the transition countries in Central and Eastern Europe for this they gain in return Emission Reduction Units.

The key engine of the Kyoto protocol is the invention and implementation of an Emissions Trading System ("Cap and Trade"). In the EU Emissions Trading Scheme (EU ETS) nations are allocated EURS and they allocate these to their utilities, large

[8] e.g.William McDonough and Braungart Cradle to Cradle: Remaking the Way we Make Things, 2002, Amory Lovins: see Appendix 1

[9] The "HIER" campaign.

[10] There was a 60 day period from the time of the signing until the protocol took effect. (thus, February, 2005)

companies, medium and small businesses, and citizens. Participants (at the moment, the large energy users) buy or sell emission rights (CER's) in order to comply with the emission targets they have received/accepted. This market mechanism makes it possible for companies to be pro-active in seeking a viable way to reduce CO_2, and to have a range of options to use in reaching compliance.

With cap and trade, CO_2 becomes an asset and/or a liability for every company in Europe, and thus becomes a factor in their business strategy, pricing, distribution, accounting, etc. The complexity and increasing impact on the bottom line will produce a major industry in large consulting businesses dealing with corporate CO_2 management. The price of CO_2 tonne can vary greatly, and there is not yet market history to describe the volatility patterns and best investment strategies Companies such as Point Carbon (http://www.pointcarbon.com) and the European Climate Exchange(www.ecxeurope.com) have developed to track, report, and consult on carbon emission trading and its futures. The value of the market in 2005 was estimated by Point Carbon to have gone from 97 million Euros in 2004 to 360 million Euros in 2005. There are 12,000 installations in Europe that have received EU allowances (EUA's), and they are likely to attract many more natural buyers and sellers. The estimated total value of the market in Europe alone will be Euro 45 billion between 2005-2012.

As of January 2006, the price of a tonne of CO_2 was 26.9 Euros and rising steadily (see www.europeanclimatexchange.com for daily graph). The European Climate Exchange is a private company owned by the Chicago Climate Exchange.

CCX® is a self-regulatory, rules based exchange designed and governed by CCX® Members. These members have made a voluntary, legally binding commitment to reduce their emissions of greenhouse gases by four percent below the average of their 1998-2001 baseline by 2006, the last year of the pilot program. At the moment more than hundred companies from all sectors of business and society are members.

The Chicago Climate Exchange:
Our mission is to provide our members from the private and public sectors with cost-effective methods for reducing their greenhouse gas emissions by building and operating a market-based emission reduction and trading program that is flexible, has low transaction costs, is environmentally rigorous and rewards environmental innovation.
The goals of the Exchange are to:
Demonstrate that a cross-section of North American entities can reach agreement on a voluntary commitment to reduce Greenhouse Gas emissions and implement a market-based emission reduction program;
Establish proof of concept by demonstrating the viability of a multi-sector and multi-national Greenhouse Gas emissions cap-and-trade program supplemented by Project-based emission offsets;
Establish a mechanism for achieving price discovery as well as developing and disseminating market information;
Allow flexibility in the methods, location and timing of emission reductions so that Greenhouse Gas emissions can be reduced cost-effectively;
Facilitate trading with low transaction costs;
Build market institutions and infrastructure and develop human capital in Greenhouse Gas emissions trading;
Encourage improved emissions management;
Harmonize and integrate with other international or sovereign trading regimes; and,
Develop a market architecture that rewards innovative technology and management and encourages sustainable farming and forestry practices.

If we consider CO_2 credits from an empowerment perspective, it can be seen that the CO_2 unit allow inter-business trading to occur where the money flows between producers (as compared to flowing to the government as it would through taxes).

The European Union has taken a pro-active stance towards CO_2 emission reduction. Europe is the largest emissions reduction and trading area in the world. Since the 2003 agreement by the EU, the core 15 members, and the now 25 countries of the EU have agreed to a set of guidelines for allocations, have given/accepted allocations until 2008, and are harmonizing reporting and monitoring requirements. Another round of targets for 2008 until 2012 is in the process of being negotiated[11].
In EU-wide emission reduction, it was recognized that different countries have different challenges depending on 1990 baseline (e.g. East Europe is generally lower economy), economic growth requirements, and the nature of their energy base (e.g. U.K. was using coal extensively, but has now moved to natural gas achieving the targeted differences necessary).

The power of the CO_2 market depends on the creation of scarcity by setting lower and lower caps on emissions by national governments. There are continuing signs of uncertainty in this process – e.g. the 'No' votes in the spring referenda in France and Netherlands, and the recent announcement by the British PM[12] that emission trading schemes are not a realistic way to deal with Global Warming.

With regard to the overall mechanism, CO_2 limits and trading rules, there remains the fact that United States, China, and India are not signatories of the protocol and their emissions are expected to continue to increase. The more organisations and nations who have begun to work with the Kyoto Protocols, the more likely it is that these countries will harmonize (with some special arrangements) with the global CO_2 exchange market.

At the Montreal Conference last November, delegates finally came to an agreement that will see that the parties create a long-term plan to reduce heat-trapping emissions after the Kyoto Protocol expires in 2012. The agreement sets the stage for negotiating bigger emissions The Montreal agreement, despite the continued disassociation of the U.S. with climate change realities, keeps the Kyoto process alive. This agreement for longer-term talks provides some certainty for business. With the adoption of the Marrakech accords, there is now clarity around an international carbon market that will lead to clean-energy and energy-efficient technologies being exported to developing nations. Increased funding was promised for developing countries clean, energy-efficient technology investment.

It is also the case that the EUR process is in the easiest phase. Utilities and large companies are major stationary sources and measurable, where the next layer of reductions moves into the more difficult areas of transportation, agriculture, and household reduction. The next round of allocation plans for EU member states gets underway this year.

2.3 The Dutch Context

Netherlands has accepted a 2012 target of 6% reduction from 1990 emissions. The Ministry of Environment (VROM) leads the responsibility for the development and implementation of National Climate Policy with a co-coordinating group with representatives from several other ministries who have mandates affected by the CO_2 Directives (Economic Affairs, Agriculture, Energy).

A semi-autonomous governmental organization, Netherlands. Emission Authority (NEA) is charged with the responsibility of issuing permits, inspecting, and enforcing

[11] www.europa.eu.int/comm/environment
[12] T. Blair at the Clinton Initiative September 2005

the condition of the Environment Management Act in 2003.[13]

For the period from January 2005 until January 2008, the country has accepted a ceiling of 200 million CO_2 emissions of which 95 million tons is allocated to 206 large stationary 'emitters' of CO_2.--electricity, steel, chemical/petroleum industry , and food being the most significant of these . The companies can meet their targets by:

- Reducing emissions.
- Purchasing CO_2 emission credits.
- Becoming involved in Joint Implementation agreements (a Joint Implementation agreement is a project to reduce CO_2 emissions between two developed countries in particular, Eastern Europe).
- Becoming involved in Clean Development Mechanism projects in developing countries (to a ceiling of 8% of their allotment).

The commission Vogtländer suggested several options to start the cap and trade system in the Netherlands. At the end of a long period of negotiations it was decided to choose for the "grandfathering" system, in which the highly emitting industries got the rights for the first period (2005-2008). This period is considered as 'a learning' period for all actors involved.

The commission mentioned that the fairest system was the system, which gives the rights to the end users, i.e. the consumers. Businesses should buy the rights from them. Due to difficulties with the complexity of households involvement, verification methods etc., they chose a step by step implementation: first 2005-2008 large emitters, then 2008-2012 small and medium sized companies and from 2012 (post-Kyoto) citizens involvement might be involved in the system.

The period, 2005-2007, is considered a 'learning process' in Netherlands, researching the allocations, Emission trading, monitoring, verification, reporting, work out in practice. The NEA report from the first year of the cap and trade initiative is due out by the end of April 2006.

We have chosen not to explore the validity or effectiveness of the Cap and Trade mechanism. The reports from the first year of operations (2005) are just coming out, and the 'cap's for 2008-2012 are in the process of negotiation

Our interest in the Cap and Trade is connected with our mandate to look at the feasibility of citizens buying CER (CO_2 Emission Rights) as a way of accelerating both CO_2 reduction and householder involvement. This will be explored further in Chapter 4[14].

2.4 New Technology

There has been an assumption in CO_2 emission reduction that protecting the Earth's climate is too expensive, that economies cannot afford the increased expense (e.g. If our industry has to pay extra for CO_2 emission-reduction, we will be less competitive in the world market, and thus lose business). However, this need not be the case, and in many cases, it is the opposite.

[13] Emission reduction for CO2 is complemented by a NO2 reduction program, which includes other damaging chemicals. However, for the focus on households, these initiatives will not be highlighted. It is assumed that the same mechanisms apply for these as CO2 emission strategy.

[14] In fairness to the reader this original focus turned out to NOT be feasible, and we have moved to other motivations and models to find a feasible approach to widespread citizens involvement.

- Current power plants to industrial plants are highly in-efficient. For every 100 units of fuel energy input, only 9.5 units is actually available at the point of use, and only 13 % of a car's fuel energy actually reaches the wheels[15].

- The revolutions in energy efficiency, e.g. lightweight materials, computer circuitry, solar batteries, etc. make it possible that householders can choose more efficient technologies that reduce costs, energy use, and CO_2 pollution. With the lead-time required to develop a totally new car, it is likely that by 2012-15, there will be alternative energy 'mainstream' automobile options.

- Wasted and inefficient energy usage represents a large profit source for businesses, and one can imagine that, with or without the Kyoto protocol, that more and more choices compatible with respect for the environment, will become available in the next several years[16].

- The escalating demand for oil and gas increases price and uncertainty. The attractiveness of a renewable energy society will grow until the point where alternative energy investments are more attractive than oil- centered industries is reached. The European Unit targets of 5.75% biofuel use by 2010, although not likely to be met, will continue to push for greater and greater increase in renewables.

- The recent decision[17] to continue major investments in nuclear energy is another example of the pressures facing governments as they struggle with the challenge of making a cross-over from an economy that paid little attention to the "externalized" costs of environment to one that puts environment at the centre of the equation.

- The ownership, price to be paid, and conditions of access to the new technology are very much part of the issue. Those who benefit most from oil are also the ones who have the capacity to make a switch to a renewables economy. It remains to be seen whether Corporate Social Responsibility is more than a positioning strategy to exploit the oil to renewables journey for the companies and their share-holders (stake-holders)

The final dimension in technology that it is important to mention as context is the capacity that digital tools give to small businesses, and professional entrepreneurs to become significant players in the new energy world. There are many tools, skills, service opportunities that are emerging in this new climate-changed world. This ranges from small initiatives such as diagnostic instruments, to light-bulbs, to eco-tourism. It raises the possibility of such breakthroughs in the energy sector as innovations such as Google, or Linux, or mobile phones have brought to communication.

[15] Amory Lovins, 'More Profit with Less Carbon' , Scientific American, September 2005, pp. 52-61.
[16] Lovins and Hawken, Natural Capitalism
[17] ECN en MNP, potentieelverkenning klimaatdoelstellingen en energiebesparing tot 2020

2.5 CO_2 and Households[18]

These are the contexts in which we approach the issue of householder involvement in CO_2 emission reduction. Climate change is not going to go away, and the issues are and will become more and more important and present in the lives of all citizens.

We feel it is critical to involve householders in the CO_2 futures now because:

1. If CO_2 emission reduction is going to be successful (particularly beyond the 6% first goal), it has to be a widespread movement, played by all the players.
2. The consequences are too great to be left to government and business arrangements only. The issues are citizen-centered issues. They massively affect the lifestyle and well-being of Dutch peoples' lives.
3. The consequences of delay in CO_2 emission reductions are high.
4. Not involving householders actively risks a "no vote" in the next election as the issues of Kyoto goal achievement in 2012, and next round of reductions may be quite central.
5. Climate change and global warming are increasingly a focus in the media. Citizen consciousness won't stand still for six years (2012). A growing number of citizens and householders see themselves as active agents in building a sustainable society that includes responsibility for our 'ecological footprint'. (www.klimaatburo.nl, www.klimaat.startpagina.nl and www.langzaamvarendenstilstaandverkeer.nl)
6. Citizens pay for CO_2 emission reduction actions[19] through taxes and product prices and for continuing high oil prices through lagging investment in alternative energy economies. The sooner the economy makes the cross-over to meet the targets the better for everyone. It is time to stimulate the demand side of the economy.
7. The Netherlands has been a leader in "green" for twenty years, and has a country of citizens who can create a citizen-based system for moving forward at the speed we need to. This has developed very rich social capital for the Netherlands. The timing to take advantage of this heritage is in the next few years as the new 'carbon free' economy builds momentum[20]-[21]
8. Involving householders and entrepreneurial small businesses in a CO_2 partnership can generate employment; export business, and a 'Sustainable Valley' and New Energy economy. Dutch society is one of the few that can lead the way, and it is that we owe it to our children to invest in.
9. Citizen involvement keeps the game moving. Motivated changes in lifestyle increase the rewards and pressures for large systems to innovate.
10. We need a period of societal learning to be ready for, and build momentum towards, a post 2012 CO_2 Slim society.

[18] Households are considered a surrogate for citizens. How people live is based on where they live, what they consume, where they travel to/from, etc. It would be possible to focus development on the individual, as for example, in U.K. with the research into the CO_2 emissions credit card for every citizen. However, we prefer the notion of household since it adds a focus to citizen involvement, and since it reflects a community connection more than the 'isolated individual approach.

[19] ECN research

[20] Milieu prestatie index van de Yale University

[21] InSnet column 15 februari van Hans ten Berge is adviseur strategische en duurzame projecten van de Raad van Bestuur van ENECO Energie

Chapter 3 - Empowering businesses and households

In chapter 2 we reached the conclusion that the climate change is urgent enough to search for a quantum-leap approach that includes all stakeholders in society. For the purposes of the assignment, we seek for a road forward that aims for the inclusion of all citizens (householders) in a society-wide partnership focused on sustainability.

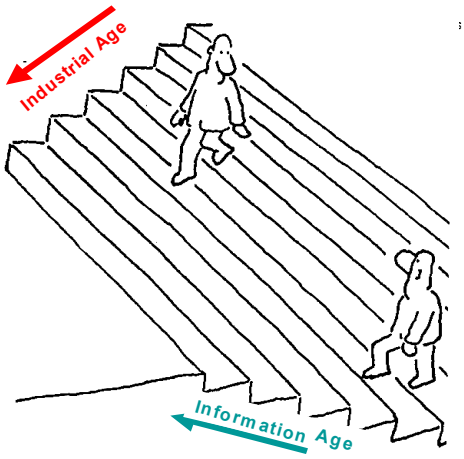
In this chapter, we examine two models of approaching citizens - as consumers of policy and products, and as empowered partners. We choose a framework ('Het Wiebertje') developed by Chris Dutilh[22] well known in the discussion on sustainable production and consumption, in which we look at citizens in relation to the other three voices in national decision-making (Business, Government, and Consumers) and explore the consequences of their relationships from the point of view of CO_2 emission reduction.

The emerging philosophy of Corporate Social Responsibility is based on a set of values that is parallel to the empowering citizens model that we examine. The starting investments of CO_2 emission undertaken by government set a landscape that empowers businesses to use CO_2 as a new resource to re-structure and re-orient their identity as a value-adding component of society. We also use a business model used by Richard Barrett, former Values Coordinator of the World Bank, as presented in this book, Liberating the Corporate Soul, 2002.

In the same way, we feel that it is time for the government to champion a paradigm shift in their approach to citizens. This shift begins by accepting and developing processes where citizens are partners in the climate change process, in which CO_2 reduction will be a core catalyser. It is not a question of deciding for them but a question of deciding with them.

To make this contrast clear, we describe an old model of the relationship underlying the dominant economic paradigm, and we describe the emerging new paradigm(s), which we call the empowerment model. We wish to emphasize that all activities in a paradigm transition phase share in dimensions from both paradigms. It is not a question of good OR bad. It is a recognition that each initiative has components of the old (e.g. control and self-advantage) AND a desire for transformation (e.g. resiliency of society and triple bottom-line).

Figure 3.1 Development of New Paradigm [23]



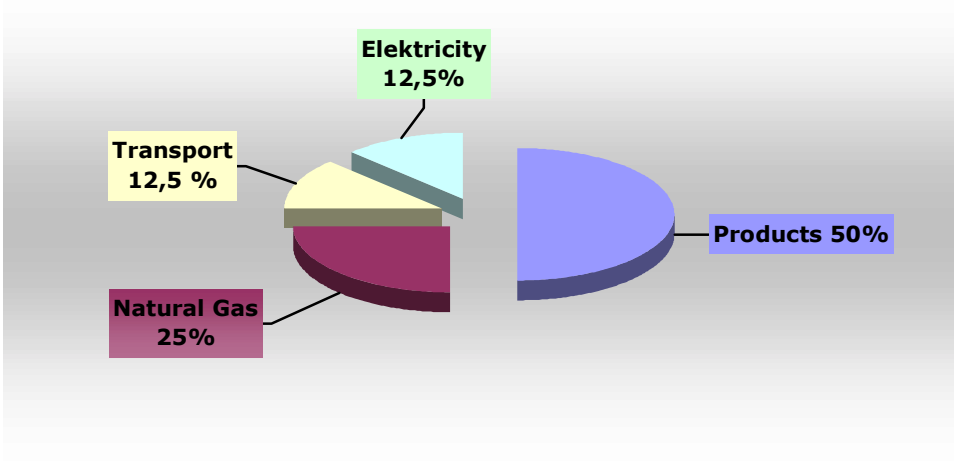
[22] Chris Dutilh, former environmental officer of Unilever
[23] Bernard Lietaer

3.1 Brief facts on householders

General information:

There are 6,4 million households in the Netherlands. In general each household emits around 8 Ton CO_2.

Figure 3.2: Major areas of CO_2 emission per household[24]



When the commission Vogtländer delivered their report on the start of the "cap and trade" system, they suggested to roll out this system in 3 waves

1. from 2005- 2008: involvement of the large emitting industries;
2. from 2008-2012 involvement of small and medium sized companies;
3. from 2012 the involvement of citizens in the system.

In fact they said that giving the rights to the end users is the most honest system. Their hesitation was around the amount of administration involved, the monitoring and validation process, the small reward for reducing CO2, etc.

Technology has evolved since and is becoming cheaper all the time. An interesting key factor is the recent Dutch development of the technological consumption of Guarantees of Origin of electricity (green certificates), which by its very nature prevents excessive administration, because it links the purchase of electricity with the original source, and therefore the exact amount of carbon involved. In effect the source is embedded in the supply, administrated automatically.

3.2 The Old "Industrial Age" Paradigm and the emerging New Paradigm

The Emission Trading System (ETS) is one way for government to empower businesses to take their part of the solution for climate change. Citizens, in this system, get affected indirectly through the fact that business can put the money they have to spend on buying CO2 credits into the cost price of their products and services. When 2012 comes around and citizens might get involved, they will probably have a "take it or leave it" set of choices. If they "take it", it will be as consumers, and the way of involvement will be through a process of selling, marketing campaigns, etc.. This hard sell maybe backfire a trigger of the possible rejection by citizens of the government plan for them, as happened in the EU referendum.

However behind the whole ETS mechanism is the reality of climate change. This requires another approach where all actors in society are involved.

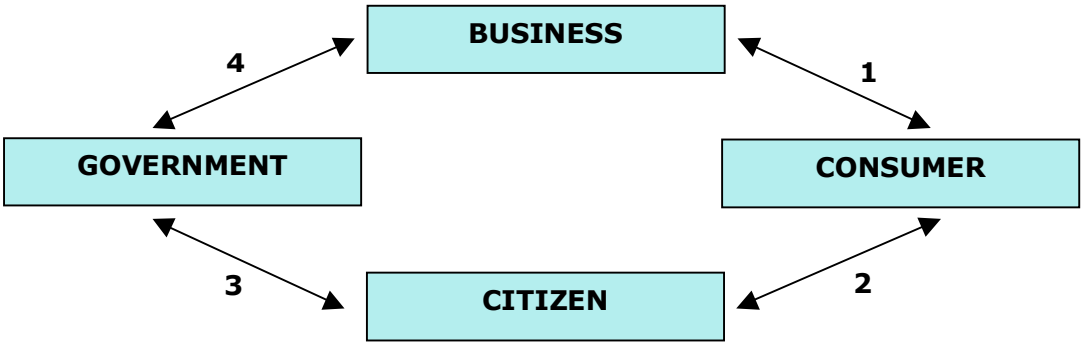
[24] Geert van Grootveld, presentator Gideons 2004

The challenge for government is to develop a long term vision, integration of policy domains that are dealing with climate change issues and work together with citizens stakeholders in a societal learning process.

3.2.1 The Old Industrial Age Paradigm

To describe the old paradigm we will use the model called *'Wiebertje'*[25]. This simplified framework looks at society behavior in terms of 4 social 'actors'. It is well used in discussions about the way sustainable production and consumption can be achieved.

Figure 3.3 shows the interaction between players in our society and their role in relation of sustainable development (***Wiebertje***):



In brief, business sells products to consumers (arrow 1). Out of this CO_2 emission is created. When consumers are faced with the consequences of a consumer society (e.g. pollution, insecurity, quality of life, etc.) they step into their role as citizen (arrow 2) (taxpayer, city resident, parent, etc.) and say to the Government should take responsibility and fix the situation (arrow 3).

The Government responds by dealing with business through policy, negotiation, reward/punishment (arrow 4), in order to persuade them that the citizens want them to move into a more sustainable way.
Business responds to the government that consumers don't want to pay for sustainable products, etc. (arrow 1). If government demands too much from them by regulations, or targets, etc. in the Netherlands, the argue that, for competitive reasons, they can not do anything if it is not done on an international level, and or that the scientific evidence isn't convincing, that they will move their business elsewhere, etc. (arrow 4).

The government uses information campaign, subsidiaries, tax reductions, incentive programs, etc. to create a high awareness among citizens to do their share (arrow 3). Citizens receive many different signals from several ministries on issues of high energy prices, energy reduction, subsidies on energy saving equipment, shadow pricing systems for cars, diseases of cows, pigs, chickens, potential pandemics, water danger, disaster around climate change both outside the country (Cyclones) and inside with the dykes, etc.

At the same time we see that government is withdrawing from the public domains, getting into a market economy, addressing their citizens more and more as consumers for products like health, energy, etc.. These products are all part of the basic needs domain of people (households) to survive (see diagram 3.4 Richard Barrett).

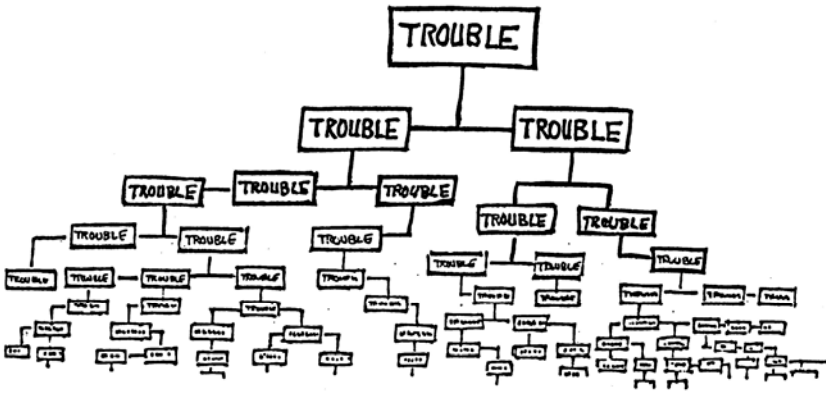
Arrow 2 is where lifestyles are developed, the area for values and norms. Dutch citizens have become massively involved in all kind of NGO's (the number of subscriber

[25] Chris Dutilh, former environmental officer at Unilever

of NGO's in the Netherlands is very high-from Warchild to animal party's-). Much money has been raised for climate disasters around the world.

On the other hand, as consumers, they are approached through the retail channels, to buy more and as cheap as possible (arrow 1). Again this belongs to the basis needs domain of people (households) to survive (see diagram 3.4).

This "old" paradigm does not generate the social energy necessary to attract widespread change necessarily to deal with climate change. Nevertheless climate change is closely related to basic needs as health, safety, etc.
In the old paradigm, government is forcing people to focus only on their basic (physical en emotional) needs as shown in diagram 3.4.



3.2.2 The emergence of new paradigms

CO_2 emission-reduction to stabilize climate change is only one of a number of major crossovers that industrial civilizations are facing. The shape of these changes has been emerging for the past twenty years. For example, it was 1972 that the Club of Rome posted its 'Limits to Growth' and 20 years later in 1992 'beyond the limits'. In 1992 the Rio conference was held. The Millennium Development Goals were formulated in 2000. Gradually, worldwide movements are emerging that attempt to find an ethical action framework that enables the old system to TRANSFORM itself to embrace the realities that it ignored in the past.
During our research, we recognized that we had to broaden our scope in order to engage citizens into the arena for climate change through the emission trade, and therefore to:

- use bottom up approaches to empower individuals
- find new ways for community development
- look at ways social cohesion works
- find a common vision in which all symptoms fit
- reach above the basic needs

The difference between transition and transformation is a question of empowerment. Transition as a term refers to a gradual shift from one approach to another. In a gradual shift, the speed is set by the willingness of those with the resources to convert their wealth into the new way of behaving:

- This speed is often very slow (e.g. Kyoto protocols),
- Disappears as soon as attention goes somewhere else (bird disease-vogelgriep)
- Or moves very fast to make big gains out of the sudden needs (e.g. U.S. government giving advance contracts for disaster recovery to its businesses.[26])

[26] Naomi Klein, The Rise of Disaster Capitalism,, April 18, 2005, Manchester Guardian

Transformation involves a different route. In this model, pressure builds up in the old paradigm to a crisis point. Then there is either a breakthrough to a new way of being, or the system gradually atrophies, and fails. It may be the case that we have reached this dead end.[27].

Empowerment philosophy does not accept this dead-end. Empowerment concerns itself with looking at the human as an evolutionary species, and setting conditions for the 'leap' from one state to another. Chaos theories, spiral dynamics, global consciousness, are examples of this world-wide trend towards a new way of being.

We would like to flash back 30 years ago, the last chapter of Beyond the Limits, inspired by Donella Meadows, the scientist that wrote the book, concluded: If we want to have a sustainable (r)evolution, we need:

- visioning
- truth telling
- permanent education
- networking
- loving and caring

3.3 An empowerment approach

We use the model designed by Richard Barrett, former World Bank Values coordinator, to briefly describe the principles that would inform a new approach[28].

Figure 3.4 - Richard Barrett: Liberating the Corporate Soul - 1998

TAO associates

New Insights
(Richard Barrett: liberating coorporate soul)

Human needs	Personal Motivation	Kind of Work	Kind of Learning	Kind of Intelligence	Kind of Reward	Focus on
SPIRITUAL	Servitude Distinguish Serve Meaning	Call (ing)	Personal Growth	Emotional	Internal	GENERAL INTEREST
MENTAL	Personal Growth				TRANSFORMATION	
	Performance	Carriere	Education	Mental	External	Self interest
EMOTIONAL	Self esteem Relations	JOB	Social Skills			
PHYSICAL	Health Savety	JOB	Instinct			

In this model, Barrett clearly points out where the transformation starts.

[27] James Lovelock, *'The Revenge of Gaia: Why the Earth Is Fighting Back - and How We Can Still Save Humanity' Feb. 2006 publication. In this book, Lovelock argues that global warming is irreversible now, and that our challenge now is to enable enough civilization to survive to rebuild the world after 80% of the population is lost!*

[28] Richard Barrett, liberating the corporate soul

The model is just one of many that describes the new paradigms of humanity that are becoming widespread[29], which we have studied. These models are based on the individual-in-community as the centre of the whole, and provide the inspiration (and empowerment tools) for the emergence of a global shared consciousness (the focus changes from self interest to general interest). For this research we choose to stick to the Barrett model, because it is well used in a lot of businesses.

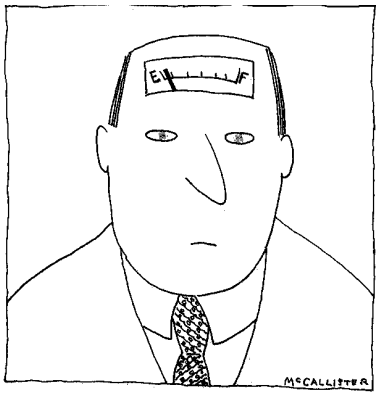
If we look carefully into this model, we see that if citizens are only addressed on their physical and emotional needs, they will respond accordingly (avoiding the pain/stress/fear). They are afraid of losing their jobs, they are stimulated to behave as the so-called "calculating citizen", they seek satisfaction in external items (status, etc.) and they have to take care of themselves, for their own self-interest.

The context of our research is dealing with climate change. And life conditions define the way we develop our value systems[30]

The reason why we put emphasis on this, is that we see that in the old paradigm people are addressed in their basic needs and if worst comes to worst and climate change hits for instance the Netherlands, peoples life conditions will be under pressure and people fall back to their basic needs. We think it is important to find ways to transform society. Therefore we will look at under-current streams we also see in our society and how these can be useful to get us out.

Shared images of universal human values in the 21st century are becoming widespread— the great increase in eastern practices in western organizations, (e.g. tai chi, yoga, meditation, etc), the appreciation of diversity and global community through travel, NGOs, Internet connections, world media, etc. - are indicating that consumers are much more than purchasers of goods. Lifelong learning, longer lifespan, multicultural countries, are becoming more of a reality than the world of advertising, consuming, and soap opera of the past 30 years.

3.3.1 Empowerment within Business



We have seen over the last 15 years that Business took the lead in realizing that they had to move into the information society, the digital age, the knowledge society, etc..

In this paradigm, leaders recognize that their employees are the most important capital in an organization. In order to stay in business, they have to invest in enabling employees to become creative co-workers, so that the business will become innovative and maintain its advantage in regard to competitors, and the market.

The business sector is moving towards three main frontiers, which they have to develop and these directions are parallel to an empowerment approach:

1. Satisfaction of their employees
2. Corporate Social Responsibility (CSR)
3. Compassionate capitalism (taking into account what it means for all stakeholders beside shareholders)

[29] Spiral Dynamics Centre of Human Emerge, Don Beck and Peter Merry
[30] Spiral Dynamics, Beck and Cowan

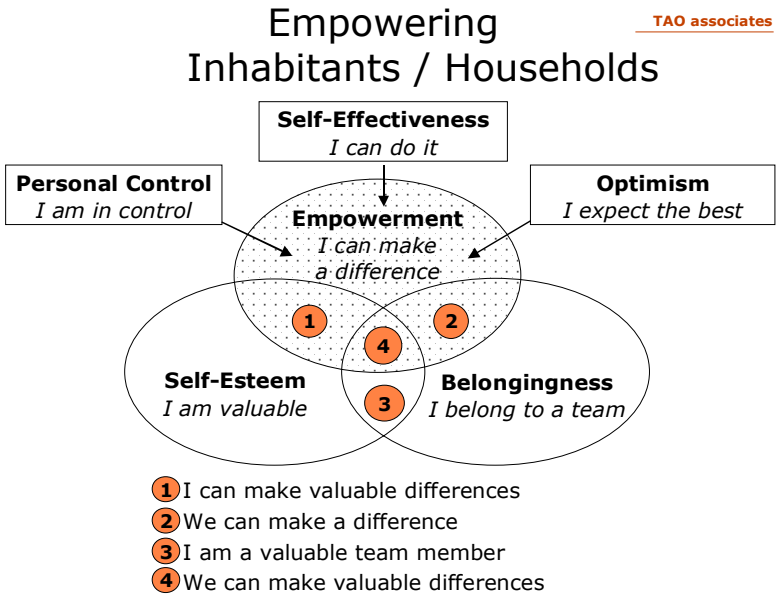
Satisfaction of employees by empowerment:

We have seen a trend in the last 15 years that businesses were starting to empower their employees[31]. This is the transformation point described by Richard Barrett (figure 3.4).

The best performing companies[32] see that people are not with them only for the sake of their job, or career. Empowerment means a large transformation, both in time and in process, in business, because it affects all employees including management and board. Empowerment means personal growth, vision orientation (not problem orientation), co-creation (team, belongingness), coaching instead of top-down managing, feedback both ways (360 degrees feedback). Continuous learning, life-cycle management, etc. are methods that depend on participation, and a culture of the business as a learning community. In short, life conditions of business are changing and new values start to emerge (value driven leadership, people centered management, etc.)

Here we refer to the empowerment[33] model, which was the basic of the behavior change methodology used in all the EcoTeam Programs.

Figure 3.5 Empowerment model Geller 1995



Also CSR companies have realized that they should look for enabling factors that support their employees to focus on their job, by providing services like day-care for children, helping ill relatives, shops at work, etc..

Beyond CSR

The business sector is becoming more and more aware of all that is at stake due to climate change (health, energy, resources, outlets, etc. are all at risk).Ryuzaburo Kaku, chair of the board of Canon, has said: "to put it in other words, companies don't have a future if the earth has no future".

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[31] the 8 exceptional practices of exceptional companies, Jac Friz-Enz

[32] See Built to last, Collins& Porras, The Living Company, Arie de Geus, The New story is ours to Tell, perspective on Business and Global Change, Margaret Wheatley, The fifth discipline, Peter Senge

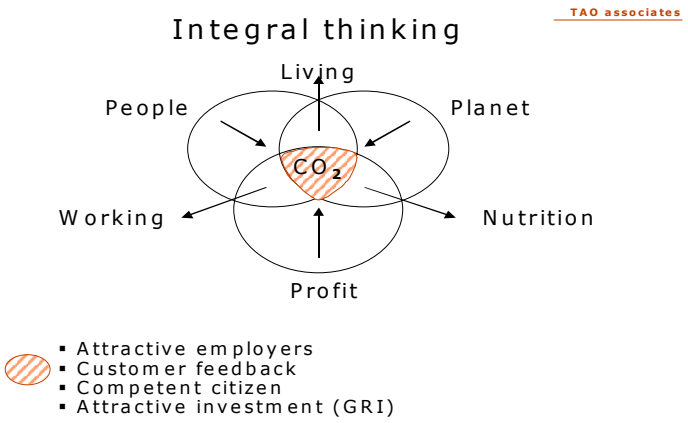
[33] David Gershon and Gail Straub, empowerment

Many of these companies realize that they should become a Carbon Neutral Organization, not only for the sake of having CO_2 credits to sell, but because their employees want to work within an organization that helps them to work on a carbon neutral basis[34].

More and more businesses realize that they have to earn a 'license to sell' from their customers, and from their stakeholders, based on the triple bottom-line principles of People, Planet & Profit. Businesses such as Nike, Ikea, and others realized that they have to act on issues like child labor, etc.
These companies are moving away from the traditional market research of socio-demographic data. They do research based on values of people in households. They see change in the market driven by the so-called Cultural Creatives[35]. We will discuss this group further in the part of citizens/consumers. This movement fits in Barrett's model at the transformation point.

We see that businesses that perform well on CSR have the highest shareholder value over the last 5-10 years[36]. Institutional investors are using criteria such as the Global Reporting Initiative. Banks like Triodos and ASN, with ethical investment criteria and financial products, have shown the way. People and institutional investors are more and more often willing to put their savings and/or investments into funds based on ethical criteria[37]. The figure 'Integral Thinking' illustrates the triple bottom line approach.

Figure nr 3.6 Integral thinking



Resource efficiency

Within organizations much CO_2 reduction can be achieved through resource efficiency. A lot can be said about this (see the appendix 1 Resource efficiency options and process for CO_2 free products and services).
Within the focus of this research -household involvement- we won't go in depth into the possibilities of resource efficiency and "CO_2 slim" products and services within the industry and business sector. We strongly support the work that is underway within the 'transitions' approach in the Netherlands. We agree with Amory Lovins[38] that we need new mindsets (And with Einstein that: "you can't solve the problem with the same kind of thinking that created it"). Reading about the revolutionary work of

[34] Global Action Plan benchmark among employees in organisations to work in a sustainable way
[35] Paul Ray (USA) and Marketrespond (nl) on cultural creatives, authenticity, Gaia, etc
[36] index, Tridos, ASN, SNS
[37] ANB AMRO Bank - Beyond Kyoto Report
[38] Natural Capitalism, Lovins et all.

William McDonough[39], Michael Broungart, Paul Hawken, etc., we know there is a lot going on, and at the same time, from a consumer's point of view, little is visible.

Consumer-Citizen

Lifestyle, within the *'Wiebertje'* is the dynamic between consumer-citizen line (arrow 2 in figure 3.3). Lifestyle development is based on personal development, within the close relations with family and friends. The last 10-15 years have seen a growing market of personal growth trainings, books, media, magazines, etc. Personal health is becoming an issue, sports, healthy food, vitamins, etc. shown an increasing demand. Research has identified a new form of customer, called the cultural creative[40]. At the moment, research shows that 15-30% of inhabitants in the Dutch society fit the description of cultural creative. They focus on lifestyle, health and sustainability (LOHAS). Sustainability in the context of cultural creatives is much larger than the old environmentalism. It is very close to the business model of People, Planet and Profit. Cultural creatives are, in fact, empowered citizens. When we look at the research on EcoTeam participants and the cultural creatives they fit well together.
In appendix 2 we provide a couple of sheets out of the presentation of Paul Ray, and in Appendix 3 Marketing of green products we added a piece on marketing based on a combination of several researches.

In our survey among 159 participants most recognized the impact of climate change and carbon emissions. They show a high interest in taking their responsibility by participating in an interactive system that will cut down CO_2 Important for taking this responsibility is the feeling of ownership, being interactive, and the level of information provided about the proposed system.
We also organized a citizen's discussion evening. Although a lively discussion was going on with interesting feedback, due to the small group size it is not possible to draw conclusions.
The results of this survey and a brief summary of the discussion event, you find in appendix 4.

3.3.2 Empowerment and Government

Government is also affected by these societal dynamics from empowerment. Civil servants are doing many kinds of training programs, etc.. We see at the same time that the "old" management instruments of businesses are implemented in the bureaucracy, 'prestatie contracten', 'probleemgestuurd onderwijs', economy of scale, decentralization, privatization, market approach, etc. The economic thinking is so strongly centered within the Government, that generally speaking 'we' are not seen as citizens by politicians, but as consumers.

Of course Government has to deal with the 'mondige' citizen. On the other hand we see a kind of self-fulfilling prophecy that our society is getting more and more individualistic, and we think there is confusion about the word selfish or self-interest (Richard Barrett, difference between demand, is not self-centered, but on quality of life, biological food, green energy, etc.).
Looking at all the research also done by the Government, we can see that consumer attitudes begin to change and begin to demand organic food, clean energy and products produced in socially responsible ways.

First movers as we see are producers, because they listen to their markets. So here is the chance for policy makers to respond to the demand of citizens that corporations and businesses can be held accountable for what they produce and sell.

[39] Cradle to Cradle
[40] Paul Ray and Market Response, research on Cultural Creatives

And at the same time the big challenge for government is to empower their citizens. The real question is how?

We see many ministries dealing with their part of the problem, but not integrated, from a climate chance perspective.
When we look at the approach of our government, to combating terrorism, we see that a close coalition has been set up in which several departments, business, civil society organizations and citizens are working together on the general issue
If we look at the research of NIPO/TNS and the RIVM, in which people see the social dilemma, which has to be solved by the government. We believe that the climate change is an issue as important as preventing terrorism.

So what would happen if climate change becomes the same issue as terror in our society? And the government becomes pro-active and takes the lead?
Then we suggest that the policy should be with the vision for a CO_2 neutral Dutch society. All actors of society can stand behind this (empowering) vision.

Pro-active government

There are many ways the government can be proactive and take a lead in the vision for a CO_2 neutral society[41]. In the appendix 5, the Gideons bende wrote a letter in 2004 to the Ministry of VROM to suggest many ways for the Government to move to Government Social Responsibility.
If all sectors in which the government has direct and indirect involvement with (for instance government owned and financially supported, like the cultural sector etc), a large improvement can be made, for example:

- switch to CO_2 neutral energy
- all new cars are on CO_2-neutral power
- all new buildings should be zero emission
- build new local infrastructure for all new cars to get neutral petrol

This will stimulate innovation for the Dutch society at large, which fits in the innovation platform.

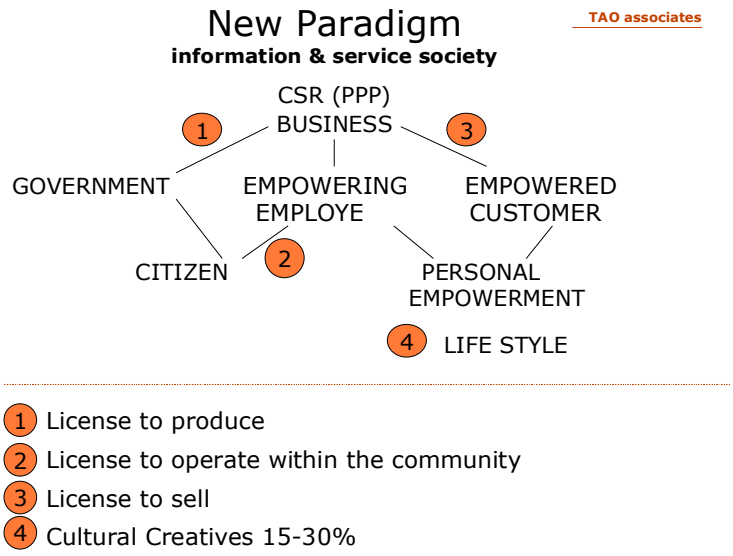
Jeremy Rifkin, president of the Foundation on Economic Trends in Washington, D.C.

- While politicians traditionally divide the economy into a spectrum running from the marketplace on one side to the government on the other, it is more accurate to think of society as a three-legged stool made up of the market sector, the government sector and the civil sector. The first leg creates market capital, the second leg creates public capital and the third leg creates social capital. Of the three legs, the oldest and most important, but least acknowledged, is the civil sector.
- Of the three forms of capital, social capital is the most environmentally benign. Unlike market of public capital, which use large amounts of the earth's resources, social capital uses relatively few resources, relying almost exclusively on the few thousand calories of energy each person requires to maintain a healthy mind and body. The point to emphasize is that the primary resource that makes up social capital is human energy extended to others to create a social good
- The ever deepening problem rising productivity in the face of declining wages and vanishing jobs is likely to be one of the defining issues in every country in the years ahead as the global economy makes the tumultuous transition out of the Industrial Age and into the Information Age. The growing social unrest and increasing political destabilization arising from this historic shift in the way the world does work is forcing activists, of every stripe and persuasion, as well as politicians and political parties, to search for a "radical new centre" that speaks to the concerns and aspirations of a majority of the electorate. The conventional political discussion continues to take place along the polar spectrum of market place versus government – a playing field that becomes increasingly limited in addressing the magnitude of the challenges and opportunities that exist in this new age. Redirecting the political debate to a tripartite model with the civil society in the center between the market and government spheres, fundamentally changes the nature of political discourse, opening up the possibility of re-envisioning the body politic, the economy and the nature of work and society in wholly new ways in the coming century.

[41] Just recently sustainable purchasing has become the norm for all the ministries

To summaries the dynamic within our society, which we see from the perspective of the business towards their employees, and the integration of lifestyles (the line consumer/citizen) as an authentic person the *'Wiebertje'* will look like:

Figure 3.7 A New Societal Paradigm between players in our society and their role in relation to sustainable development



Before we move into the CO_2 issue, looking at this model to empower inhabitants in the Netherlands, we can say that if the vision is positive stated for instance (CO_2 neutral society), what is needed its in the empowerment model for e.g.**:**

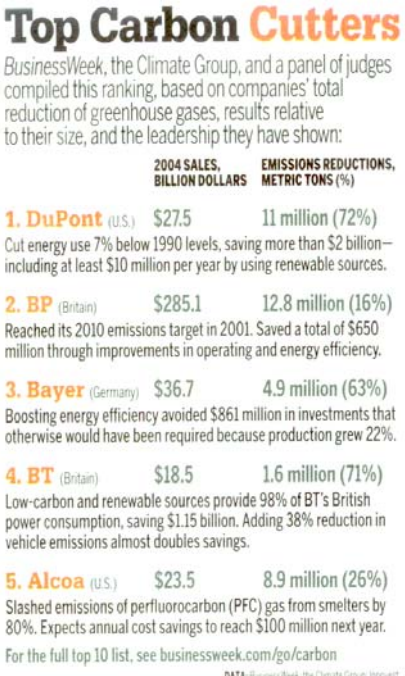
- personal control; what can I do, do I have the tools to do something
- self effectiveness; the feedback that I'm getting low on CO_2
- optimism, if we are stabilizing CO_2 emission, we create changes for the new generation
- self-esteem; I am taken seriously for my part of the solution
- we, our society, everybody is more or less involved

3.4 Empowerment and CO_2

3.4.1 Business

With good reason, Cap and Trade began with business, and chose an empowering approach.
Looking at business organizations like the World Business Council for Sustainable Development, E5, Social Venture Network. Chicago Climate Exchange, we can see that there is a well understood self interest in the business sector.

As expressed in the Business Week December 2005 special report "the race against Climate Change: "a surprising number of companies in old industries such as oil and materials as well as high tech are preparing for this profoundly altered world, despite the Bush Administration's opposition to mandatory curbs. This change isn't being driven by any sudden boardroom conversion to environmentalism. It's all about hard-nosed business calculations. Bankers, insurers, and



Top Carbon Cutters

BusinessWeek, the Climate Group, and a panel of judges compiled this ranking, based on companies' total reduction of greenhouse gases, results relative to their size, and the leadership they have shown:

	2004 SALES, BILLION DOLLARS	EMISSIONS REDUCTIONS, METRIC TONS (%)
1. DuPont (U.S.)	$27.5	11 million (72%)
Cut energy use 7% below 1990 levels, saving more than $2 billion—including at least $10 million per year by using renewable sources.		
2. BP (Britain)	$285.1	12.8 million (16%)
Reached its 2010 emissions target in 2001. Saved a total of $650 million through improvements in operating and energy efficiency.		
3. Bayer (Germany)	$36.7	4.9 million (63%)
Boosting energy efficiency avoided $861 million in investments that otherwise would have been required because production grew 22%.		
4. BT (Britain)	$18.5	1.6 million (71%)
Low-carbon and renewable sources provide 98% of BT's British power consumption, saving $1.15 billion. Adding 38% reduction in vehicle emissions almost doubles savings.		
5. Alcoa (U.S.)	$23.5	8.9 million (26%)
Slashed emissions of perfluorocarbon (PFC) gas from smelters by 80%. Expects annual cost savings to reach $100 million next year.		

For the full top 10 list, see businessweek.com/go/carbon

Business week December 2005

institutional investors have begun to tally the trillions of dollars in financial risks that climate change poses. They are now demanding that companies in which the hold stakes (or insure) add up risks related to climate change and alter their business plans accordingly. Adding to the pressure on CEOs, the public has largely accepted global warming as reality. The economic logic can be compelling. Far from breaking the bank, cutting energy use and greenhouse emissions can actually fatten the bottom line and create new business opportunities, while simultaneously greening up companies' reputations (www.climategroup.org).

The Emission trade system is in fact empowering the business sector to take responsibility for their part and, at the same time, tightening the degrees of freedom by lowering the ceiling each year. It remains to be seen whether, when the 'low-hanging fruit' of inefficiency has been picked, the governments and businesses will still increase momentum towards the deeper, necessary cuts, or will drift back to a 'minimum necessary' rate. And, there is business insecurity within the system. If the price of the CO_2 rights is highly fluctuating businesses will be reluctant to invest on investment.
We believe that there will be many companies who will take up the 3 P challenge. For those who move faster and better in lowering their CO_2 output, there will be the rewards of selling their surplus rights. We also believe that the rise of awareness and concern by citizens will put pressure on the slow performers, and bring rewards to businesses that demonstrate 'good citizenship' with regard to their environmental impact.

3.4.2 Citizens

The supply side driven approach needs to complement by a demand-side approach. If citizens are pro-active in desiring and growing towards a low CO_2 lifestyle, they will become sensitive about paying for products and services that add to their CO_2 emissions. If they have a 'Cap and Trade' context where there are financial consequences for good behavior, and penalties for exceeding allotments, there can be a partnership possibility where each societal player stands to gain.

The gain per household should be calculated in another dimension than just cap and trade. Looking at the data of CO_2 emission per household, based on the experiment with the EcoTeam Programs (1991 – 2003), it looks like figure 3.8.

Figure 3.8: CO_2 emission of an average household in the Netherlands compared with an EcoTeam Household after participating

Theme	Average Dutch household[42]	EcoTeam Household[43]	% less use compared with average Dutch household
Garbage	*106 kg*	*30 kg*	*71 %*
Natural gas	*3.290 kg*	*2.534 kg*	*23 %*
Electricity	*1.864 kg*	*1.358 kg*	*27 %*
Water	*82 kg*	*61 kg*	*26 %*
Transport	*2.620 kg*	*1.820 kg*	*31 %*
Total emission	*7.963 kg*	*5.803 kg*	*27 %*

[42] in 2000 (referentie jaar)
[43] per januari 2002

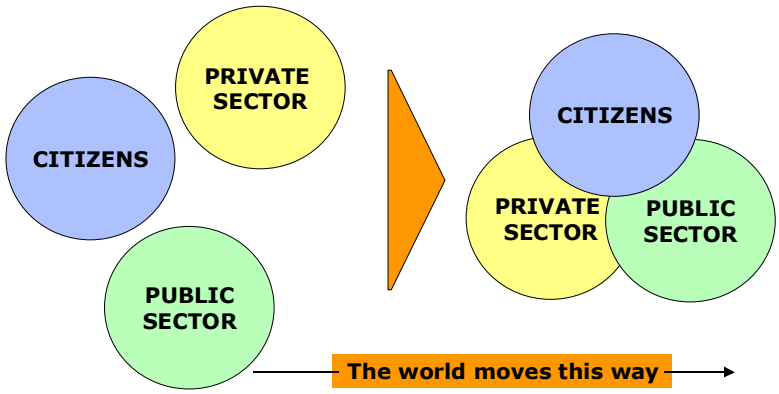
From this data we can say that an average household can decrease its direct CO_2 by 20-30 %. That is about 2 tons per year. If an EcoTeam household would sell this, the earning will be € 54,- based on the CO_2 price € 27,-. If all the 10.000 households[44] that have been through an EcoTeam Program would have sold their gain, they would create a fund of (10.000 x € 54,-) = € 504.000,-.

3.5 Demand side driven approach

3.5.1 Government gains from a demand side approach

There is a big chance for the Dutch government to select a national policy to go for a Carbon Neutral society. We propose that the Dutch Government decides to empower their citizens, seeing them as competent inhabitants and start step by step a 'CAP and Trade' system for householders. By this we will speed up the process for 'CO_2 slim' products, at one hand through the supply-side and at the same time through the demand side of consumers. In this way they will create a strong coalition on climate change because the three main players will co-operate in a manner also in line with the ideas of J.F. Richards' High Noon.

Figure 3.9 The new reality of partnership between three sectors



This is the moment for the government to empower Dutch Citizens:

- The 2006 "HIER" campaign of a large number of the Dutch NGO's focus on climate change and CO_2 low products;
- The latest research of the VROM Raad put emphasis on the involvement of citizens;
- The Ministry of Economic affairs Energy Report 2005 (urgency) points to the low water in the rivers and the effects of the cool water of the utility companies;
- There are new budgets available for renewable energy's as a balance keeping the nuclear power plant open;
- The discussions on the several transitions within the government (eg. Energy);
- Current discussions of the pricing of energy for households, including the CO_2 emissions in the pricing of the energy utilities;
- If demand for CO2 low products rises, it will stimulate innovations much faster and fits with the thinking of a strong Europe;

[44] this is the number of household who has send there complete data to Global Action Plan Netherlands

- There is a possible coalition with the UK for developing a system that can solve two of the biggest world problems, poverty and climate change. There is a need and opportunity for leadership at the European level.

3.5.2 Citizen Gains from a demand side approach

If citizens get rights, it will be the first time that sustainable lifestyles will be recognized and supported directly through resources by the Government!
It will speed up the number of people who are willing but feeling powerless due to economic reasons. It fits in all parts of society (social, engaged or conservative)[45]. It gives people ownership of their own future and sharing among each other as part of the societal benefits of a sustainable economy[46].

- Resources to support change in personal lifestyle.
- Value-satisfaction in caring for well being of their children/grand-children.
- Pride in Dutch culture and its 2000-year tradition of pro-active engagement with challenges from environment.
- Ownership of future and sharing in the societal benefits of a sustainable economy.

3.5.3 Business Gains from a Demand Side Approach

If demand side for CO_2 slim products and services is supported, the business sector will respond immediately, through the whole chain from production to retail. A CO_2 slim label will be developed by the HIER campaign. The pro-active (sustainable) business sector would be encouraged after for their years of marginal business. It will surely stimulate innovations and new business.

3.6 Conclusion

The *'Wiebertje'* model divides us into four categories. However, as we see in Richard Barrett (and other value driven models) we are all inhabitants of the Netherlands and the World. Whether acting as an employer, employee, housewife, father, consumer, producer, candidate or voter…we are a whole person, and a whole culture.
If the Government decides to empower their citizens by giving them Emission rights, they will reach their goals for climate change and provide the business sector with an extra dimension for innovation.
We feel that the CO_2 indicator is a 'flag' that can call this shared vision and power into action for a policy based on the vision for a CO2 neutral Dutch Society.
In the next chapter, we look more closely at the power of CO_2 as an attractor for citizen empowerment.

[45] TNSNIPO: "Wat is het milieu ons waard".
[46] See also appendix 4 results of a citizen discussion group

Chapter 4 Value based economies

CO_2 is more than an unfortunate gas by-product of an industrial consumer society. CO_2 is s a new variable entering the global equation. It will dominate global consciousness, government policy and business accountability for the next 50 years. In this chapter, we look at the CO_2 indicator as a global benchmark, and describe its characteristics as part of the natural, personal, and infra-structural systems. We explore its potential as a global value standard.

4.1 Qualities of CO_2

Measurable
CO_2 is measurable. The processes through which CO_2 are generated are known, and the specifications for high-quality performance are clear. The digital revolution offers capabilities such as credit card systems, home metering, GPS, modelling and simulation tools, which enable CO_2 emissions to be traced, computed, estimated from industry, home, and transportation energy use. It can serve as a common benchmark from the individual level to whole atmosphere level. It is relevant for daily behaviour (driving a car) and relevant for global business (e.g. supply chains). A unit of CO_2 is worth the same for the whole, whether it is emitted in Peru or United States.

Natural
CO_2 is a natural indicator. The expenditure or savings of CO_2 have measurable affect on the biosphere. Money does not have any natural connection. Nature does not calculate in $$, euros, yen, or other man-made currency systems.

Planet-Level
CO_2 is a planet-level indicator. CO_2 has impact on the system load wherever it is emitted. CO_2 can be traced to a local source emitter, but its consequences are beyond all borders. Global warming is a phenomenon that happens at a global level, even though it may produce colder weather in some locations.

Accepted
CO_2 is the first widely accepted operational indicator of planetary risk[47]. The planetary exchanges of CO_2 and interactions of humans with these CO_2 cycles is one of the 'hottest' topics on the planet. The Kyoto protocol has been signed by over 140 nations. Protocols, markets, infra-structures for the purpose of CO_2 reduction are being created. Language, conferences, software, protocols, markets, infra-structures on climate change proliferate. CO_2 is a growth industry

Long-Term-Short-Term-Link
The measure is going to be relevant for the next 50-75 years. It will take 50-100 years for the current high-levels of CO_2 to re-enter in the safe zones. Change will take time, but the rate of change can be pre-calculated to show how much must occur in each time unit. We know the risks to future generations increasing CO2. The cumulative impact of CO_2, adds a weight to the future that the 'discounted-dollar' accounting system does not.
CO_2 emissions are vulnerable to the distorting logic of the current monetary system e.g. Firms discount the value of future currency, so that a 10 million Euro sum 10 years from now is only considered worth 1 million current Euros. Since money has no reference to anything of real and lasting value, it will always produce a result that

[47] There are several other natural system indicators. Earth-Air-and Water- based that also has the intensity to precipitate transformation -water footprints, ecological footprints, energy analysis- are examples of natural system metrics that reflect decades of work by environmental systems experts. World Water Forums are on the march to the Millennium Development Goals, and Earth Charter works forward on a number of indicators.

takes short-term profit and discounts and the costs of dealing with the consequences later.
At present, the emission systems objective is simply to minimize costs from moment to moment in terms of market prices that are largely determined by the current pattern of income distribution. This leads to a gross misallocation of resources in favour of the present. A key step towards sustainability is therefore to establish a unit-of-account currency that represents absolute amounts of something important to the whole world population, present and future, rather than current transitory price levels determined by a temporary minority[48].

Transformation
CO_2 is also a trigger for transformation since the quantum leaps in adaptation that must be achieved to reach acceptable levels of CO_2 require fundamental shifts from the societal direction of the last two hundred years. We are unlikely to make it to the level of CO_2 reductions necessary by just doing what we are addicted to more efficiently. What we choose to do, and the way we choose to do it, must develop to "second tier" thinking[49].
All professions must re-think their premises[50], and learn how to re-think premises in co-operation with others who must also re-think their premises.

Societal Learning
The journey to a low CO_2 economy is one that many countries, regions, cities, households and citizens have to take. Those first through the curve have the first opportunity to learn and build competence. The journey will involve a lot of un-learning as well as learning. CO_2 can be looked upon as a resource for human behaviour change, including consciousness of us as citizens on one planet.

4.2 CO_2 as a Value Framework for a currency

Given then, that CO_2 has the potential to serve as a world-wide marker of human behaviour and its impact, can it also be used as a shared global value on which a currency unit can be based? At the moment, value is measured in terms of money.[51]

Can 'Emission Permits' be designed using the intelligence and infra-structure of currency principles to multiply the impact of Emission permits strategies and investments by the government. There is a long track record in marketing, debit/credit cards, coupons, of loyalty point, air miles, stamps, etc., that relate to this question, and there has been an undercurrent of alternative economy solutions to global problems for at least the past forty years.

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[48] See Richard Douthwaite, The Ecology of Money, Green Books, Devon, 199. page.

[49] The theories of Spiral Dynamics (C. Cowan and D. Beck) are one of many tools for describing and guiding human emergence. Spiral Dynamics moves past fixation on one position (the 6 evolutionary stages of Tier 1), into a next step of consciousness development that recognizes the legitimacy and limitations of the 6 'memes' so far expressed in large-scale human civilizations,. The task in moving to the second tier is to create a form of collective intelligence that can provide space for the natural evolution 'up' the scale of complex organization required for 8 billion people to live successfully on spaceship earth. The search for the 'yellow' meme is active in Netherlands.

[50] Some examples: Insurance companies can no longer insure against natural disasters using the old set of rules. Engineers have to re-define their expertise---particularly in coastal countries. (See recent comments/booklet 'A Dutch Katrina' by Prof. Arjen Hoekstra, of the University of Twente) Global law is emerging. Accountants work with CO2 currencies. Etc.

[51] The issue of what anchors money, as a value since it left the gold standard in the 1970's is a tricky, but critical, issue. The role of oil in acting as a virtual standard for the U.S. dollar by pricing all its sales in U.S. dollars, and the massive debts that the U.S. current have, is another issue that will affect the oil to renewable equation. We think this is beyond the scope of this report, but is worth noting as an example of those 'wildcat' cataclysmic events that shake all operating systems using money as their life-blood.

Money has become the dominant symbol of value in the world. The potential of this variable to govern all aspects of a system has created a world economy that is threatening to unbalance the natural systems of our planet on which we and most other species depend for existence. It also continuously returns more and more surplus value to the rich, and less and less to the poor.

We look briefly at money and the traps and constrains that its dominance means for a successful CO_2 emission-reduction strategy.

1. There is nothing sacred about money. It emerged as a device of smart lenders several hundred years ago. Its objective was to stimulate trade.
2. Money has nothing to do with nature. When the well-being of the planet is only a priority if it generates profit, something is askew. Within economics, nature is a sub-system.
3. Money is now a digital scorecard owned and operated by the rich. Much of the cost of goods is interest on money borrowed. Much of the wealth generated by money is the result of stock-market speculation, and not value-adding to human society. Only those who have money can borrow money. The rich own the future, and the gap between rich and poor continues to widen.
4. The logics and technologies of money have outgrown the societies in which they first created value. Digitalization of money has created an artificial, technological real-time metabolism that consumes futures faster than governments and citizens can understand and respond.
5. The legal requirement of most (all?) private companies is to generate return on investment for the shareholders.
6. The design of banks, and creation of money, is based on generating loans (debt) that is, continual growth.
7. The rise of money and the accumulation of wealth was done on the basis of externalizing most of the costs of pollution, and treating the natural system as a free good.
8. The de-valuation of money means that future costs are discounted against recent profits. The financial accounting system is designed so that the consequences of choices now for future generations are de-valued. Despite scientific evidence that an increase of temperature increases risks beyond sustainable limits for billions of people, these costs are de-natured by the accounting rules of profit.

In short, arguments and strategies where CO_2 strategies are executed within current economic frameworks are trying to succeed within a framework where human and planetary survival are only variables in a profit equation. At the same time, only solutions expressed in monetary systems are acceptable.

However, it seems possible that a value exchange system complementary to money may offer wider strategies. Complementary means that it is a different form, that matches the gaps in the other.

A currency is a unit of exchange, which operates a set of agreements, social goals that the exchangers recognize as shared priorities. Currency is the operationalization of value. Examples of complementary systems include point systems, coupons, membership cards, incentive systems. In this section, we look at the CO_2 emission credits (CERS) as a potential value exchange system.

The Emission Permit is the anchor in the CO_2 economy. It is linked to Nature, and has as its primary value the harmonization of human activity with natural eco-systems. We see this currency system as one to be *inter-twined* with the present system, and generates value target to CO_2 reduction.

A currency is purposive

To operationalize CO_2 as a currency, each transaction must link to the lowering of the CO_2 emissions. The value of CO_2 as a currency must be linked as closely as possible to these criteria. Money saved by CO2 reduction can easily be diverted to activities that are 'counter' to the reduction. (e.g. I save 500 Euros by using green energy, and use the extra cash to fly to the Caribbean for a winter holiday.) To reframe their significance, CO2 points, should only be used in CO2-reducing exchanges'.

A currency is a Medium of Exchange

One core function of a currency is as medium of exchange. When a unit of currency goes into circulation in a society, it changes hands many times. A design feature of a CO_2 currency should be to increase the amount of CO_2 reducing exchanges (due to purposive value). The more times a target-relevant currency moves through the system the more interactions there will be where the impact of the transaction on CO_2 reduction is relevant.

A currency is a tool of Empowerment

Having units to exchange in a system is empowering. By giving individuals choices to stimulate reduction of CO_2 –options in buying, using, building, moving, etc. more and more activities in the culture will begin to have a 'CO_2' reduction consciousness in them (for example, the Carbon Exchange conference in Denmark last November, used a CO_2 compensation fee structure).

CO_2 is a time-bound unit of currency

Each year or two there is a different limit (value) against which the currency is created. Thus, CO_2 is not a currency that can be hoarded and saved. It does not generate an imbalance of wealth in society. It empowers a community of activity with the shared purpose of reducing CO_2 emissions. The 1-2 year time-frame of emission reductions creates an urgency marker that sets the pace of change. The currency is re-issued every 18-24 months under a set of rules agreed in advance (e.g. one to one conversion; doubling of access to future credits, etc.).

CO_2 as a currency, can both be local and global. CO_2 is local in the sense that services that are, CO_2 reducing, are going to be local. Transportation of goods around the world by fossil-fuel is more expensive (CO_2.wise) than goods produced and consumed locally CO_2 is global in the sense that exchanges of CER's are tied to CO_2 reduction, and thus provides a global benchmark no matter where the CO_2 is emitted. CO_2 transactions must be transparent and verifiable in relationship to CO_2 reduction or their value as a social investment to deal with global warming is suspect.

If a business or household agrees to accept and use CO_2 currency, it also agrees to be accountable for keeping its CO_2 use within the levels (rights). The 'tracking power' of CO_2 emission rights cards becomes an issue in any widespread measuring system. Privacy issues, and societal control dimensions becomes an issue for exploration.

4.3 Conclusion

CO_2 Emission rights are a new resource asset that governments now inherit/accept every year as part of the 140 + nations agreement to meet Kyoto targets. In this chapter, we have underlined the uniqueness of the CO_2 benchmark, its immense significance for the viability of the future society, and have proposed to use a 'targeted incentive strategy' to multiply the attractiveness and effectiveness of a widespread citizen involvement in lowering CO_2.

In the next chapter, we explore different methods of accelerating CO_2 emission reduction by Dutch householders, including a variety of ways of designing Emission Reduction Units exchange systems.

Note that the purpose of the complementary economy is NOT to replace the money system. The function of the complementarily is to allow the wealth-producing systems of our societies to re-orient towards playing the game within a viable energy-ecology framework. The use of the points system will 'piggy-back' on regular Euro transactions, the point system has the power to multiply the amount of Euros that are invested in changeover as well. This provides leverage and choices for individuals (empowerment) in the same way as the Emission Trading system offer choice and opportunities for businesses.

Chapter 5 Feasibility

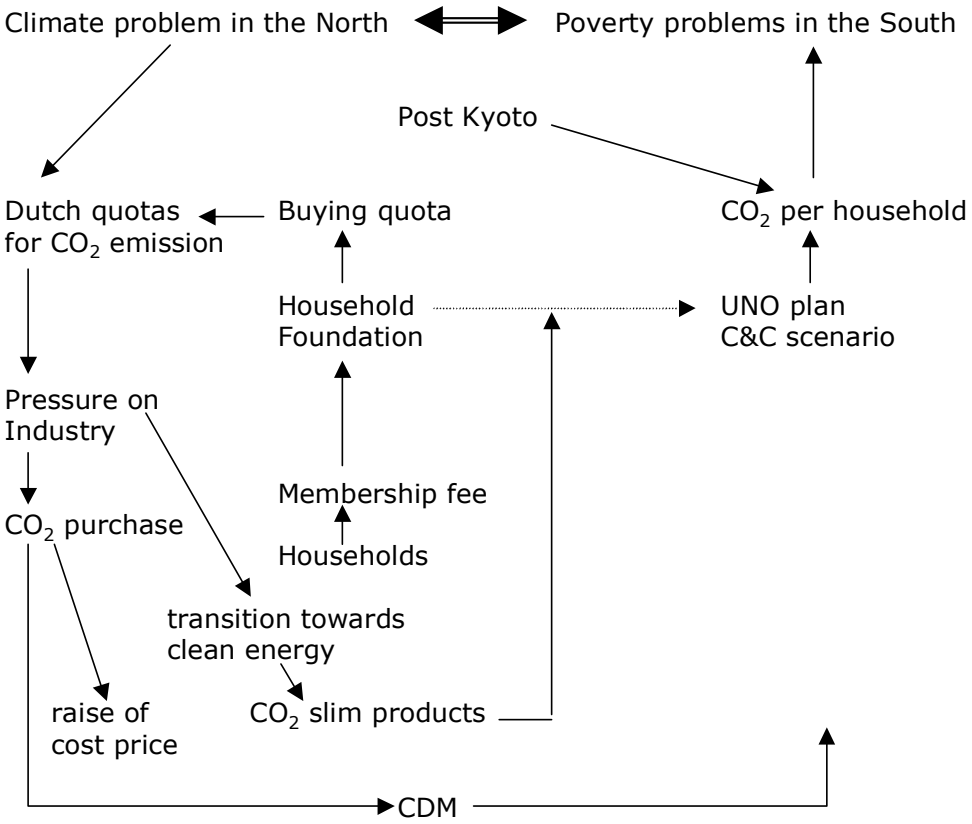
The first chapters have explored the 'deep structure' in which a feasible solution must emerge. In this chapter, we define the criteria that a feasible process and solution must meet.

First, we must consider the original focus of our inquiry, and describe briefly how we moved from this to a wider notion of what feasible entailed.

5.1 Our Starting Point

The starting point, as described in the assignment for VROM, was the idea that the Kyoto4All Fund could be built by a Membership Fee approach. Citizens would voluntarily join as members and pay a Carbon-neutral fee equal to current CO_2 value per ton x national average (8 tones). This would generate a revenue stream for investment, education, and marketing for CO_2 reducing activities. Citizens would become smart consumers and attract a wide variety of new CO_2 slim services/products. A snowball effect would develop and by 2012, there would be a wide base of householders making and following through with CO_2 reduction initiatives. These households would be informed and involved with worldwide CO_2 reduction if every household in the world would get the rights as equity principle to solve poverty in the world. During the next four years we would like to develop a system for this based on the ideas from complementary economics, due to the facts we described in chapter 4 about CO_2 as a international benchmark. This internationally developed system could be part of the post Kyoto negotiations.

Figure 5.1. The original plan



This diagram connects the world's climate problem with the world's poverty problem. We originally took up the idea of asking people in the North (to start in the Netherlands) to trade off their own emission. With this money, we would buy a part of the CO_2 quota and destroy them. This would put pressure on industry. For example:

- business would have to buy new rights and this would stimulate CDM in the South, and increase the prices of CO_2 high products
- businesses would start to improve their production processes (eco-efficiency, renewable energy, etc.) and produce CO_2 slim products.
- innovation would be encouraged by investing Foundation money into these businesses. The members will be encouraged to buy these CO_2 slim products.
- In the long run CO_2 slim products would become cheaper than CO_2 high products.

At the same time, involvement of the members will raise awareness around CO_2 as an instrument for solving climate and poverty in the world. We would develop an system based on equity for CO_2 rights and inform, co-create, set the stage for such an equity principled system.

The International scope, how CO_2 emission trade affects poverty reduction

Through the Kyoto4All association, we would have a great reference group to be involved in developments for a world wide household owned CO_2 rights, for post Kyoto. For this we will combine ideas that are until now an under stream in society. For instance in 1993 Pieter Kooistra, the artist that invented the art-lending systems, wrote a book[52] about poverty reduction based on an extra world basic income for all people, called the Ideal Self Interest. In the nineties it was well supported throughout the world by leading economic, social and political experts. Within the UN it was well received, because its aim was to stimulate the necessary integration process in an economy of community of interests. A supplementary world economy, initiated, managed and financed by the UN could realize an equivalent basic income for all people in the world. His thinking is still actual and spread through the foundation of UNO-income.

The Global Common Institute[53] wrote a scheme for CO_2 rights for all citizens in the world, Contraction and Convergence, as we have described in chapter 3. More and more this scheme gets recognition in the world and appreciated by political leaders in both developing and developed countries because of the equity principles behind it and due to the fact that it may be the only way to involve developing countries in the cap and trade system.

A research by RIVM[54] showed that on a macro level it will reduce the cost of the emission trade system if every country is involved.

If we combine the Contraction and Convergence scheme with the thinking of Pieter Kooistra, the thinking behind several other complementary economic ideas and some social innovations on organizing decision making from bottom to top in the whole world, some very interesting surprising similarities are shown.

[52] The Ideal Self-Interest, an extra world basic income for all people
[53] Contraction & Convergence, the Global solution to climate change, Aubrey Meyer, Schumacher briefings
[54] Report 500035001/2004 JC Bollen, AJGM Manders, PJJ Veenendaal: Wat kost een emissie reductie van 30% Macro-economische effecten in 2020 van post-Kyoto klimaatbeleid

A lot of the elements of the UNO master plan can be used, because:

- it creates community co-creation
- it carries all elements of empowerment, equity for all inhabitants of the world (rages, man and woman, communities, etc.)
- it fit the needs of communities in several stages of development
- it manages and organizes the system of decision making process from the bottom up bases on the needs per community
- it sets criteria for sustainable development based on the stage of development per community
- it fits with the role the UN has with the Clean Development Mechanism
- it gives the UN a whole new way to operate, with fits to the original idea behind this organization
- it will create a lot of jobs all over the world

If the idea of C&C becomes more and more accepted, it is worthwhile exploring how the elements of the UN master plan could add value in this system. This can be done in a co-creating process with the experts of C&C, complementary economics and people who know the UNO master plan. If we bring these people together on this subject in such a way that they share their thinking, write a document, put it on the internet and ask for feedback, and bring them together for a next thinking and co-creation process. Within 3-4 of these rounds, we get the collective international wisdom and set the agenda. J.P. Rischard also supports this process, as he writes about it in his book High Noon[55]. It will speed up the process tremendously.

Citizens buying CO_2 out of the market

One of the ideas in the proposal was that citizens could speed up the reduction process by actively buying up CO_2 credits on the market. Since there are only so many credits available in the 'capped' Dutch system, if citizens bought up credits, it would tighten the market and require businesses to make deeper cuts, and invest more in CO_2 reduction. That was our first line of inquiry in our early interviews and research.

We discovered that it is possible for individuals to register to trade on the CO_2 exchange.[56] Citizens can purchase a license to buy and sell on the CO_2 emissions exchanges. It is thus possible to imagine that a group of citizen CO_2 investors with lots of capital could start making a profit and affecting the market in CO_2 emission credits[57].

However, we did not see how this possibility could translate into a solution that would, in fact, lead to a lifestyle, CO_2 emission-reduction strategy that could make a difference. The barriers to success included:

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[55] JP Rischard, High Noon, twenty Global problems, twenty years to Solve Them (2002)

[56] We found that at the Netherlands Emission authority (NEa) anybody can open an account. It costs about 160 euros and the account-holder can start to trade similar to the normal call and put options on a stock market. On a household level it is very hard to validate the rights that are given (say 8 ton) and prove you have emitted more, less or the same. Some measurement can be done through energy bills, but that is just a small part of the total use by a householder.

[57] The European Climate Exchange is exploring ways to set up citizen investment options, but its focus is to enable citizens to share in the risk and profit opportunities of trading CO2, and doesn't speed up CO2 reduction.

1. The number of members required to exert any pressure on the market was too large.
2. The number of ways businesses can bypass such pressure, makes success unlikely.
3. There are so many case-by-case agreements, made in small meetings that there is, in effect; no sector-wide ceiling that can be lowered.
4. The amount of political trade-offs in country-to-country negotiations, the number of investment and infra-structure options in large company portfolios, all tend to make the system quite opaque to outsiders. We couldn't show impact and we couldn't show citizens how their CO_2 rights purchases translated into CO_2 reduction.
5. It would be too easy for the citizens' participation to become an adversarial relationship with large organizations. The empowerment approach is based on win-win, and not on control and pressure."
6. The citizens who will give the future the leadership it needs are those whose values and lifestyle are moving towards sustainability. Trading and exerting pressure are not activities that would attract them to a Kyoto4 All Association.
7. There isn't any value return for the citizen through trading, and is a distraction to empowerment for sustainability.
8. The strategy remains a supply-side driven approach.

It may be that buying CO_2 'coupons' is a good awareness raising and educational initiative as for example, the Swedish Society for Nature Conservation who started a campaign in Sweden. They started in December last year and until now they have sold among their 170.000 members, 16.000 tons out of the total cap and trade for the Swedish industry of 22,3 million.
It may also turn out in a later phase of the Foundation with revenues and a large membership that a strategic purchase of a large number of CO_2 shares may be an effective tactic.

However, we came to believe that CO_2 rights purchase out of the market is not a viable core of ***our*** citizen strategy. We think that such a strategy might fit more with the organizations who combined their forces in the HIER campaign and who already have a lot of members behind them.

We concluded that the individual CO_2 buying as a way of reducing the overall ceiling is not effective and not desirable as the core of a Kyoto4All initiative[58].

So therefore the concept of Foundation evolved towards that of an Association. The precise legal identity will vary with the purposes finally chosen, but the intent in each model is to empower the citizens, and this involves responsibility and ownership.

As we looked at the scope of the need, and the speed with which a 'turnaround' must occur, it became clear that widespread citizen involvement is a condition of success.

The remainder of this chapter will set the specifications for feasible solutions to widespread, demand-driven citizen empowerment in reducing CO_2.

[58] Our exploration on simulation feasibilities does suggest that it would be possible to build a game where businesses, utilities, and citizens groups have to compete and collaborate to reach targets. In interviewing the designer of the software and scenarios developed to experiment with the industry CO2 dynamics, he felt it was not possible to use the same scenarios. Thus, development of such a simulation would require a dedicated project.

When we set out to examine the feasibility of a Foundation, we realized that "feasible' in the context of rapid warming and global context change, had to be looked at differently.

5.2 Feasibility as Process

Feasibility for societal change does not involve a blueprint that describes the step-by-step construction of an artifact-- as might a feasibility analysis of a bridge. The 'cross-over' with which CO_2 is concerned involves a transformation of starting points rather than an orderly transition from one stage to the next. Feasibility emerges, often suddenly, as forces in a chaotic environment create pressures that 'flip' the field to a different state.[59] Thus, the search for feasible 'trigger points', involves locating leverage points where a change from one state to another has a chance to breakthrough.

Ingredients of this search for feasibility include:

- Focus on value. There must be a purpose and reward that matters to the people who must create the systems that bring it into being. While it may include 'What's in it for me?' elements, it has a deeper meaning of 'principles' which attract and align commitment.
- Feasibility is a function of priority, alignment and commitment to purpose among key stakeholders. Designs that enable the expression and understanding of these perspectives are essential if multiple stakeholders are going to align their shifts in real-time.
- Feasibility is determined by the contexts in which a solution-generating system must develop. The increased risk of sudden, un-expected shifts, and the continuous pressure of change on many dimensions make it difficult for organizations and individuals to co-create strategy with others.
- Feasibility is an emergent property of process, evolving through stakeholder commitment, participation, and learning. The value focus begins to enrich, as people get involved, and acquires an identity through the encounter with the differences and pressures that are engaged with these values.

Thus, paradoxically, the feasibility of householder engagement with CO_2 has to do with encountering and acknowledging risk, uncertainty, the 'not-knowing' of the key players, and the linkage of the CO_2 agenda in a 'mess'[60] of other agendas. Feasibility is about engaging in a process that surfaces the dilemmas, demands, uncertainties, models that are the (limiting) beliefs within which we currently accept/reject alternative futures. Setting the conditions for this engagement is what we have referred to as empowerment[61].

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[59] This statement comes out of the field of chaos theory. A popular version of this phenomenon can be found in The Tipping Point, by Malcolm Gladwell.

[60] " A mess, like any system, has properties that none of its parts have. These properties are lost when the system is taken apart. In addition, each part of a system has properties that are lost when considered separately. The solution to a mess depends on how the solutions to the parts interact. There a plan should be more than an aggregation of independently obtained solutions to the parts of a mess. It should deal with messes as wholes, See E. Trist and F. Emery, Towards a Social Ecology, systematically." R. Ackoff, Creating the Corporate Future, Wiley & Sons, 1981,p.52.

[61]There are many models and processes of empowerment. Some of the best known are the socio-technical system models from the Tavistock Institute (Trist and Emery), the organization learning models of Donald Schon & Chris Argyris, expanded by Peter Senge, the scenario models developed by Arie de Geus and Pieter Schwartz, and the Viable Systems Models of Stafford Beer. While we have our own preferences, we simply wish to stimulate attention to the fact that feasibility begins with a set of principles of engagement with those whose agreements and actions must be in alignment for success to emerge.

In our interviews, research reviews, media access, and Internet searches, we again and again came across initiatives and concerns that related to our CO_2 emission reduction focus. From CO_2 emission one goes to global warming to climate change, and those embed us in realities of drinking water, poverty reduction, infectious disease, disaster prevention, terrorism, etc.. The 'waves' of change arising in society over the next five years (until 2012) will require the Kyoto Association, and all other civil systems, to build integrated, multi-framework, multi-network, organizations. The Kyoto4All Association will have has as its governing variable the reduction of CO_2 emissions, but this indicator takes citizens into the encounter with the wide range of inter-connected systems that we live in.

5.3 Performance Specifications for a High-Quality Solution

The answer when it arrives will be emergent out of a process in which the key stakeholders are engaged. There are many process possibilities currently in action that may drive the solution. Whatever it is, it must meet the following criteria[62].

1. The system must empower households to make choices, earn rewards, and take responsibility for their behavior (demand-driven).
2. The outcome should result in participating Dutch householders reducing their householder CO_2 emissions by a pre-specified benchmark (CO_2 neutral, as defined by government targets).
3. The system development for 6% reduction should be the first stage in a system designed to achieve 20% reduction by 2020.
4. It should speed up the transition of the energy, transportation, and production sectors to continuously lower CO_2 emission indicators. p
5. It should be technologically feasible. There must be actual tools available to reduce CO_2, there must be monitoring and feedback systems, etc.
6. It should be operationally viable i.e. it must be capable of surviving if it were brought into existence. Survival refers to both economic and politically viability.
7. It must be capable of sustaining its values in partnership with other stakeholders. For example, it should stimulate suppliers to increase green services available.
8. It must be capable of rapid learning and adaptation.
9. It must be able to attract and sustain citizen commitment to re-orient lifestyles

5.4 The Kyoto4All Association and societal change over to a CO_2 neutral society.

Research, recent events, and increasing media attention on climate change supports the hypothesis that there is a high-potential, 'critical field' (20%) of Dutch householders poised to participate in moving Netherlands forward to a renewable energy economy[63]. In the tipping point zone, strategy is a gamble. Many initiatives are heading in the same direction. What it will be that will empower a breakthrough is not known.

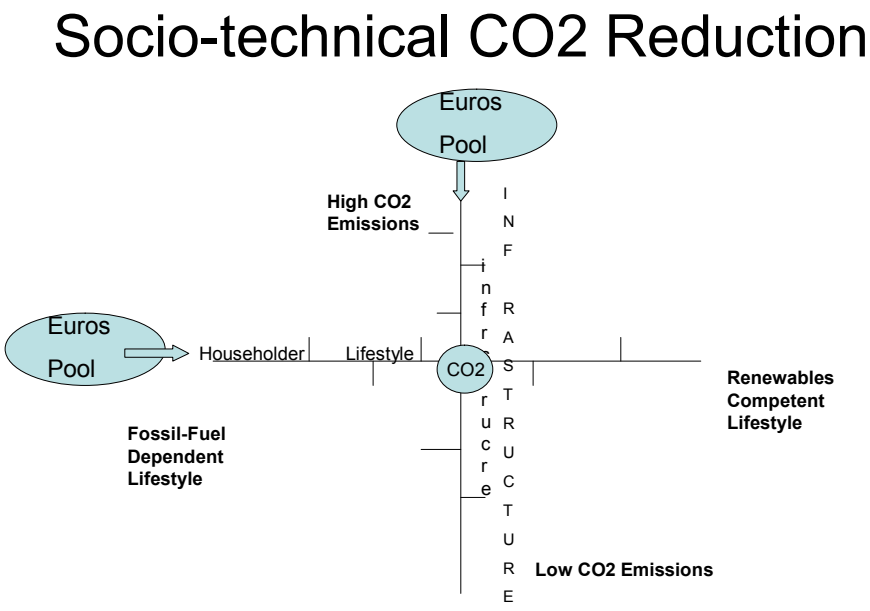
We suggest several variations of empowerment based, demand-driven citizen involvement, all bundled under the title *Kyoto4All* Association. These are offered as ways to attract these 20%, early adopters, to participate as partners in societal transformation and CO_2 emission reduction.

[62] These criteria are adapted from Rusell Ackoff, Creating the Corporate Future, Wiley, 1981. Chapter Five: Idealized Design.

[63] e.g. Centre for Human Emergence event with 900 people signed in on March 31 to launch a citizens movement to support the emergence of the next transformation in Dutch society. (www.humanemerge.org)

We developed a 2x2 matrix to relate the simultaneous, inter-connected shift of householder (citizen) lifestyles complementary to the shift in the nation's industrial infrastructure's The Vertical Dimension is a cascade of National Infra-structures running from High CO_2 Emission to Minimum Critical Emissions. Infra-structure refers to the 'hardware' of the society—roads, cities, dikes, houses, railways, trucks, etc. The horizontal is an Individual household lifestyle that crosses over from High CO_2 Emission dependence to renewable energy competence—housing, food, travel, entertainment, free-time, etc.

Figure 5.2. Socio-Technical CO_2 reduction



CO_2 at the centre of the matrix refers to a number that is the synergistic composite of the CO_2 emissions on both dimensions (infra-structure and individual households). The 'notches' on the dimensions refer to the key benchmarks set in the 'cap' for each dimensions.

Euro pool refers to resources that push CO_2 emission lower both on the vertical and the horizontal lines. We feel that the model works best when the resource pools for citizens and infra-structure are equal. The 2 x 2 matrix underlines the concept that the process is a socio-technical transformation where both lifestyles and infra-structure dimensions co-evolve simultaneously.

Netherlands began at the top of the Infrastructure (vertical dimension) with the 2005 engagement of the largest 206 highly emitting institutions in 'cap&trade. We propose that starting in 2007, an equal sum is committed to the citizen dimension.

5.5 The Kyoto4All Association

The aim of the Kyoto4All association is to reduce the carbon intensity of consumption and production through households.

The Kyoto4All Association is the organization erected to link the households (consumers/citizens) sharing the vision of a Carbon Neutral Society that goes beyond

the Kyoto targets[64]. There are many ways this organization can be formed. But due to our findings in chapter 3, we think it should be a membership organization, open for every citizen willing to invest in our common future and cooperate in neighborhood groups.
There are several organizations in the Netherlands that can contribute helpful elements for Kyoto4All for example: the association ANWB, the cooperative Rabobank or the association Milieu Defensie (friends of the Earth). Our recommendation would be to use sociocratic[65] elements for reaching decisions within the neighborhood group and cooperate with the professional working organization that supports the groups. As we have described in chapter 3, we see a potential of 15-30% of the Dutch population (the cultural creatives) who are involved in Lifestyle, Health and sustainability issues. This segment would be the natural allies and members of a Kyoto4All Association.
At the moment a foundation[66] for the cultural creatives is be set up by a marketing research organization, together with some other expert. We think Kyoto4All should co-operate with this foundation.

5.6 Compensation and CO2-free consumption

The purchasing power of consumers increases further and further, broadening and deepening the amount of products and services we buy. In recent years the market for environment-friendly products and services has grown, but it does not go fast enough and policy objectives are not reached. Developments in the ICT field (e.g. mobile phones, digital cameras, Google, etc.) enlarge our access to information and promotion. We face the huge challenge to accompany this growing force for consumption with a lower impact on our planet. In the models we use we come up with two possible routes: stimulating CO_2-free consumption and CO_2-compensation.

5.6.2 CO_2-free consumption

CO_2-free consumption builds on the idea that consumers substitute their current product parcel by products and services with a lower climate impact. This growing substitution in the direction of CO_2-free products stimulates consumers to change their lifestyle.

Calculating the energy impact per Euro spent for each product or service does it. Until now this cannot be done for individual products. Grouping the products in domains or product groups do calculations. The methodology is used by RIVM (and others) and it was developed by IVEM in Groningen (and others).
Some products and services have a low CO_2 value by nature, like electricity from renewable sources. Other examples of products and services with a low CO_2 per euro value are: theatre, restaurants, bicycles, books and software.

There have been several examples of projects that attempted to change the buying behavior of consumers in this direction. For example in the VROM financed project 'Perspectief' 18 households got a money bonus if they succeeded in spending their income in a more CO_2-free way. In the demonstration 'NU-spaarpas' consumers were rewarded with loyalty points buying CO_2-free products; these points could be spend on CO_2-free premiums. For an innovative proposal, see the report *Consumption Sustained - or Playing with Hyenas* from Stichting Natuur en Milieu in Utrecht (March 2005, Harry te Riele and Jan de Vries).

[64] We estimate a 20-35 % (2-3 tonne) reduction per household is possible
[65] Sociocratic, organizing the decision-making process (isn't clear? reference? point?
[66] Market Response, P+-magazine, SVN, Work on Progress, etc.

5.6.3. Compensating CO_2

The concept *climate compensation* is based on the idea that it doesn't matter where CO_2 is emitted in the air, or CO_2 is withdrawn from the atmosphere. If it proves to be too difficult or expensive to lower the CO_2-emissions of an activity, then the same quantity of CO_2 can be prevented elsewhere or fixed in nature.

Products and services that are CO_2-free are products and services that are CO_2-compensated by producers or shops. There are all kinds of initiatives for climate-neutral products and services and for climate compensation. The well-known example of climate compensation is *Trees for Travel*. The CO_2 emissions of flights can be compensated by paying Trees for Travel, which guarantees that for each ton of CO_2 emission sufficient trees are planted. Other examples are: *COOL-flying*, climate-neutral gas of Essent and Visa Greencard.
In principle all products and services can become climate-neutral. But making products and services CO_2-free is much easier for one product than for the other; garden plants are easy (energy supplying greenhouses, bio plastic pots, bio diesel transport), climate-neutral petrol is more long-term (bio fuels, H2 or electric in the future).

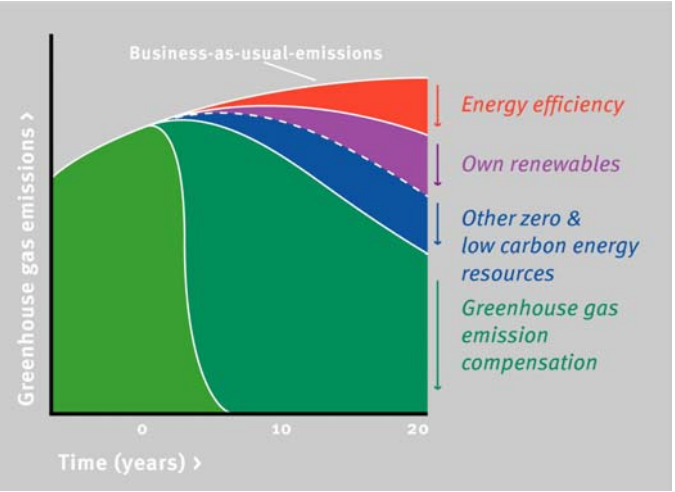
It is important that the money paid by consumers and producers to compensate is effectively used for extra CO_2 emission reduction or CO_2-fixing. There are several ways to compensate the CO_2.

1. The first idea is to purchase emission rights on the international market, which was one of the starting points of our research. As we said earlier in chapter 4, we are not very enthusiastic about this option. Russia has many rights because the economy collapsed after the qualifying date 1990; the notorious Hot Air in the Kyoto protocol. There is something similar for the mission rights for industry: these rights have been given away for free, and very generously by governments (the Netherlands most generous of the Europe 15).
2. The second one is to plant trees e.g., the solution Trees For Travel and VISA Green Card use. At first sight this is a very charming option. The result can be more nature, or an agricultural source of valuable bio raw materials. Here we encounter some problems. In the case of nature creation: the amount of destruction of forests is much larger then the replanting, and the biodiversity is poor. And in the case of bio raw materials, the carbon is only temporarily fixed in the material, waiting to become CO_2 after burning, hopefully, in a far future. For both options the measure has to be additional, and quite often this is not clear.
3. This additional problem also counts for option three: emission reductions with energy efficiency or renewables in developing countries. The Clean Development Mechanism (CDM) has a checking and certification procedure to ensure that emission reductions are effectively realized and that the measures are additional. As extra guarantee the World Nature Fund developed the so-called Golden Standard for CDM-projects. Only CDM-projects meeting this standard receive their support. The disadvantage of CDM is, however, that the formal procedures for granting CO_2 rights are very bureaucratically and extremely slow.
4. The fourth one builds on the last one, but the goal and scope are different. The idea is to create funds made available in production chains for energy efficiency and renewable energy. We prefer this option, and built some of the models on it.
5. We propose to erect a revolving fund that invests the money to eco-innovative companies for raising the efficiency in factories and transport, and developing renewable energy. Furthermore the choice is made to lend the money to a party as low as possible in the production chain, going up in the chain as appropriate. The loans of the revolving fund can earn interest, based on inflation plus risk

insurance. By keeping the interest low, the earning back time can be longer, making it available for many investments. We propose the following route:

- Before starting, an ambitious vision is made for and with the production chain, which ends in SMART aims concerning energy efficiency and renewable energy in the chain.
- In time, a maximum energy saving in the production process has to be reached (for example:at the next revision of the factory in 2009, a saving of 60% is reached per product with new machines).
- Furthermore, an increase to 100% renewable electricity and heating is necessary (example: in 2006 all electricity is renewable, and in 2009 heating comes from collectors storage).
- And last: the replacement of mineral raw materials by reuse and bio raw materials is important (example: in 2006 95% recycling, and in 2012 switch to bio plastics).
- The rest of the CO_2 can be compensated (for example 100 KG C CO_2O2 per product in 2005, going back to 20 KG CO_2 per product in 2012).

Figure 5.3 The illustration of Ecofys shows this schematically.



To understand this better we give an example for wooden furniture:

- The FSC plantation in Indonesia produces the wood.
- The factory in Indonesia makes beams from the wood.
- The wholesaler in Germany makes kitchens from the beams.
- The shop in the Netherlands sells the kitchen.
- The money will be invested to the plantation in Indonesia, that will invest it in an anaerobic digester for producing electricity using the bio-waste, using the sludge as fertilizer.
- By doing so the energy content of the plantation is lowered by energy efficiency (less dependency on artificial fertilizers by bringing the sludge back on the land) and renewable energy. If there are no easy investments on the plantation anymore, the next step of the chain will be targeted: the wood factory.

The next chapter present five models of a Kyoto4All Foundation that meet the criteria of feasibility for attracting widespread householder involvement in reducing CO_2 emissions.

Chapter 6 The Models

6.1 The Models and their comparison

In this chapter we will present three models and four sub models. We start with *Domestic Tradable Quota*s, go further with the *Community Model*, and end with four market models. We think that each of these models is a possible way to go, although we think that combinations of them could be even more successful. This is outside the scope of our report, and can be part of a participative process, which we will describe, in the next chapter on recommendations. After this we will list possible elements for success, focusing on the models.

6.1.1 Domestic tradable quota

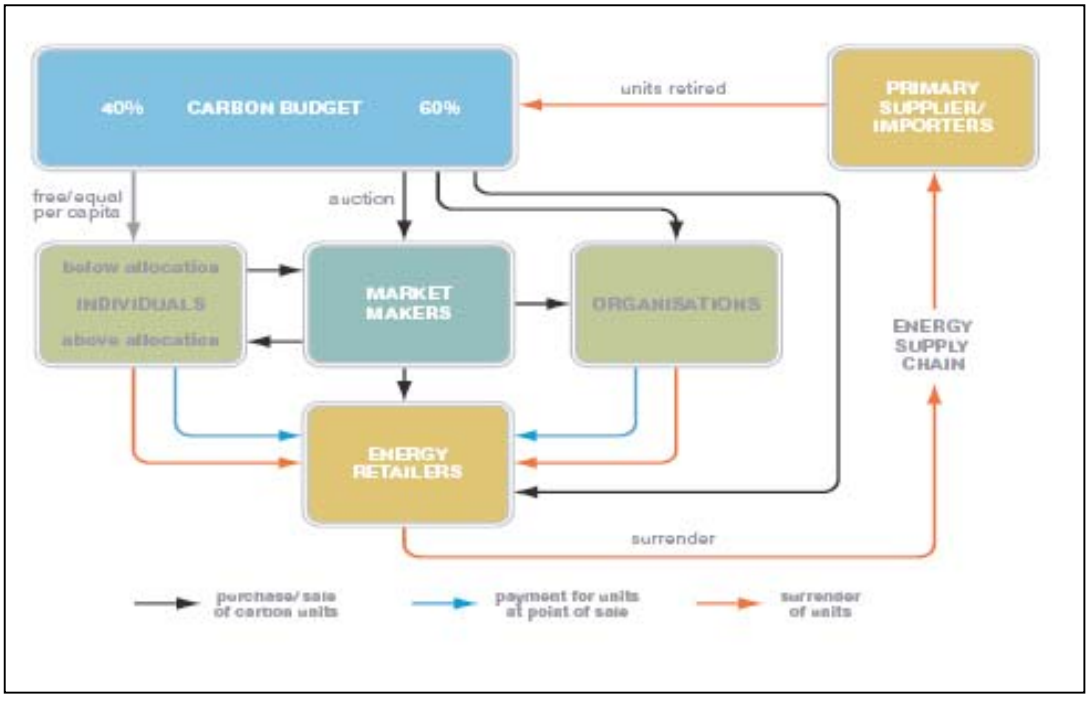
*Domestic Tradable Quota*s, are a proposed policy instrument to reduce greenhouse gas emissions from energy user in which the end-purchasers of energy surrender emissions rights. *Dr David Fleming, a London-based policy analyst, who first published the idea in 1996, proposed domestic Tradable Quotas*. Detailed information can be found in the Appendix 8 - Research in the UK.

A major difference between *Domestic Tradable Quota's* and the other scenarios is that, in the *Domestic Tradable Quota* scenario, citizens are given CO_2 emission rights, and required to record all transactions via this card. It is not a partnership approach, but a mandated approach. *Domestic Tradable Quota*s can be broken down in three steps. Step 1: setting the carbon budget, step 2: surrendering carbon units, and step 3: acquiring carbon units.

6.1.2 Step 1 setting the carbon budget

The carbon budget is the maximum quantity of greenhouse gases that the nation can emit from energy use during any given year. Carbon budgets are reduced year-on-year so as to meet nationally and internationally agreed emissions targets. Each budget is divided into carbon units, with 1 carbon unit representing 1kg of carbon dioxide equivalent.

Figure 6.1 - Domestic tradable quota



6.1.3 Step 2 surrendering carbon units

Fuels and electricity are assigned a carbon rating based on the quantity of greenhouse gases (measured in carbon units) emitted by the combustion of a unit of fuel and the generation of a unit of electricity. When individuals and organizations purchase fuel or electricity, they surrender the number of carbon units corresponding to their purchase. For accounting purposes, these units are passed up the supply chain and on reaching the primary energy producer or importer are, surrendered back to government.

6.1.4 Step 3 acquiring carbon units

Individuals eligible for units receive them free and on an equal per capita basis. The proportion of total carbon units allocated to individuals is equal to the proportion of total energy emissions arising from individuals by purchase of fuel and electricity (currently around 40% in the UK.) Individuals may purchase additional units on a national carbon market and organizations are required to purchase all of their units on the carbon market. The carbon market consists of primary sellers, final buyers and intermediaries who facilitate trading between them.

A more complete description of this process can be found in the appendix 8. The feasibility of *Domestic Tradable Quota* depends on government will. The argument has been made at the global level that the equity principle underlying the *Domestic Tradable Quota* is the sole basis under which a global agreement can be made. The current disagreements between nations with expanding economies, (e.g. China and India) vs. the mature economies (Europe and U.S.A) over levels and obligations, if left to a case-by-case set of negotiations will take so long, and negotiate so many special conditions, that it does not represent a viable way forward. The Kyoto Protocol does not have the force to solve the problem if it leaves out such major players.

At the same time, people we interviewed assured us that championing a Contract and Convergence point of view was a sure way to be totally dis-regarded!

What needs to be tested is the result of *Domestic Tradable Quota* and global trading in individual-based CO_2 credits. The Kyoto4All Fund could be a bridge concept to explore the basis of the *Domestic Tradable Quota* theory. If the idea of CO_2 compensation was linked to twinning relationships with communities in other countries, then the CO_2 credits *the Kyoto4All Association* needs to meet its shortfall could be coupled with investment in the twin community. This could be tested, for example, through a NABUUR arrangement.

Such a pilot, in addition to motivating a Dutch community movement to CO_2 crossover, would enable Netherlands to generate information on the constraints and consequences of citizen CO_2 partnerships. These results would be useful as a further incentive for community involvement (voluntary) in CO_2 reduction, and for testing the mechanics of the mandatory *Domestic Tradable Quota* option.

6.2 The Community Model

One of the main impediments of the *Domestic Tradable Quota* model is the fact that you need a strong government willing to enforce the system. Furthermore it doesn't empower people, because it is non-voluntary. To overcome these problems we tried to develop the early ideas of a new model. The model is based on ideas of a complementary currency. *Carbon Points* are units of value that members agree to exchange in any activity which has as its purpose the reducing of CO_2 emissions.

6.2.1 Step 1: the government fills the Kyoto4All fund

The government sets a clear statement of its vision of where it feels we need to go as a society to meet our climate and Kyoto commitments in 2012. It announces a multi-million Euros resource fund that is available for use by Kyoto4All members. This Kyoto4All Fund should be an equitable match with the government investment in the reductions to the large producers. The annual contribution to the fund will vary depending on the capacity of *the Kyoto4All Association* systems and the speed of implementation required to meet national goals.

6.2.2 Step 2: citizens join in groups

The yearly average use of direct energy is 1736 M3 gas and 3346 KwU Electricity. Furthermore fuels for transport have a large CO_2 impact. Citizens are invited to reduce their direct energy use by 10% in the first year (e.g. 2008). Any citizen willing to try can join. He gets access to the fund that will be made available in the form of earmarked euros, with the name of *Carbon Points*. One Carbon Point has parity with one Euro.

The householders are invited to organize themselves in real or virtual groups of 10 householders. These households may be 'organized' through churches, clubs, schools, businesses, etc, or they may be created specifically for CO_2 purposes e.g. Wheels4All. These groups support members in setting goals, and participate in the decision-making of the Kyoto4All Fund. Experience with EcoTeams and Micro Credit groups indicate that being in community increases commitment, innovation, and amount of reduction.

Each group has to present a reduction plan to the Kyoto4All association. For the execution of this plan, the government offers every participating citizen 1000 *Carbon Points* to invest in preparing their first year CO_2 reduction campaign. The Carbon Points can be used to pay for insulation, installations for (micro) renewable energy, courses in changing daily patters of behavior, etc. The direct energy use is metered cleverly. If, *and only if*, the planned reduction is made, the household can go for a second phase in year two. If the target of 10% is not met, extra efforts have to be made, till the target is met. In this second phase the group makes a new reduction plan. And, this time, more *Carbon Points* are issued, for example 2000, for a 10% reduction of direct energy use.

A mayor part of the reduction will be by changed lifestyle. By the follow up of the yearly plans, a change of daily patters of behavior is reached.

From a societal well-being point of view, the CO_2 resource (*Carbon Points*) stimulates interactions that add value to the society:

a) the creation of CO_2 community increases the societal learning. What my neighbor has learned about changing parts of their lifestyle, becomes available to me. As part of an Association, some of this learning also translates into capital for *the Kyoto4All Association* e.g. benchmarks and 'how-to's that are available as knowledge products to members. This societal learning is a 'knowledge commons' that belongs to all households who are part of *the Kyoto4All Association*.

b) the sharing of value in CO_2 reductions creates a community resource that creates neighborhood inter-dependency thus strengthening Civil Society. If we can earn *Carbon Points* as a community, then it makes sense to invest in reducing the CO_2's from the biggest emitter. The CO_2 savings (*Carbon Points*) from this investment will be made available to those whose importance is next. This bonding creates cohesion in Dutch society that is healthy.

6.2.3 Step 3: Carbon Points are redeemed for Euros

Businesses that provide products and/or services related to CO_2 emission reduction are recruited. The 'community of citizens' engaged in CO_2 emission reduction of householders forms a market for using relevant services and an exchange metabolism is fueled with the yearly 1000 *Carbon Points* per user. This 'CO_2 slim' market stimulates the development of a sector of businesses that focus on educational and technological services for household reduction of CO_2 emissions. These businesses can redeem the Carbon Points for Euro at the Kyoto4All fund.

The value of a dedicated *Carbon Points* resource base in the society is the stimulating of an economy of minimum CO_2 emissions. Since this economy is based on local suppliers, (local usually implies less CO_2 use than distance), it is a strengthening of the Dutch economic infra-structure to be CO_2 competent for the future implied by the Kyoto protocol.

6.2.4 Step 4: from pilot to all householders

What is required to bring this into reality is accounting software, transaction management, metering and verification, knowledge capture and access systems that can handle a points system. Gradually the system will develop to handle the expansion of members to all 7 million householders.

6.2.5 Step 5: later phases

The design of the Association is cumulative. The longer a community group has been involved in successive reductions, the greater the *Carbon Point* entitlements they can earn. Thus, groups who have successfully reduced 10% for 1000 *Carbon Points*, and again 10% for 2000 *Carbon Points*, can go for a third and fourth round, each time getting more *Carbon Points*. Soon they will need to go for more difficult reductions, like changing their transport choices, etc.

Since *the Kyoto4All Association* is working in tandem with the Infrastructure champions, there also will be mechanisms to enable citizens to invest in CO_2 reducing technologies. For example, it may be clear that transportation is a threshold that must be handled to move from 6 tonnes per household to 5 tonnes. To do this, a renewable energy vehicle is needed. The resources of *the Kyoto4All Association* may be allocated to invest in a company who is building trains, cars, or service centers, that work on renewable energy. These kinds of options will be the centre of discussions between the Association (citizens) and the government.

When citizens hit the 'high-hanging fruit' barrier, the pressure for innovation will greatly increase. Predicting how that will happen is not possible, but if the principles of return on investment are to be calculated to include CO_2 emission reduction, this creates a reward scenario that links citizens commitments to change with the risk computations of infra-structure innovators. E.g. 50,000 citizens agree to buy 10,000 hydrogen cars and invest 1,000,000 *Carbon Points* over the next 5 years to make it happen.

These decisions about the future are not simple to make. A convention of stakeholders is held every year to bring to a close the *Carbon Points* value exchange for the previous year, and set the terms of reference for the *Carbon Points* resource pool the following year. These stakeholders include government, communities, service providers, and citizens.

The diffusion rate will vary. We are assuming that early adopters will become champions and coaches for members who join later. We are also hopeful that after 3-4 years of operation and investment in continuous improvement, the 'roll-out' to later householder may speed up.

There are many elements to be further explored in this scenario. Like:

- The link with Transitions
- The role of NGO's in *the Kyoto4All Association*.
- The linkage of CO_2 reduction and other sustainability priorities.
- The linkage of the *Carbon Points* credit card with other financial institutions
- etc.

The integration of these elements and the acceptance of the initiative by key stakeholders will determine the route to feasibility of this concept.

6.3 Market Models for CO_2-free consumption and compensation

We are enthusiastic about the *Community Model*, but we also think that it needs a lot of development. Perhaps politicians need a larger urgency about climate change before we go for the householders' route. This is why we also present market models, so the role of the government can be smaller, and householders are attracted in their role as consumer. We will describe four different models, each of them build on existing experiences.

6.3.1 Market Model I: Compensation by Consumers (inspired by VISA-greencard)

STEP 1: consumers compensate CO_2

Consumers are asked to make their purchases CO_2-free, by compensating the CO_2-content of the bought products and services. This can easily be done with technique independent means of transfer. By doing so it goes much further then the *VISA-green card*.

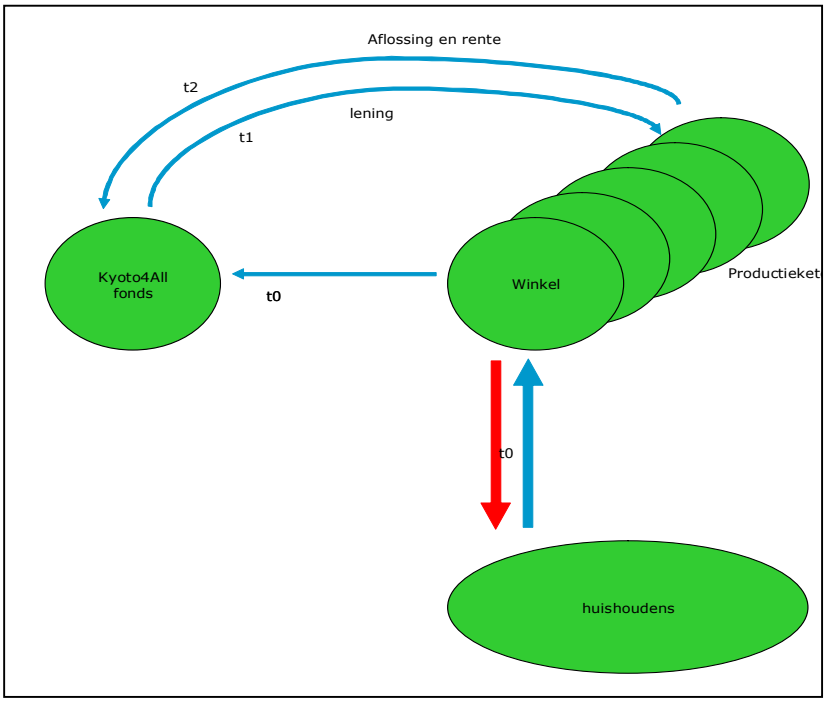
The purchase is made CO_2-free, by compensating the product. This is done by a payment to the Kyoto4All Fund, which takes care of the compensation. The compensation will be between 0,1% and 8% per purchase, depending on the domain / product group / product. At average the payment is expected to be around 1%.

This concept gives consumers a clear possibility to act, to do something themselves against climate change. By creating an appealing perspective for ordinary consumers, a new nontraditional market is reached, a market were interested consumers get a concrete choice to buy products and services CO_2-free.

STEP 2: investments in companies

The euros put in the fund by the consumers are used to compensate the CO_2 emissions of the products and services by investments in the production chain.

Figure 6.2 Compensation of CO_2 by consumers

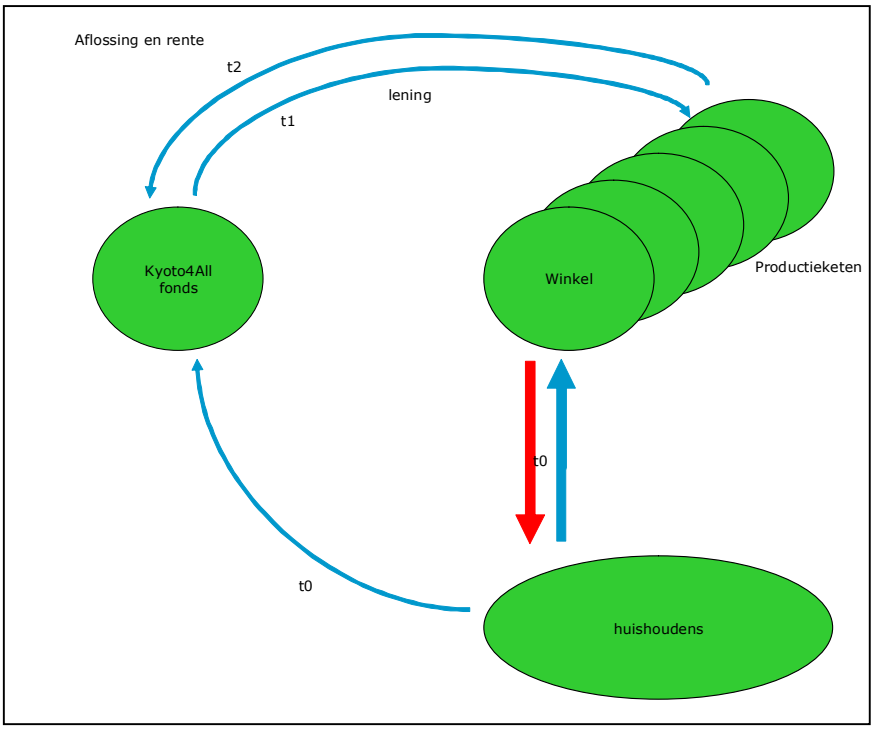


6.3.2 Market model II: Compensation of CO_2 by Shops (inspired by CO2OL-...)

STEP 1: companies make their production CO_2-free

Shops, and other companies, are invited to make their products and services CO_2-free, so they can sell these products to interested consumers. They can do so by a payment to the Kyoto4All Fund, that takes care of the compensation. Again, the compensation will be between 0,1% and 8% of the purchase, depending on the domain / product group / product. At average the payment is 1%.

Figure 6.3- Compensation of CO_2 by shops



STEP 2: companies get loans

Just like in the former concept, the producers to compensate the CO2 emissions of the products and services put the euros in the fund. Again, we make a revolving fund that invests the money to eco-innovative companies in the production chain.

6.3.3 Market Model III: Saving Points for CO_2-free Products by Consumers (inspired by koopzegels of Albert Heijn)

STEP 1: consumers save *Carbon Points*

Consumers are asked to make their purchases CO_2-free, by compensating the CO_2-content of the bought products and services. This is done by a payment to the Kyoto4All Fund. The compensation will be between 0,1% and 8% of the purchase, depending on the domain / product group / product. At average the payment is 1%.

The consumers choose to put money in the Kyoto4All Fund, because they get 1 point in return for each Euro put in the fund. In this report the points are called *Carbon Points*. For consumers a *Carbon Point* has parity with the euro, but it is earmarked: only selected goods and services on the spending list can be bought for *Carbon Points*.

This model has a double impact: first consumers or shops compensate the CO_2 of products, and with the *Carbon Points* the market for CO_2-free products is stimulated.

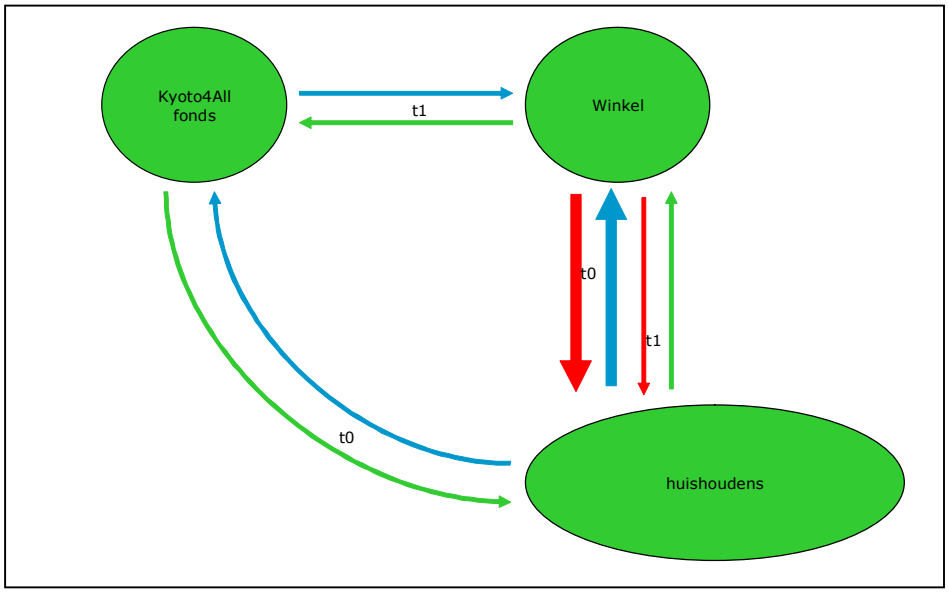
STEP 2: consumers spent their *Carbon Points* for products

The selected products and services on the spending list have a low energy per Euro value, or these products and services are made CO_2-free by a shop (read: chain of producers). These products and services can be bought by consumers with *Carbon Points* in the participating shops or on a website. The ability to spend *Carbon Points* on CO_2-free products has to be sufficient to attract consumers. Cooperating with a diversity of providers can do this.

Because many products and services with a low CO_2 per euro value have spare capacity by nature – think of cultural events, hospitality industry, software - the redemption of the *Carbon Points* can be made economically sound.

An example for a theatre: on weekdays the empty seats in a theatre can be bought for low prices, for example for 50%. The consumers pay the full price, but with *Carbon Points*. The result is twofold: 1) the energy content of going to the theatre is much lower then an average purchase, and 2) part of the euros stay in the fund covering costs.

Figure 6.4- Saving points for CO_2-free products by consumers



6.3.4 Market Model IV: Loyalty Points for CO_2-free Products by Shops (inspired by NU-spaarpas Rotterdam)

STEP 1: consumers get *Carbon Points* as loyalty points

Shops, and other companies, are invited to make their products and services CO_2-free. They do so by paying a compensation fee to the Kyoto4All Fund. Again, the compensation will be between 0,1% and 8% of the purchase, depending on the domain / product group / product.

At average the payment is 1%. The Kyoto4All Fund gives the counter value in *Carbon Points* to the shops, and the shops transfer it as loyalty points to their consumers.

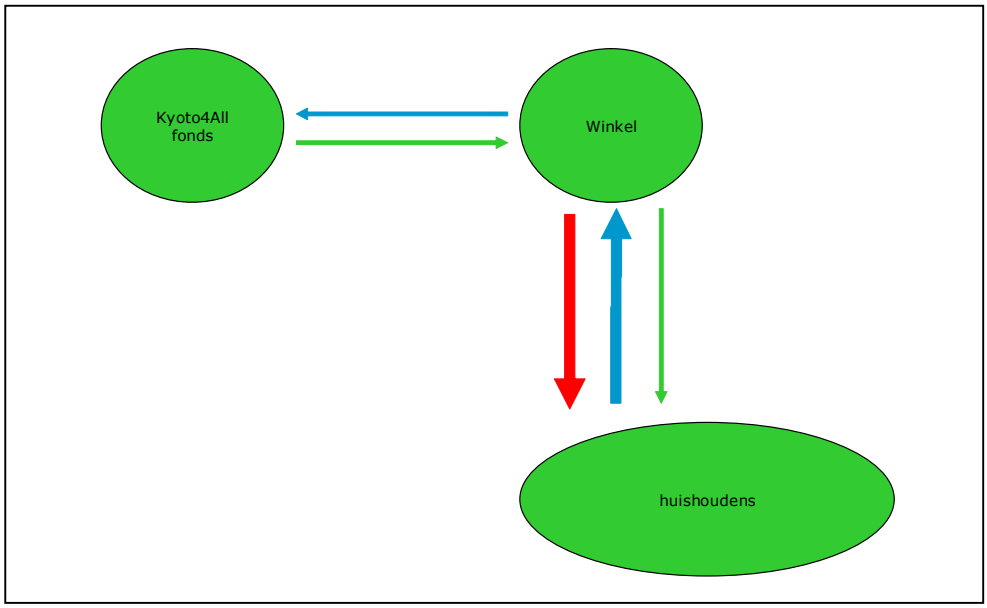
The consumers get the *Carbon Points* as loyalty points. For consumers one *Carbon Point* has parity with the euro, but it is earmarked: only selected goods and services can be bought.

This model has a double impact: first consumers or shops compensate the CO_2 of products, and with the *Carbon Points* the market for CO_2-free products is stimulated.

STEP 2: consumers spent their *Carbon Points* for products

The selected products and services have a low energy per euro value, or these products and services are made CO_2-free by a shop. These products and services can be bought by consumers with *Carbon Points* in the participating shops or on a website

Figure 6.5- Loyalty points for CO_2-free products by consumers



6.4 Comparison of the models

In this phase of plan development it is to0 early to make a useful SWOT analysis. It is impossible to say anything about the strong and weak points of an organization that is only on paper. It is possible though to have a first idea of the opportunities and threats. These can help in the coming phases when the demonstration is chosen, the consortium is build and a business plan can be made.

For all the players involved, there has to be a clear answer on the question: what is in it for me? Because climate change is prisoner dilemma, it is not enough to answer in a general way. The advantages have to be target group specific. Kyoto4All can only be successful if consumers and the production chains want to participate (needs), and if it they are able to participate (opportunities). In the coming paragraphs, we focus briefly on some elements that have to be looked at in next phases.

It is very easy to design a complicated system for consumers and shops. The challenge is to keep it simple and transparent. The models used have to be explained in some simple sentences. In the next paragraphs we will focus on what Kyoto4All means for consumers, government and the market.

Setting up and operating one of the models as a pilot or demonstration project needs the right consortium. In general all the models would benefit from involvement of the following partners:

- Champions from the ministries concerned with environment and housing, energy and economy, and transport.
- Industry, banks, insurance companies, real estate agencies.
- Top strategists from political parties.
- Complementary economy experts,
- NGO's who are committed to climate change, sustainability, renewable technologies, etc.
- Some professional wildcards (e.g. societal learning; media)

Their roles will differ in the several models. In the following we will try to describe the several ways of involvement of householders, government and the market.

6.5 The government in Kyoto4All

6.5.1 Roles for the government in Kyoto4All

We see several possible roles for the government, depending on the chosen model and the phase involved. The main question is: is the government willing to take co-responsibility, or will it choose to take distance? Will it be co-owner or should the market play? Will it mandate a start, pushing a possible unwilling market, or should it be voluntarily? As we show in the diagram "het wiebertje" (figure 3.3), the best way to empower citizens is if the government is willing to share co-responsibility for a national policy on climate change.

To answer these questions we suggest organizing a series of meetings. Some of them should focus on the governmental role, in the way as mentioned in chapter 4, based on the process J.P. Rischard described in the book 'High Noon'. This will speed up the process of learning. We will describe this in the next chapter on recommendations.

In this context we will limit ourselves to describe shortly the several options for governmental involvement:

- ***Funding the plan making***: This report is a first step in this role. Also the government can fund the future plan making meetings and the business plan. It is important for all 6 models.
- ***Co-initiator***: the government take an active role is the demonstration events and the starting up process. This role combines well with *funding the plan making* and *filling the Kyoto4All Fund*. It is critical in *Domestic Tradable Quota* and *The Community Model*, and desirable in the four market models.
- ***Co-ownership***: the maximum role will be the co-owner. A citizens-public-private partnership (PPS plus) can be set up to manage en steer the system. The main advantage is the possibility to force the unwilling part of industry in the system, so Kyoto4All can be one of the instruments to reach the 80% CO_2-reduction goals. The main risk is that the process is severely slowed down because of contradiction of interest. This role is critical in *Domestic Tradable Quota*, and can be used in the other models if wanted.
- ***Bringing the results to the relevant European and Global forums***. There are two phases here. Firstly, it would be wise to test several models in pilots or demonstrations in several countries. Secondly, the best practice should become part of the climate negotiations. All models fit in this role.
- ***Funding (part of) the organizational costs of pilots or demonstrations of the models***. Based on past experiences, we expect that an initial limited demonstration of one of the models needs a 1 to 5 million euro budget, depending on scale. In *Domestic Tradable Quota* option all costs would be for the government.
- ***Funding (part of) the future exploitation***. The more funding for the organization, the better the campaigns can be, the mode interactive the process can be organized and research can be done. In *Domestic Tradable Quota* all costs would be for the government.
- ***Filling the Kyoto4All-fund***: this role explicitly differs from the former ones. In *Domestic Tradable Quota* and *The Community Model* this role is critical; in both government needs to fill the fund of the Kyoto4All organization. In the market

models the government can speed up the system by being a source of income of the Kyoto4All Fund. It has to be clear: this is not to pay for the organization, but for the investments in the production chain or as extra backing for the points. In this role the government uses Kyoto4All as instrument for policy goals. Examples for this role are 1) The ministry of Transport (V&W) can use the Kyoto4All Fund to stimulate public transport, car share projects, cycling; 2) The ministry of Housing en Environment (VROM) can use the Kyoto4All Fund to reward energy savings in households with clever metering, or put in personalized subsidies for energy efficiency and micro renewable energy (like flat solar panels, saving bulbs, standby killers, etc); 3) A local government can have local climate campaigns, for example focusing on commuter transport.

6.5.2 Information campaigns and attitude

As a side effect of the behavioral change, also the knowledge of the solutions for climate change increase, and the attitudes of the people changes. For the government Kyoto4All is a new instrument to incorporate citizens in the Climate Change in meaningful way. It offers the possibility to reach policy goals and to stimulate the market.

6.5.3 Policy and steering information

The database behind Kyoto4All will deliver exact data on the consumer behavior (who buys what, were and when). This information can be used for focused target group interventions and tailor made services and communication.

6.6 The market in Kyoto4All

A successful program will reduce the householder CO_2 amounts. If a major reduction is reached with high reductions per household in significant percent of the society, a sufficient market is generated for CO_2 reduction products and services. It will generate a widespread citizen participation movement that will enable governments, businesses, and citizens to co-design a win-win-win CO_2 Crossover in accord (and more) with the Kyoto protocol. This experience as a nation of experts, businesses, and citizen user-inventors, will generate a capacity to enable Dutch socio-technical systems to earn more revenue in the world market.

It will have an impact on government and business by bringing the pro-active citizen voice to the table to co-create the journey of infra-structure and individual households to the target 'cross-roads' in the 2 x2 (fig 5.2). It will kickstart an ecology of active, innovative small businesses serving the priorities of householders for generating lifestyles that reduce CO_2 emissions. It will create a 'preferred customer' market for large organisations that provide products that are CO_2 optimized.

6.6.1 Industry

Domestic Tradable Quota needs the enforced involvement of energy and fuel companies.

The Community Model needs the involvement of companies in the field of energy reduction and renewable energy.

The *Market Model I: Compensation by Consumers* doesn't need the market, other than the banks. The consumer pays the compensation and the money is invested in the chain.

In *Market Model III: Saving Points by Consumers* the redemption of the *Carbon Points* for CO_2-free products can be organized with a website, but it would be stronger to have the cooperation of shops.

In *Market Model II: Compensation by Shops* the collaboration of the market is a critical success factor. Without these market parties the compensation to the Kyoto4All Fund will not be done. Especially bigger chains and shops have to participate, were consumers can spend an major part of their purchases. From the model's point of view it would be best if the government forces shops into the system to overcome this social dilemma. But we expect this very unlikely to happen.

Also in *Market Model IV: Loyalty Points by Shops* the collaboration of the market is a critical success factor. In this model they have not only the disadvantage of paying for the compensation, but also the advantage of the redemption of the *Carbon Points*, creating new sales.

6.6.2 Financial institutes

All the models need the cooperation of the banks. They have to transfer the *Domestic Tradable Quota* or compensation money to the Kyoto4All Fund, corresponding with the purchase.

6.6.3 Marketing and marketing information

Companies want to enlarge the lifetime value of their customers. By participating in one of the four market models they can show their commitment to existing and new customers. Existing customers will be able to buy more and more CO_2-free products, and new consumers that are looking for CO_2-free products and services will be attracted. For the models *Market Model III: Saving Points by Consumers* and *Market Model IV: Loyalty Points by Shops* the redemption of the *Carbon Points* give an extra marketing drive towards CO_2-free products.

In all the models there will be a database behind Kyoto4All that will deliver exact data on the consumer behavior (who buys what, were and when). This information can be used for focused target group interventions and tailor made service and communication.

In the four market models and in *The Community Model* we will start to cooperate with commercial parties who already are ready and willing to include planet priorities in their processes as part of their triple P approach.

6.7 Householders / consumers / citizens

6.7.1 Saving points is a Dutch hobby

For the models *Market Model III: Saving Points by Consumers* and *Market Model IV: Loyalty Points by Shops* the following is important: the Dutch love to save points in shops. For example give a figure: three-quarter of the 18-year plus Dutch are active in one or more loyalty system (SNN Research en Consultancy 1998). In recent years we see a backlash in most loyalty systems, but we think this is due to the stunning lack of meaningful content, especially for the Cultural Creatives.

6.7.2 Perspective to act

All 6 models give a meaningful perspective to act. By making bought products CO_2-free a real contribution can be made. In *the Community Model* and the four market models the freedom to consume will stay intact, but the direction is steered in a positive direction. In these models participating in Kyoto4All shows the personal engagement

with global warming, and gives the opportunity to show socially responsible behavior. In *The Community Model*, *Market Model III: Saving Points by Consumers* and *Market Model IV: Loyalty Points by Shops* executing the wanted behavior leads to a reward (subsidy, loyalty or saving points).

6.7.3 Recognizable

All the models can help making products and services that are made CO_2-free (or have a low CO_2 value or can be bought for *Carbon Points*) become recognizable for consumers. The information has to be available at the moment of purchase. It would be wise to work with a label; this label can also have an effect on nonparticipating consumers in all models except the non-voluntary *Domestic Tradable Quota*.

6.7.4 Positive consumer values

The *Domestic Tradable Quota* will be enforced, but the other 5 models have to attract people. One of the problems is that environmental stress in general, and climate in particular, is not a strong driver for consumer behavior. For most consumers climate change goes together with feelings of scarcity and impediments; these feelings clash with a positive perception of life. At the same time the urgency of the climate-changed situation becomes more and more obvious. We have to find ways to overcome these barriers, simply because we do not have a choice. This is why we suggest to appeal to strong consumer drivers, like "quality of life", "a future for my children", "a safe world", "a healthy environment", simplicity, comfort, etc.

6.7.5 Low behavioral costs

Another critical point is the behavioral cost of changing daily patterns.

Campaigns only lead to wanted results if the behavioral costs are reasonable. New patters of behavior have to be created. The model has to give a perspective to act: it has to feel easy to do something (purchase CO_2-free products for example).

In the four market models and the Community Model clever choices in initial target groups have to be made to make it much easier for us. As mentioned in chapter 2, we start to focus on the Cultural Creatives. These Cultural Creatives are already incorporating environment in their daily patterns of behavior. For many of them, it will be a "there it is" kind of feeling. The broader groups have to be reached in later phases, when it becomes more mainstream. There will be many activities that can stimulate this, like the green procurement of governments, or the recently started climate campaign HIER from the 40 beneficiaries of the *Nationale Postcodeloterij*.

The change of Dutch lifestyle from fossil-fuel dependence to efficiency and renewable competence will be of advantage to the Dutch economy in the global market. It enhances the security of supplying energy, and it will also be a geopolitical advantage.

6.7.6 Easy to use technique

For all six models, it must be clear that the used technique must not be a barrier. In short we can say that the means for transfer become more and more diverse, and we suggest that the chosen method is as independent as possible of technique in all models. Internet, plastic (chip, pin, credit card), mobile payments and - who knows – scrip (vouchers, coupons) systems can be interchangeably used. By using these means of payment, it goes much further then the VISA-green card that is by nature limited to credit cards. And the willingness from consumers and shops to participate enhances when the means are interchangeable.

The systems of metering, accounting, learning, and knowledge creation are a form of infra-structure of the society. In the early stages of the researching of the 'individual lifestyle' dimension, investments will be made in these systems as well.

6.7.7 Privacy

For all models the privacy of the participating consumers has to be secured. To be clear: the privacy of the consumers is a absolute requirement. We suggest that consumers always decide for themselves what information can be used by whom. This is easily organized with a personal webpage where people can manage their own data.

6.7.8 Costs of living

Reduction in CO_2 emission is accompanied by reduction in cost for living. E.g. Any house improvement that reduces amount of energy use reduces cost. With the rising prices of fossil-fuel this will become even stronger.

Besides this, energy efficient products often have a higher quality, reducing the need for fast replacements, thus reducing waste and the need for raw materials, and also the costs of living.

6.7.9 Products and CO_2

How to measure the CO_2 content of products? The criteria used should be clear, reliable, univocal and properly controlled.
The first challenge we encounter is that there is no database with the energy content of all the sold products. There are ways around this. First, the products heating, electricity and fuel are responsible for the largest CO_2 emissions of consumers. The problem encounters for the indirect energy content of products. Here we can use common databases that group products, and give an average CO_2-per-euro-value. We suggest to use the database of IVEM, which groups all products and services in 70 / 350 groups. Amongst others RIVM bases the data on this list. This dataset has to be updated regularly.

Chapter 7 Recommendations

7.1 Conclusion

Climate change and poverty are the greatest challenges of our time, and they need urgent solutions. New routes have to be found. We believe that all stakeholders should be involved, including citizens. We should create new concepts of public interest, in which, beyond the problem, a vision of a Carbon (climate) Neutral society is central.

The interviews, discussion group, questionnaire and research showed us that widespread citizen involvement could be the key in solutions for climate change. We have indicated several routes forward, in which VROM can play a central role in bringing together stakeholders to reach alignment on a householder strategy. We believe that we should engage citizens now with the enormous choices for the next 10-20 years.

There are many ideas and activities in action at the moment. The potential of both the risks (like Katrina-size phenomena) and the breakthroughs (like water-powered engines) show that the tipping point is likely to appear somewhere soon.

The models that we chose are 'demand-driven', and we believe that the challenges expressed in the Vogtländer report of 2000 can be met. We recommend most strongly that VROM move householder involvement to the top of its strategy and that it uses the empowerment principles we have proposed. In this, it will create a demand- driven way for CO_2 neutral products and services, thus strengthening the supply side.

We encourage VROM to create a series of events that enable the many different ministries together, to engage with citizen groups in exploring what is next. There should be good momentum and opportunity following this year's HIER campaign and in the run up to 2007 years election.

It is also clear that the concept of an empowered citizens' Association involves major societal learning. An action research approach should be part of the initiatives.

We have traveled a long way from our initial hypothesis - that the purchasing of CO_2 certificates out of the capped market by a Dutch householders' Foundation would give citizens motivation and influence in reducing CO_2. It became clear that the tactic of buying CO_2 units out of the market was possible but not empowering and not an effective impact.

We continued to explore models of widespread citizen involvement using CO_2 emission reductions as the 'proof-of-performance' bottom-line. The first step in such a process was an idealized design of several models. We believe we have described the dynamics of these models sufficiently to enable the reader to assess from their point of view the feasibility of these options. As mentioned earlier, the goal of the models at this point are to elicit information, options, and opportunities for widespread CO_2 emission by Dutch householders.

The Kyoto Crossover moment is 2012, and we have used this as a context for our recommendations. What could be done between spring 2006 and December 2012 - to engage householders in reducing CO_2 emissions? There are two elections between now and 2012, and the citizen and CO_2 (a Carbon/climate neutral society) should be at the core of both of them.

Although we are able to point towards a feasible solution (an idealized design), the path to such an outcome must be constructed through agreements and aligned initiatives of many groups. Below, we have listed several suggestions for further action and investment. For each recommendation, we have made a next step suggestion.

Recommendation 1: Up-to-date, factual, briefing document

A factual, up-to-date model of CO_2 emissions, consequences, and options with an invitation to engage actively in "deciding and doing' together would be a significant contribution to citizens in preparation for elections next year.

This document should be considered of sufficient focus and intelligence to serve as a briefing document for making decisions about how we should go as a society and as citizens towards the Kyoto 6% accords and the next phase. It captures the latest and best and most communicative global message about global warming and CO_2 reduction. It should include the vision for a Carbon Neutral Society.

We came to this recommendation looking at the amount of learning, tracking down, seeing the connection, between the many dimensions involved in these critical issues. We can imagine there are many champions for CO_2 reduction already in the population. Give them really good material to communicate the facts, options, strategies, and decisions to their fellow voters.

We would encourage you to convene the government departments, experts, key business partners; NGO's to answer the question:

What' do the citizens of the Netherlands need to know about CO_2 emissions, global warming, and climate change to make informed choices about societal and personal futures? How can we help them access this information in digital and printed form?

A team should be assigned to this project to create a proto-type emerging from these inputs. The team should be formed by people from organizations close to citizens, like the HIER-campaign, The Red Cross, the Consumentenbond, Vereniging Eigen Huis and ANWB. Experts from RIVM, universities and popular magazines should advise them.

Estimated Cost: 100.000 Euros
Delivery time: 6 months from Yes to proto-type Communication Product(s).

Recommendation 2: the Varik 'Veerhuis' Conferences on Design

The potentials and processes of designed currencies are now widespread and well known. The digital exchange and verification systems are developed. Experience with loyalty campaigns, air miles, green cards, and police systems, have created the software to enable a complementary systems.

We propose a work pressure cooker expert session with experienced leaders in the field of incentive programs and complementary currencies meeting with Ministry experts involved in citizen participation and learning, helped by experts in the field of behavioural change, marketing and emission trade.

We propose that the work session be the first step in the process described by JP Rischard.

The method starts with a 'networking/expert group' to integrate the ideas of complementary economics, with the ideas of citizens CO2 emission rights. First phase is to host a 3 days workshop.
The outcome of this first workshop, will be presented to a group of leaders from Business, Government and NGO's/Civil Society. They give their first feedback. This will be processed into a web-based document, to spread among a large audience that we know throughout the world who has interest in co-creating this process. Here we collect their ideas and feedback on the first document. This world-wide web knowledge will be processed into a new next step document.
Then, after three months, phase two starts. Again we host a new pressure cooking workshop based on the next step document with the experts, they will use the world-wide input for a redesign of the first concept. They will present it again to a group of leaders from Business, Government and NGO's/Civil Society. They give their feedback and this will be again processed into a web-based document to get world-wide feedback. /we expect that with 3 rounds, within 9 months we will have an internationally supported wide spread idea, agenda setting, etc.

The results of the work session are made available on internet and feedback on the results are stimulated, facilitated, researched, etc. to generate 2-3 re-writes to move the first ideas towards a very high-quality research and development product that answers the question:

What are the specifications required for the system to launch and manage a successful complementary currency approach to stimulate widespread citizen involvement in CO_2 emission reduction?

This process should be hosted by several NGOs with a large contributor base, and organized and facilitated by experts in the Rischard-method. Amongst the invited experts, we expect people from RIVM, University's, SenterNovem, relevant consultancies on energy, complementary currencies, UNO-income, green marketing, finance, behavioural change, etc.

Cost: (including costs of experts, based on 3 events, 6-9 months, travel, food and lodging, web-space design, facilitation) 120.000-200.000 euro.

Time: 6-9 months from start.

Outcomes: There should be a specific 'blueprint' of what is required and what is available to handle the exchange and verification systems for a widespread citizen Association. The research process would attract international interest in Netherlands' approach at a time when many countries are at the thresh-hold of decision making around citizen involvement. The results of this investigation and proposal should include, Dutch, European, and global perspectives.

Recommendation 3: Activating the High-potential Stakeholders

The focus of Recommendation 1 is integrated information on CO_2 emissions and climate consequences to alert citizens to the important decisions arising as a result of global warming. Recommendation 2 creates design specifications for an integrated widespread exchange and verification system.
Recommendation 3 is a gathering focused on action by those who must be involved if this possibility is going to be realized. It would use results and attract participants from the earlier two events.

The action has to do with starting steps where an integrated approach to citizen empowerment can emerge. The particular model or combinations of models that would be the raw material going into the event will depend on the conversations and feedback on this report.

When this focus has been located, feasibility, depends on the interaction of such key stakeholders as NGOs, householder associations, relevant Ministries, energy utilities, relevant industries, financial institutions, European Climate Exchange, etc. At the same time, there is needed a set of social entrepreneurs who want to give leadership to this idea. These may be recently retired executives, independent 'green' experts, or international idea-carriers that wish to contribute to a Dutch innovation in CO_2 Emission reduction.

The focus question would be:

What will it take for us to co-create an empowered Kyoto4All Association that stimulates widespread citizen involvement to reduce CO_2 by 6% in 2012 and meet 20% reduction targets by 2020? And what does this mean for our activity together in the next six months?

Documents from the events would be a shared knowledge base coming into the event.
Cost: 100.000 Euros.
Duration: 120 days to organize event and produce results.

Outcomes: A set of motivated stakeholders with a shared understanding of the Kyoto4All concepts and potentials, and a set of aligned actions to take the valuable elements the next step further.

Recommendation 4: demonstrations of one or several models

After recommendation 3 is executed we will have a plan and a set of motivated stakeholders. This phase will be demonstrating of one or more of the developed ideas. We think it would be wise to test several, so we can learn as much as possible. We would like to see 2 or 3 demonstrations being tested to generate more information about citizen motivations and innovativeness. The scale of a local municipality seems to be right.

Cost: unknown. Similar demonstrations were in between 1 and 5 million euro.
Time: 24 to 36 months.
Outcome: Citizen feedback on the design

Recommendation 5. Develop a Carbonopoly Game

One of our searches was to see if the simulations developed among a group of first players under supervision of the NEA would be a way to engage citizens. We found out that this simulation is not suitable for households. It was designed to test the trading mechanism with large companies, and was more of a test of the software than it was about education.

While we were working on this research, during a meeting with a group of people from several Global Action Plan countries, we came across the idea of development of a kind of Monopoly for CO_2 emission.

This game is one for involving families (children and parents) in successfully managing their life choices in a carbon- neutral society, based on a well-known family game. It sets the human imagination free to engage in alternative scenarios similarly to the scenario building of large organizations. It could be a face-to-face game, or even better, a web-based multi player game. It could be in the form of contests between communities and/or schools.

We recommend forming a design team, in cooperation with GAP UK, Belgium, Spain, Netherlands and Sweden (representing GAP international community of 20 countries) to develop a proto-type Carbonopoly game for European use.

Cost: (exploratory meeting of gamers, designers, young people organizations, etc.) 150.000 Euros
Timing: 90 days
Outcomes: A 'popularizer' as a way of following-up on the HIER-campaign's stimulation in Climate Change. A way to begin to stir up citizen expectation and engagement for widespread engagement in CO_2 reduction.

Nawoord

Gedragsverandering is een intens en moeilijk proces, ook bij ons. Tijdens dit rapport voelden we ons genoodzaakt steeds verder te zoeken, dieper gaan. Boeken als *the present*[67] of *een nieuwe aarde*[68], inspireerden ons om door te gaan. en zoals Vaclav Havel het ooit zei: "Hope is a quality of the soul, it does not depend on what happens in the rest of the world". Tegelijkertijd gebeurde er juist van alles in de wereld om ons heen.

De urgentie van het klimaatprobleem wordt enorm onderschat door "de waan van de dag economie" in onze samenleving. Noodsignalen wisselen elkaar dagelijks af in de media. Waar bij andere onderwerpen van deze omvang hele katernen worden volgeschreven en de vakbladen uit de grond worden gestampt, blijft klimaatverandering specialistenvoer, en is de verslaglegging - behoudens hier en daar een ramp - beperkt tot de linker pagina om over oprukkende woestijnen, stijgende zeespiegel, uitstervende vlinders, smeltende gletsjers en andere klimaatgerelateerde problemen te rapporteren. Moet je voorstellen dat we zo zouden omgaan met terrorisme, religieuze en seculiere intolerantie of de Europese grondwet.

In de relatief korte periode dat we bezig waren, vond de 'New Orleans' ramp plaats, verergerde het conflict in Darfur, en zagen we Tony Blair pogen om Kyoto in te ruilen voor technologische oplossingen. We kregen wat nieuws over de smeltende noordpool, methaankristallen op de zeebodem en het smeltende permafrost. Op 1 april van dit jaar kwam een speciale editie uit van Time Magazine over 'global warming' met als kop: "Be worried, Be very worried".

Maar we zagen ook: dat het klimaatverbond in de VS versterkte, met een groot aantal burgemeesters en gouverneurs die zich sterk maken voor Kyoto; dat Amerikaanse bedrijven besloten mee te doen met het *climate exchange* handelssysteem; dat er een groot budget werd vrijgemaakt in de UK om te komen tot *domestic trade options*; dat het RIVM zich wederom uitsprak voor *contraction and convergengce*; en dat 40 NGOs in Nederland een campagne startten over de klimaatverandering.

We hopen met dit rapport een bijdrage te leveren door middel van een aantal concrete modellen en ideeën aan het betrekken van (burgers/consument) huishoudens aan het oplossen van het klimaatprobleem door ze te laten participeren in het systeem van verhandelbare emissierechten. Als deze ideeën worden getest, gedemonstreerd en ingevoerd, wordt de consument onderdeel van de oplossing; kan hierdoor het proces van emissiereductie versnellen; de snelheid waarmee het klimaat aan het veranderen is afnemen; op termijn een rechtvaardige mondiale verdeling ontstaan.

Voor dit rapport zijn we dank verschuldigd aan:

Henry Mentink van de Stichting UNO-basisinkomen. Deze organisatie inspireerde ons met het gedachtegoed van de kunstenaar Pieter Kooistra[69]. Zijn ideaal was om een basisinkomen te creëren voor alle wereldburgers.
De Gideonsbende[70], die diende als klankbord voor dit rapport. De groep uit het bedrijfsleven, ministeries en NGO's initiëren projecten om tot een CO2-neutrale samenleving te komen.

Daarnaast hebben André Engelbertink, Geert van Grootveld, Rob van Hilten, Paul de Jongh en Henk van Wouw intensief meegedacht. Hanneke Rombouts heeft het verschil gemaakt in de opmaak van het rapport.
Verder hebben de auteurs zeer inspirerende gesprekken gevoerd met sterk uiteenlopende personen[71] uit de samenleving. Overal waar we kwamen werden we

[67] Senge, Joe Jaworski, etc
[68] Eckart Tolle, een nieuwe aarde, uitdaging van deze tijd
[69] Pieter Kooistra, Het Ideale Zelfbelang, een Marhall plan voor wereldburgers
[70] Appendix 6: GideonsBende, de Klankbordgroep

hartelijk ontvangen en onze gedachten kregen kritische en inspirerende feedback. Wij zijn deze mensen veel dank verschuldigd.

Tot slot willen we Henny van Rij en Wouter Verweij van het Ministerie van VROM bedanken voor het vertrouwen dat ze in ons stelden om dit onderzoek uit te voeren, hoe zij omgingen met onverwachte nieuwe gedachtelijnen en de oprechte feedback die zij ons hebben gegeven.

Wacht niet. Handel NU!

David Beatty, Edgar Kampers, Peter van Luttervelt en Hugo Schönbeck

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Politicoloog ***Edgar Kampers*** is expert op het gebied van *complementary currencies*, belonings- en retentiesystemen. Hij was ondermeer directeur van NU-spaarpas, een elektronische loyaltykaart van de Gemeente Rotterdam en de Rabobank, gericht op het belonen van lokale, groene en eerlijke aankopen in winkels, groene energie, openbaar vervoer en afvalscheiding. NU-spaarpas werd ontwikkeld vanuit project- en adviesbureau Barataria, waarvan hij een van de oprichters was. Daarvoor werkte hij bij Strohalm - een internationaal instituut gespecialiseerd in solidaire financieringssystemen - onder meer als onderzoeker en coördinator van lokale ruilgroepen. Hij werkte tot voor kort als teammanager Klimaat en Economie bij Stichting Natuur en Milieu; dit team werkt aan klimaatbeleid en energiepolitiek, duurzaam ondernemen, chemie en milieurecht. In zijn vrije tijd is hij actief in Wheels4All, en is hij voorzitter van Wonder, een stichting die plezier maakt met de samenleving met projecten als www.burgerbuddy.nl en Sint in de Moskee.
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Bedrijfskundige ***Peter van Luttervelt*** was mede-initiator van Global Action Plan Nederland. Hij was directeur van dit instituut dat de EcoTeam Programma's ontwikkelde en distribueerde. Het was gebaseerd op de gedragsveranderingmethodiek van "empowerment", en stelde mensen in staat een duurzame leefstijl te ontwikkelen. Daarvoor was hij als organisatieadviseur en managementtrainer werkzaam. Hij heeft aan de wieg gestaan van MEMO (Mens en Milieuvriendelijk Ondernemen), een voorloper van Maatschappelijk Verantwoord Ondernemen. Duurzame ontwikkeling en ondernemen zijn twee rode draden in zijn leven. Hij draagt naast Henry Mentink het UNO-Inkomen[1] van wijlen Pieter Kooistra uit. Na zijn sabbatical (2000) richtte hij de denk/doetank Gideonsbende op, waarin vertegenwoordigers uit het bedrijfsleven, overheid en NGO's op persoonlijke titel initiatieven nemen die gericht zijn om tot een CO_2 neutrale samenleving te komen.
Momenteel werkt hij als sociaal architect aan maatschappelijke projecten (waaronder als initiator van het idee van Kyoto4All project), begeleidt hij bedrijven op de weg naar MVO en voert hij bij grote bedrijven gedragsveranderingchampagnes uit om tot een klimaatneutrale bedrijfsvoering te komen (zie www.globalactionplan.nl). Hij is mede initiatiefnemer van the Greenware Hoods MV, dat onder meer www.slimlicht.nl uitvoert.
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[71] Appendix 7: List of interviewed Persons for this study