Green Economy and leadership towards sustainability

Background Paper to Mistra Board
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1 Terms of reference for the working group

Background

Mistra recently received the final reports from two pre-studies commissioned by Mistra: one on research needs in relation to green economy[1] and the other on research needs in relation to leadership towards sustainability.[2] Different subjects have been touched upon in these pre-studies, but there is also a common element connecting them. They have both a systems approach and are questioning established thinking and policy. The green economy report focuses on the societal systems, especially the economic, while the sustainable leadership report focuses on management and leadership, including support to decision makers.

The assignment

The main task for the working group was to analyze whether the ideas and the research areas in the two prestudies mentioned above could become the basis for a new research initiative funded by Mistra. It was thus important to take into account the purpose of Mistra (as expressed in the Statutes for Mistra), as well as the current Mistra research portfolio and upcoming new initiatives (e.g. 'Sustainable markets' and 'Product design for resource efficiency'). Since there are similarities between the prestudies, not least in the systems approach and the emphasis on strong links between human societies and ecosystems, it was considered whether it is possible to identify research issues common to all of or parts of both the prestudies.

In case the working group concluded there was a basis for a new research initiative, the working group had to (based on the prestudies when appropriate):

- provide an overview of where the international research frontline is located within the proposed research area, including the status of Swedish research compared with the research frontline
- describe the challenges facing society in this particular area, as well as the political initiatives and the policies that are in place or under way in Sweden, the EU and globally to tackle these challenges
- propose in detail the orientation of a new research initiative (draft text for a call for funding applications).

The working group comprised 3 international experts tasked with drawing up a background report with recommendations to the Board of Mistra. A final report was required for submission to Mistra not later than 1 November, 2014.

[1] Alfredsson, E. & Wijkman, A (Global Challenge). Prestudy for Mistra: The Green Economy. Shaping society to serve sustainability – minor adjustment or a paradigm shift?
[2] Broman, G., Robèrt, K.-H. & Gould, R (Blekinge Tekniska Högskola). Research needs to make leadership towards sustainability more cohesive and functional.

2 General introduction

A central theme of the 2012 United Nations Conference on Sustainable Development (´Rio+20´) was the issue of the ´green economy´. Behind this discussion was the notion that sustainable development is highly contingent on whether the economy and its framework conditions can be transformed.

The concept of a green economy is raising as much hope as scepticism nowadays. Is economic growth really compatible with environmental preservation and social inclusiveness? Are our economies able to make a transition towards a sustainable development path? Is a different framework of analysis, based on the concept of the circular economy, needed to answer these questions coherently?[3] At a more micro level, an increasing number of firms nowadays make a lot of effort to appear environmentally responsible, but some of them are criticized for being "greenwashers".

The notion of green growth is not new per se: for many decades, the idea of a growth process or a more sustainable economy has been put forward as a response to major environmental and economic issues. Essentially, the green economy combines two dimensions that may seem contradictory: a regulatory component on the one hand, perceived as a constraint by economic actors, and an economic component on the other hand, embedding on the contrary the potential for investment, increase in wellbeing and competitiveness.

The notion of a green or circular economy in fact suggests that the constraint transforms into opportunities. However, the available tools of analysis and the results from existing literature leave a large number of uncertainties about the true potential of green / sustainable / circular growth.

Turning Europe into a more sustainable circular economy means "boosting recycling and preventing the loss of valuable materials; creating jobs and economic growth; showing how new business models, eco-design and industrial symbiosis can move us towards zero-waste; reducing greenhouse emissions and environmental impacts." (European Commission 2014)[4]

Yet, the ecological and economic crisis that characterizes these past decades shows that the growth model inherited from the twentieth century has proven unsustainable. It is unsustainable because of its responsibility for excessive emissions of greenhouse gases disturbing the climate and other serious environmental problems, but also because of its contribution to increasing inequality, instability and economic crises.

At a very fundamental level these crises all share a common feature: the gross misallocation of capital: "most economic development and growth strategies encouraged rapid accumulation of physical, financial and human capital, but at the expense of excessive depletion and degradation of natural capital, which includes our endowment of natural resources and ecosystems. By depleting the world's stock of natural wealth – often irreversibly – this pattern of development and growth has

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3 This report includes a short glossary of terms in Appendix 1. The "green economy" and the "circular economy" are not synonyms. Much discussion of the green economy does not employ the "circular economy" analytical framework while aspects of that framework can be used to analyse non-green, unsustainable economies. However, we find it convenient to refer at times to a sustainable economy as a "green/circular economy" or "circular/sustainable economy" to encourage a focus on both concepts. This report deliberately attempts to avoid a semantic debate about terminology.

4 European Commission, 2014, Towards a circular economy: a zero waste programme for Europe, Communication COM/2014/0398, http://ec.europa.eu/environment/circular-economy/

had detrimental impacts on the well-being of current generations and presents tremendous risks and challenges for future generations (UNEP, 2011) [5]

In a context where the economic environment seems more uncertain many downside risks appear more dangerous and public and private debts reach historical records, it seems increasingly important to make sustainable development an engine for a new model of prosperity - if not growth. This seems particularly important as financial markets are showing signs of a low risk-aversion.
From this perspective, a number of issues arise, which are discussed in the following Sections.

3 Reports

The main task for the working group was to analyse whether the ideas and the research areas in the two pre-studies mentioned in the introduction could become the basis for a new research initiative funded by Mistra.

3.1 The Alfredsson and Wijkman report

As a basis for its proposal, the Working Group carefully studied the two reports.

With regard to the report by Alfredsson and Wijkman, the Group found that it raised many interesting questions that could be the foundation of a research call. It also stimulated lively and fruitful discussion amongst the group members, given their different perspectives. The focus of the pre-Report is very much on the distinction between traditional and ´scientifically oriented´ economic thought[6]. The group recognised the distinctions drawn and noted that there clearly are different schools of thought. One question, however, is whether it is useful to summarise the differences in the form of two polar cases along one dimension. (The development economics community, for example, may be seen as a third pole). The group noted that while it may be attractive to find compromises among schools of thought, the most interesting area, from a researcher´s point of view, is often where the approaches conflict.

The Working Group noted that the ethical framework of neoclassical economic theory is utilitarian, and that this is not necessarily the most appropriate for analysing the ethics of issues such as, human-animal relationships and social justice. Thinking about the implications of a range of different ethical perspectives is valuable. Regardless of the ethical perspective adopted, however, there are clearly fields of research where insights from ecological economics should be used. In this context, the Group underlined the importance of the financial system – the counterpart to the flow of materials, goods and services and the key element of the economic system intermediating saving and investment – as a potential enabler of sustainable development.

With regard specifically to the pre-Report, the group noted that it addresses several relevant questions, such as the different approaches of ecological and environmental economists and the contested nature of the concept of the 'green economy'. The range of topics raised is wide and the questions posed provocative. On the weaker side, the group found some of the terminology used ambiguous and the reasons for the prioritisation of some issues (e.g. social capital) over others (e.g. employment) unclear.

[5] UNEP, 2011, Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication - A Synthesis for Policy Makers , www.unep.org/greeneconom
[6] 'Scientific economics' as described in the pre-study report is more commonly referred to as ecological economics, a term preferred by the working group.

The pre-Report highlights the differences between quantitative and qualitative growth, and discusses whether there is a way to reconcile them. The group noted that while assessing the potential for decoupling the use of resources and ecosystems from growth is a key issue, more research is needed to understand the scope for relative and absolute decoupling over short- and long-term horizons.

The Working Group discussed each of the key research areas proposed by the pre-Report on the inclusive green economy:

1. The crucial role of social capital
The Group agreed that strong social relationships and trust are important for the social pillar of sustainable development. Sustainable development appears to be incompatible with societies in which economic relationships are mediated wholly through atomistic market relationships.

However, the specific concept of social capital is complex and contested. The question of social relations in advanced industrial economies is much debated in political economy, sociology and political philosophy. The connections between social relations and reported levels of wellbeing are likely to be very context-specific. Studies drawing on Swedish experience might be misleading as a guide to the global challenge of sustainable development. The Group found it difficult to formulate researchable empirical questions in this area.

2. The importance of natural resources, not least high-quality energy, for economic growth and development

This is a very important area for research. Whether it is possible to de-couple growth, temporarily or permanently, from ever-increasing consumption of natural resources and high-quality energy given planetary boundaries is central to the debate about the limits to growth. The scope for the substitution of labour services and 'non-material' products – for example, produced by the creative arts – for materials and energy-intensive goods and services is not fully understood. The ability of policy instruments and/or market prices to change production relationships and consumption patterns is uncertain, given the lack of historical experience on which to draw.

However, despite the centrality of this issue, the Group was not convinced that this was a priority area in which Mistra should support research, given the large amount of work going on already around the world. Examples include the extensive work of energy and climate economists on how to de-carbonise the energy sector and the ongoing CIRCLE project of the OECD. Supply-chain analysis, the integration of natural resources into National Accounting systems and carbon foot-printing exercises also occupy this territory.

3. The need to shift from a quantitative to a qualitative growth model

This research area overlaps with item (2) and gave rise to similar reservations within the Group. The scope for changing the nature of consumption is a key issue but one that is not short of existing research. For example, there has been much work on better ways to indicate the extent to which well-being is improving, ranging from efforts to improve aggregate measures of national performance (e.g. the 2009 Stiglitz-Sen-Fitoussi Commission) to the relatively new area of 'happiness' research.

4. Participation of the business sector as a force for sustainability

The involvement of the business sector in promoting sustainable development is crucial, given the sector's key roles in technology development, influencing the composition of consumption and the structure of social relations.

However, the `group concluded that this topic was already well served by Mistra's project on Sustainable Markets.

5. Aligning governance and institutions with the sustainability challenge

This is an interesting but very broad topic. The Working Group noted that issues of both governance and institutions would be central to the research call with respect to finance and sustainable development. For example, the roles of financial regulation and state institutions in governing banking and other forms of financial intermediation need to be explored in more depth. The possible contribution of new types of institutions (such as 'green investment banks') or rebirth of old types (such as credit unions and other co-operatives) would be of interest. Hence the Group preferred to address questions under this heading with a particular sector if the economy, the financial sector, in mind.

6. The eminent need to reform the financial system

Prompted by the pre-Report's reflections on the financial system, the group discussed to what extent the current financial system promotes or impedes sustainable development. The general view was that very few economists could claim that they understand how the system currently works, in particular after the recent financial crises. In particular, it seems that there are considerable gaps in our empirical knowledge about financial assets and liabilities (e.g. who owes what to whom) and the incentives governing the formation and allocation of credit. In the ongoing transition to sustainability, it is important to understand who within the financial system will be the potential winners and losers. In general, according to the Group, the intersection between the financial sector and the real economy offers many fruitful areas of research, seen from a sustainability perspective.

The research area of the role of finance in the transition to sustainability should indeed be a central concern. The Group therefore decided to develop a proposal for a research call in this area, as elaborated in section 6 below.

3.2 The Broman and Robèrt report

With regard to the report on Leadership, the group found it useful in stressing the need for work on sustainable development, to extend beyond analysis to encompass action in actual economies. Also, the emphasis on bringing to bear perspectives from systems analysis and complexity economics on the sustainability issue is important. This pre-Report identifies several interesting topics, such as the issue of trade-offs between improving different aspects of the circular economy and how to manage conflicting demands. In the group´s view, it is not particularly fruitful to provide a new definition of sustainable development. Instead the discussion should concentrate on how policy-makers and decision-makers respond to trade-offs. This in turns depends on how we define the system(s) in which they function and how we determine the system boundaries.

The conclusions of the pre-Report build heavily on a survey. In the group´s view, it would have been interesting to know what proportion of Swedish firms were included in the discussion, as there might be some danger in talking largely to those already convinced. The pre-Report does not appear to anticipate the possible push-back from other parts of the business world.

The full range of potential agents of change is not explicitly discussed in the pre-Report. In the group's view, the understanding of the legal, regulatory and fiscal environments in which a company operates is crucial to understanding how it acts. Which factors are, for example, putting obstacles in the way of companies in pursuit of sustainable development? From the point of view of society at large, should companies be given incentives to change their behaviour, persuaded to act differently by argument and provision of information, or forced to change by legal and social sanctions?

The pre-Report underlines the importance of trans-disciplinary research and the Working Group would have liked to have read more details in the pre-Report of examples of exemplary research of this type. The group noted that systems modelling could indeed be useful as a common framework for trans-disciplinary analysis. This would be appropriate, for example, in any study of the financial system, including links to the 'real' economy and the environment, along the lines proposed by the group. Reforms of financial regulation could have unintended consequences for the investment required to promote sustainable development if the system-wide ramifications of reforms are ignored. However, there still remain two difficult challenges. First, there is the difficulty of deciding on the appropriate level of model complexity and abstraction from reality, for example, when deciding what should be treated as exogenous and what as endogenous. Second, there is the need to work out how to reconcile systems thinking with the need to allow some decentralised decision-making by agents with incomplete information.

4 Working group deliberation

The working group spent several hours discussing the prestudy reports with a view to identifying and prioritizing possibilities for a new Mistra research initiative. To undertake this task, the working group adopted three main criteria:

- The significance of a topic to Sweden and other advanced countries
- The current state of research
- The possibility of identifying worthwhile and practical research questions

After canvassing views on the wide range of possible topics suggested in the pre-Reports, the working group settled on the reform of the financial system so that it is supportive of a transition to a green/circular economy. This topic provides the main focus for the remainder of this report. However, the working group also noted that the employment implications of such a transition could also serve as the basis for a new Mistra research programme should a second or alternative option be required.

Following the financial crisis of 2008, there has been a considerable amount of work in Sweden, in many other countries, and at the international level, on how to make increasingly interconnected national financial systems more resilient and more stable. At the same time, work continues on the pursuit of sustainable development, and in particular, on mitigation of and adaption to climate change. While it is conceivable for these two major endeavours to reinforce each other, there is a real danger that without careful planning, they will work against each other. Specifically, measures to strengthen the financial system may fail to enhance its capacity to redirect investment required for a transition to a green/circular economy. Indeed, concern was expressed by the group that, without appropriate adjustments to the financial sector, it could very well impede such a transition.

A transition to a green/circular economy will require a substantial reallocation of capital via a redirection of investment. Can the financial system be expected to facilitate this reallocation or will it require new policies ranging from regulations and fiscal incentives to changes in the structure of the sector? As an example, the working group considered the capacity of the financial system to redirect capital away from the fossil fuel industry towards renewables given that there are no economic rents to be earned from renewable energy. Traditionally, the fossil fuel industry and host governments have earned large profits and royalties directly from the ownership, extraction and sale of the fossil fuels. Most forms of renewable energy (e.g. solar and wind) cannot themselves be a source of revenue because they are not subject to ownership. Profits from these energy sources can only come from the equipment required to transform the energy into another form (e.g. electricity) and the sale of the transformed energy. Features of these markets are such that renewable energy may provide less attractive opportunities for investors such that they do not receive the level of capital investment required for a timely transition away from fossil fuels. This is apparent from the lack of interest shown by the traditional fossil fuel companies to invest in renewable alternatives, preferring to seek new sources of fossil fuels in increasingly hostile environments (e.g. deep sea sources, the Arctic). It also explains the need for policy interventions such as Germany's FIT programme and the renewable energy requirements for utilities in the UK.

The redirection of investment is complicated by the fact that the future pace of technical progress with different technologies is uncertain. More generally, there is bound to be uncertainty and debate about the implications of making development sustainable for the structures of economies. The expertise of financial intermediaries needs to be harnessed to the assessment of these uncertainties and the evolution of a portfolio of investments that will sustain the transition to a new form of economy in the face of unanticipated technical, social and economic shocks.

With this perspective in mind, the working group identified the following issues, each of which merits further research: and combined would constitute a timely and significant research programme relevant to Sweden and other advanced economies.

- What are the attitudes within the financial sector towards evaluating long-term returns and risk? How are these evaluations being affected by measures to make the financial sector more resilient? Is there a reluctance in the financial sector and utilities, which are typically risk averse, to invest in transformative technologies?
- How significant is the problem of 'stranded assets' in a transition to a green/circular economy? Stranded assets refer to the large quantities of fossil fuels that may never be exploited if greenhouse gas emissions are to be reduced significantly. How will the financial sector respond to the impact of stranded assets on corporate and government balance sheets? Will stranded assets be a source of instability in the financial sector? Is there a way of avoiding this problem other than continuing the exploitation of fossil fuels?
- The past decade or so has witnessed a massive increase in private and public debt. How will this debt be managed in a green/circular economy? Does its existence represent an obstacle to the transition to such an economy?
- One pre-study report refers to the Chicago Plan (a form of narrow banking) that is designed to allow the state to resume greater control of the national currency and the right to create money. (Currently, most of the money supply is created by commercial banks when they make loans repayable at interest. Some analysts believe that this system necessitates

economic growth simply to repay the interest, an argument that is contested by others.) Other similar plans for restructuring the financial system are also being canvassed (e.g. Positive Money, recently endorsed by economist Martin Wolf in the Financial Times of London.) One of the arguments put forward by the proponents of positive money is that it would give more control over the allocation of investment to the state and that this could be used to redirect investment in accordance with the requirements of a transition to a green/circular economy. Whether the state would in practice use such control effectively depends upon a range of technical and political economy considerations. These proposals merit careful, independent analysis, including their environmental and social implications.

- The working group sees an expanded role for socially responsible investment and, possibly, for non-traditional banks such as credit unions, in supporting the move towards a green/circular economy. How can this expansion be encouraged? The working group is less enamoured with the potential for alternative currencies (e.g. local currencies, Bitcoin) to support a transition to a green/circular economy, but an assessment of these could also be included in a new research programme.

Based on the working group's assessment of the current state of research (see Section 5 below), the working group thinks that these research questions comprise a research programme that meets the three criteria set out above and would make an important contribution to the restoration of the financial system so that it would support a transition to a green/economy in Sweden and similar countries.

5 State-of-the-art, including research challenges

The international research frontline

There is a considerable research effort being devoted to the reform of finance in the wake of the global financial crisis, both in official institutions such as the Bank for International Settlements and its member central banks and in the academic world (e.g. the London School of Economics' Systemic Risk Centre), but with little attention being paid to the possible consequences of reform proposals for socially desirable investment. Conversely, proposals to promote sustainable development, whether of the OECD 'green growth' variety (OECD, 2011: "Towards Green Growth") or more radical 'no growth' type (e.g. Jackson, 2009: "Prosperity Without Growth: Economics for a Finite Planet"), tend not to go much further in the financial sphere than to spell out the implied investment requirements.

However, there are a number of initiatives in other countries investigating some aspects of the intersection of finance and sustainability issues, ranging from research consortium (e.g. the Chair FDIR in France) to think-tank and civil society/NGOs initiatives. Some examples are provided in Annex 2. This reflects increased interest among financial intermediaries in sustainability issues. For example, in France, by the end of 2009, 'Responsible Investment Mainstreaming' incorporating responsible investment criteria in asset allocation decisions, concerned 90% of conventional funds in terms of assets, compared with 61% at the end of 2008 and 3% at the end of 2007. Also, some more narrowly defined areas, such as finance for climate-change policies, have been analysed in more depth (see, for example, Haites (ed), 2013: "International Climate Finance"). Interesting ideas about short-termism in financial decision-making and the nature of the risks facing financial intermediaries have started to be explored.

Nevertheless, there is much scope for further work and some of the limits to existing programmes are evident. For example, the French Chair FDIR is supported by a dozen asset management companies and the French Asset Management Association in order to play a key role in understanding the drivers and impact of a more sustainable/circular economy from the financial investors' as well as from the firms' perspectives. These companies value new insights into financial markets as well as policy-makers' behaviour. Yet socially responsible funds still represent less than 10% of the assets under management in major OECD countries.

One particular aspect that has not yet been examined in detail is the relationship between systemic risk to financial systems and socially useful investment. The transition towards a circular/sustainable economy takes on a critical significance in the context of the profound crisis that has struck the world economy since 2007. The argument that the ongoing crisis is systemic stems from the fact that it is multidimensional and pervasive, inducing a need to reform global financial governance and financial markets. Such a crisis is in fact a sustainability crisis – that is, a financial, social and ecological crisis. That this may require new ways of looking at the financial system and the role of the state is not completely novel (see, for example, Stiglitz, 2001: "Redefining the Role of the State" and Soros, 1998: "The Crisis of Global Capitalism"). However, recent economic experience has given this view greater salience. Managing multiple dimensions at the heart of the circular/sustainable economy is crucial, in particular the environmental arguments (or constraints) of the circular/sustainable economy will be heard only if they propose a strategy of recovery from the crisis. The strength of the circular/sustainable economy concept is to offer both a tactical alternative to current problems and a strategic vision of a different way of organising economies. Analysing how restructuring the financial system will help to develop the circular/sustainable economy implies a deep understanding of how environmental and social dimensions may act as engines of economic and human development of a country, by favouring economic activity and employment on the one hand, and improving welfare and reducing inequality on the other hand, with a renewed financial system providing sound incentives for the long term. Financial stability, social justice, employment, re-industrialisation, globalisation: here are the important challenges to be met by the restructuring of the financial system to support a circular/sustainable economy.

A range of analytical perspectives could be brought to bear on these challenges. One potentially particularly fruitful strand of thought is the "post-Keynesian" one associated with Hyman Minsky (see, for example, Minsky, 1975: "John Maynard Keynes") and elaborated more recently by Lance Taylor (Taylor, 2010: "Maynard's Revenge"), which has not been widely applied in the environmental sphere (but see Rezai, Taylor and Mechler, 2013: "Ecological Macroeconomics: An Application to Climate Change"). More orthodox approaches could also be explored, following the examples of Zadek and Chenghui, 2014: "Greening China's Financial System" and Henckel and McKibbin, 2010: "The Economics of Infrastructure in a Globalized World: Issues, Lessons and Future Challenges". Some of the insights of banking theorists could be useful in tackling the question of financial crises and socially useful investment (e.g. Gersbach and Rochet, 2011: "Aggregate Investment Externalities and Macroprudential Regulation"). The members of this group found the references presented in the Alfredsson and Wijkman pre-report a very helpful resource in considering what existing academic literature could be informative and stimulating, although these references are thin on financial issues. Other useful resources include Atkinson, Dietz, Neumayer and Agarwala (ed.s), 2014: "Handbook of Sustainable Development", Fouquet (ed.), 2013: "Handbook on Energy and Climate Change" and Grahl (ed.), 2009: "Global Finance And Social Europe" (especially Plihon's contribution), which cover a range of economic perspectives.

<u>Related MISTRA programmes</u>

A number of MISTRA programmes related to sustainable development have recently been set up:

- The programme on Sustainable Investment was set up in 2006, with the stated objective to find out how the use of sustainable investment practices can create added value to investors, and identify barriers to such practice. The research carried out under this programme has resulted in a series of guidelines, practical implications and suggestions aimed at improving that value chain. The focus on the programme, which was terminated in 2012, was primarily on business practices and how they currently impede sustainable investment.

- In August 2014, MISTRA decided to support the establishment of a Center for Sustainable Markets, aimed at creating a centre of excellence for advanced market practices toward the aim to enhance the capabilities and competitiveness of Sweden. The initiative should be stakeholder-driven and builds on the three pillars: research, education and outreach. The programme is hosted by the Stockholm School of Economics, and is currently being set up for a first five-year period.

- MISTRA also decided (August 2014) to make a funding application call in the research area of product design and resource efficiency towards a circular economy. The main objective and orientation was that research should be focused on how various types of products should be designed in a life-cycle perspective. The working group set up recommended that MISTRA initiate an interdisciplinary research programme on resource efficient design for new products, with the aim of enhancing cooperation between academia, industry and other stakeholders.

According to the Group, there would certainly be ample opportunities for cross-fertilization between e.g. these three initiatives and the research effort proposed in this Report. In particular, the responsiveness of the financial system to the notion of circular/green growth is a pre-requisite for a real change of direction. The issue of “green financing” would therefore be a central element in all cross-cutting research in the field of sustainable markets and product design.

6 Conclusion and recommendation

The working group considers research on the role of the financial system in the transition towards a green/circular economy as having large potential for the Swedish economy and general interest.

The amount of investment needed to undertake this transformation of our economic and social systems, in a context of tight budgetary constraints of governments in Sweden and more generally worldwide, is substantial and not fully understood. There is a triple need not only to shift private financial flows from “brown” sectors to “green” sectors, but also to leverage new sources of financing, while restoring financial stability and fighting short-termism on financial markets.

In several research programmes, both national – including Mistra’s funded programme on sustainable investments – and international, that have considered the role of financial actors or markets for sustainable development, insufficient attention has been paid to the capacity of the financial system to act as a true engine of transition towards a green/circular economy. New financial tools and rules reallocating capital towards a green/circular economy (e.g. ranging from green bonds, carbon certificates and narrow banking to macro structural reforms and socially responsible investment labels) represent fruitful areas of research for a new programme to be funded by Mistra.

We thus recommend that Mistra initiate a research programme on the role of the financial system in the transition towards a green/circular economy addressing some or all of the issues outlined in section 4 above and with the following main characteristics:

- Engagement of financial actors and civil society
- Systems approach and transdisciplinary research
- International collaboration
- New ideas, generic results broadly disseminated
- Long term programme with Initial commitment of five years

The range of people and groups who would potentially find the research we are proposing valuable is very broad. It would include:

(1) all those currently engaged internationally and nationally in restructuring financial systems to avoid another 2007/08 episode, such as:

- Central banks
- Commercial banks
- Investment fund managers
- Financial regulators
- Government departments of finance
- Parliamentary committees
- The OECD
- Public interest groups with a finance focus
- Academics and other researchers
- Journalists

(2) all those whose primary interest is in environmental and/or social justice issues and who appreciate the potential for positive change that could come from restructuring financial systems so that resources can be efficiently diverted into green investments. This would include:

- UNEP
- Government departments of the environment
- Investment fund managers interested in greener portfolios
- Credit unions and some commercial banks
- Public interest groups with an environmental and/or social justice focus
- Academics and other researchers
- Journalists

Influential actors in the financial markets (such as bankers and asset managers) could be involved as participants in the research and/or on advisory panels (along with other stakeholders) to help design and guide the research. They could participate directly or through their professional associations. Technical expertise from practitioners would be needed to complement academic investigations. Similarly, potential green end-investors such as energy utilities, forest managers and city authorities could be invited to offer advice. However, care must be taken to avoid any particular influential actors having undue influence on the research, particularly given the danger that incumbent economic interests may be biased towards the status quo. MISTRA could consider including representatives from the financial industry on a panel established to select or advise on the selection of the applications for funds under the new programme.

Any reports written as part of the research should be written in such a way as to make the method and findings as accessible as possible.

The likely outcomes of this new programme would be:

- Real changes in the financial sector in support of the transition to a green/circular economy
- Creation of international research networks
- Building up of a training and research capacity in Sweden covering the intersection of environmental and finance issues
- Elaborating policy recommendations and supporting appropriate institutional reforms

Appendix 1
Terms and Definitions

- The green economy:

  The UNEP defines a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive.

- Green growth:

  According to the OECD, green growth means promoting economic growth while reducing pollution and greenhouse gas emissions, minimising waste and inefficient use of natural resources, and maintaining biodiversity. Green growth means improving health prospects for populations and strengthening energy security through less dependence on imported fossil fuels. It also means making investment in the environment a driver for economic growth.

- The circular economy:

  The circular economy is a generic term for an industrial economy that is, by design or intention, restorative and in which material flows are of two types, biological nutrients, designed to re-enter the biosphere safely, and technical nutrients, which are designed to circulate at high quality without entering the biosphere.

- The financial system:

  The financial sector is broadly defined to include banks, credit unions, credit card companies, insurance companies, accountancy companies, consumer finance companies, stock brokerages, investment funds, capital market intermediaries and some government sponsored enterprises.

- Socially responsible investment (SRI):

  Investment decision-making that incorporates a socially responsible dimension, which considers not only financial performance but also extra-financial performance criteria in the investment decision process.
  In Anglo-Saxon countries, SRI originally developed for ethical reasons (exclusionary approach of “sin stocks” – tobacco, weapon, alcohol, pornography), while SRI in Continental European countries has followed a financial approach based on the development of positive screening methods relying on extra-financial – environment, social, and governance – criteria.

Appendix 2
Examples of current research in the field of the green/circular economy

Cross-sectoral research initiatives

- Centre for Remanufacturing and Reuse (run by Oakdene Hollins in UK)
- The Global Network for Resource Efficient and Cleaner Production (RECPnet)
- The European Centre for Corporate Engagement (ECCE) at Maastricht University (www.corporate-engagement.com)

- French Chair "Sustainable Finance and responsible investment" (FDIR), founded in 2007 (renewed in 2010 and 2013)
  The main objectives of the FDIR chair are to:
  - Contribute to objectivizing the arguments to show that the development of sustainable finance and responsible investment is – in today's world – not only necessary but also possible;
  - Develop research methods allowing better identification and integration of non-financial criteria into the analysis of value creation;
  - Form a world-class scientific team on SRI.

http://www.idei.fr/fdir/en/

- Sciences Po : Chair on Sustainable development
  Created in 2003, this chair now focuses on the theme of the ecological transition, with the ambition of:
  - acting as an observatory of changes in ways of life, business models and governance ;
  - identifying, discussing and supporting drivers of transition within different organisations, sectors and industries.

  http://www.sciencespo.fr/chaire-developpement-durable/fr

- Dauphine : Finance and Sustainable Development Chair

  This initiative brings together researchers, thinkers and international actors involved in the finance and sustainable development fields. Its mission is to define a body of knowledge on the question of sustainable development and finance, to conduct research on certain subjects and to make inroads into others, to be transversal (interdisciplinary), to be a place open to exchange and reflection, and to feed into teaching at Dauphine and other universities on the Chair's research areas.
  http://www.dauphine.fr/en/research/dauphine-corporate-research-chairs/finance-sustainable-development-chair.html

Civil society and NGOs

- Finance Watch
  In 2010, a group of Members of the European Parliament funded a project to investigate whether a new, independent body could be created to improve the way the interests of ordinary citizens were represented in the debate on the future of financial regulation. (http://www.finance-watch.org/about-us)

- The Capital Institute - The Future of Finance (US)
  The Capital Institute is a non-partisan, transdisciplinary collaborative launched in 2010 by former JPMorgan Managing Director John Fullerton.
  (http://www.capitalinstitute.org)

- The Finance Innovation Lab (UK)

  The Finance Innovation Lab is an incubator for positive change in the financial system.
  (http://www.thefinancelab.org)

- The New Economics Foundation (UK)
  NEF is the UK's leading think tank promoting social, economic and environmental justice.
  (http://www.neweconomics.org)

- The Tellus Institute for a Great Transition (US)
  Tellus Institute was established in 1976 as an interdisciplinary not-for-profit research and policy organization.
  (http://www.tellus.org)

- The Levy Economics Institute (US)
  The ultimate purpose of all of the Levy Institute's research and activities is to serve the wider policymaking community in the United States and the rest of the world by enabling scholars and leaders in business, labor, and government to work together on problems of common interest.
  (http://www.levyinstitute.org)

- The Institute for New Economic Thinking
  The Institute for New Economic Thinking was created to broaden and accelerate the development of new economic thinking that can lead to solutions for the great challenges of the 21st century.
  (http://ineteconomics.org)