



Ecologic Institute

Berlin
Brussels
Vienna
Washington DC



Beyond GDP

Measuring Welfare, Growth, Happiness and Sustainable Development

***R. Andreas Kraemer – Director – Ecologic.eu
Berlin – Brussels | Washington DC – San Mateo CA***



Ecologic Institute

Berlin
Brussels
Vienna
Washington DC



Preview of Content

- ▶ GDP its popularity and its limitations
 - ▶ The Beyond GDP process
 - ▶ The Ecologic institute and Beyond GDP
 - ▶ IN STREAM: Project and Results
 - ▶ The German Enquete Commission
-



GDP: its popularity and its limitations I

- ▶ Originally devised as **information and forecast indicator for sales**
 - ▶ Today GDP is very often used due to its
 - ▶ **well established methodology**
 - ▶ **timely availability**
 - ▶ **public recognition**
 - ▶ Mostly it is used as an indicator of **well being and wealth of society** while in fact being a measure of **economic activity**
 - ▶ As an indicator for the well being of a society the GDP has severe flaws that can be divided into three classes
-



GDP: its popularity and its limitations II

1. Conventional economic issues

- ▶ GDP is a gross indicator meaning that any depletion of material, human and environmental capital and wealth is ignored
- ▶ GDP measures production while the benefits for people and society are generated by consumption
- ▶ The value of public services is measured as its costs ignoring quality improvements

2. Well Being and happiness versus material welfare

- ▶ Material welfare only partly explains personal well being or happiness
 - ▶ Other factors are ignored (eg. societal cohesion, personal relationships, economic and personal security, income distribution)
-



GDP: its popularity and its limitations III

3. Environmental sustainability versus material welfare

- ▶ Depletion of natural capital or raw materials and environmental damages are not properly taken into account as all changes to capital stocks (financial, social and environmental) are ignored
 - ▶ Problem of valuation for materials and damages with no market prices
 - ▶ Inability to detect proximities to critical values for overconsumption (overfishing, climate change and the like)
-



Beyond GDP I

Recently renewed activity to improve the measuring of societal welfare

1. Beyond GDP conference in November 2007 in Brussels
 - ▶ Organised by the Ecologic Institute for the European Commission, **650 participants** discussed measures of progress and well-being
 - ▶ Conference were targeted at **high-level experts and policy makers** from economic, social and environmental spheres
 - ▶ Presentations featured internationally recognised leaders and key institutions such as the **World Bank and the United Nations**



Beyond GDP II

2. Communication of the European Commission published in August 2009 “Measuring progress in a changing world” with five proposed actions
 - ▶ Complementing GDP with **environmental and social indicators**
 - ▶ **Real-time information** for decision makers
 - ▶ More accurate reporting on **distribution and inequalities**
 - ▶ Developing a European Sustainable Development Scoreboard
 - ▶ Extending National Accounts to **environmental and social issues**



Beyond GDP III

3. French government appointed a high profile commission led by **Joseph Stiglitz, Amartya Sen and Jean-Paul Fitoussi** providing recommendations for a better measurement of societal welfare
 - ▶ Better methodologies needed to capture **quality improvements** in services (especially in **services provided by government**)
 - ▶ Welfare measures should be based on **income and consumption** not production, **include wealth and** give more prominence to **income distribution**
 - ▶ Develop measures of social connections, political voice, and insecurity that can be shown to predict life satisfaction
 - ▶ Environmental pressures interpretable as variations of some underlying “stocks” should be included in an economic welfare indicator
 - ▶ Other environmental pressures should be included in a physical environmental index



Beyond GDP projects of the Ecologic Institute

- ▶ Since 2007 the Ecologic Institute has contributed and shaped the discussion about alternative indicators
 - ▶ Important projects on “Beyond GDP” of the Ecologic Institute
 - ▶ One Planet Economy Network (<http://www.oneplaneteconomynetwork.org/>)
 - ▶ Ranking of country sustainability performance for investment fund (Ökoworld)
 - ▶ Data services for the development of the EU composite index on environmental pressures (<http://ecologic.eu/4202>)
 - ▶ Integration of Mainstream Economic Indicators with Sustainable Development Objectives (<http://www.in-stream.eu/index.html>)
-



In-Stream

Ecologic Institute

Berlin
Brussels
Vienna
Washington DC



Partners in the IN-STREAM project

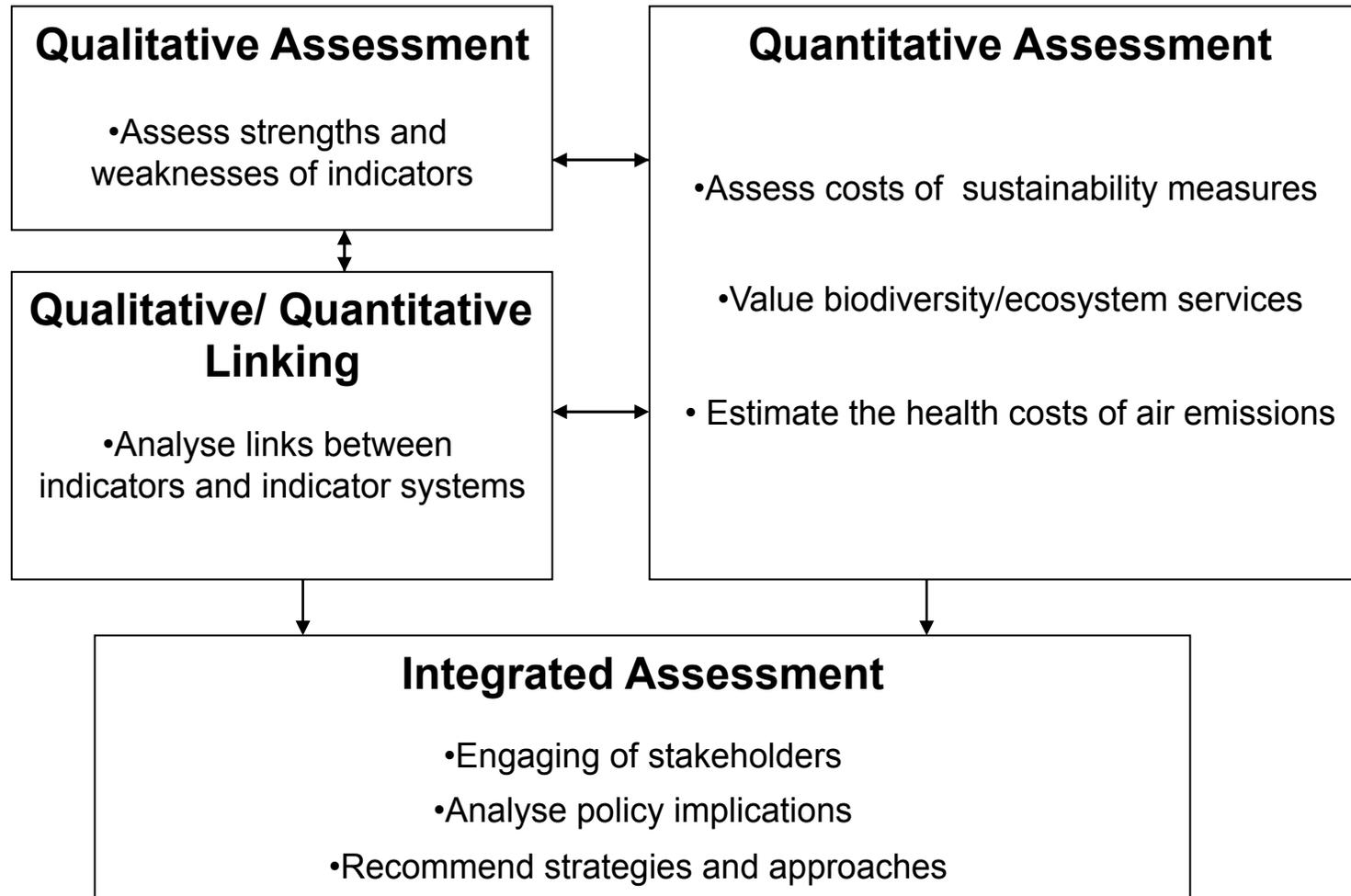
- ▶ FP 7 Project - 09/2008 until 09/2011
- ▶ Partners
 - ▶ Ecologic Institute – Berlin (Lead)
 - ▶ University of Bath
 - ▶ Fondazione Eni Enrico Mattei (FEEM) – Milano
 - ▶ Charles University Environment Center – Prague
 - ▶ Institute for European Environmental Policy (IEEP) – Brussels
 - ▶ Universität Stuttgart
 - ▶ International Institute for Applied System Analysis (IIASA) – Vienna
 - ▶ The Centre for European Economic Research (ZEW) – Mannheim



IN-STREAM Objectives

- ▶ Evaluate **key existing indicators** and indicator efforts
 - ▶ Identify **institutional needs** and opportunities
 - ▶ Improve **quantitative models** linking indicators
 - ▶ Assess the **costs of** reaching **sustainability** targets
 - ▶ Recommend **composite indicators** and implementation
-

IN-STREAM – Work Packages

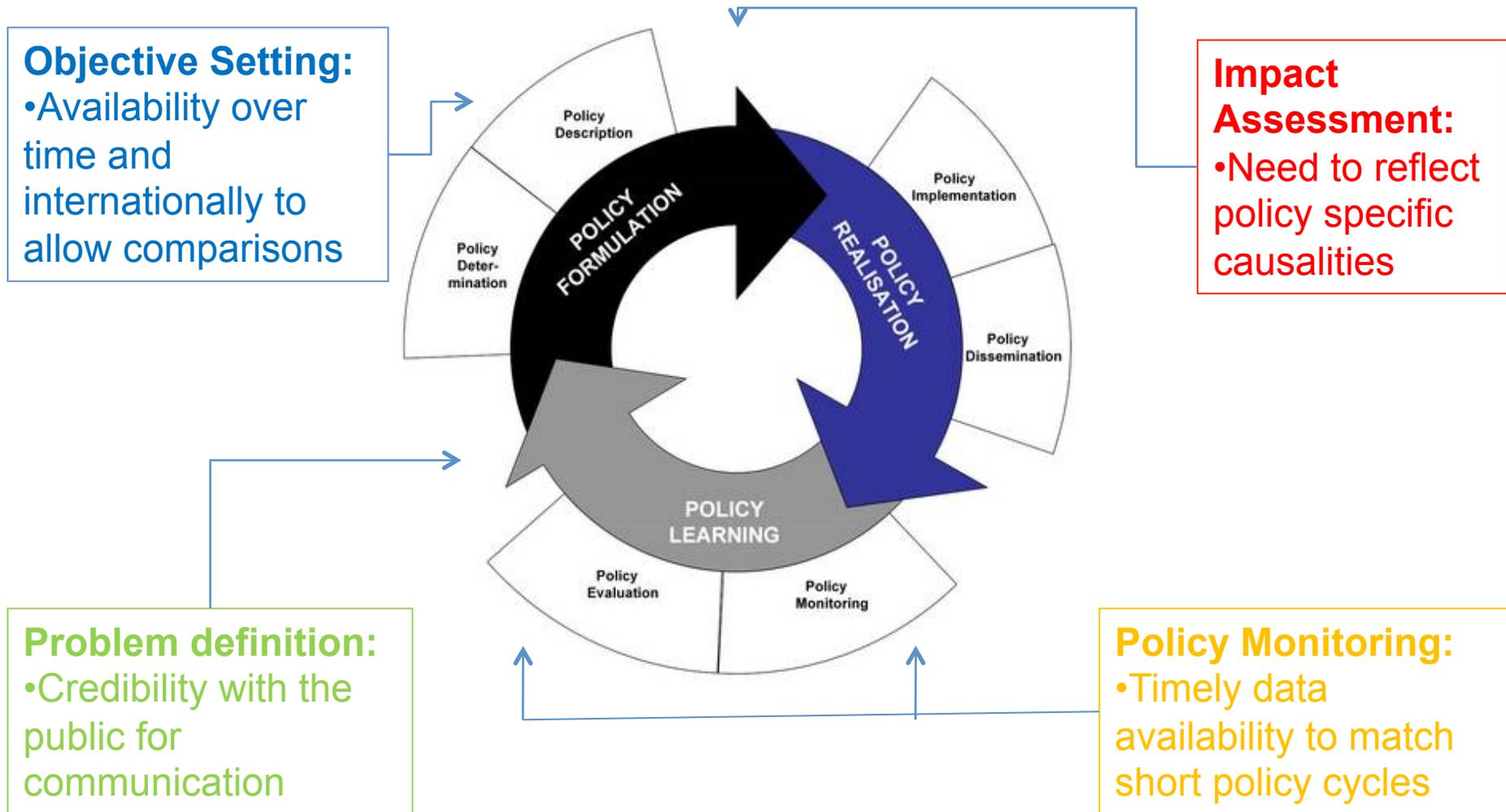




Results 1 – Overview

- ▶ Balancing trade offs between different sustainability targets is a crucial requirement for a successful sustainability policy
- ▶ IN-STREAM results can support policy makers in this task with
 - ▶ Composite indicators, which highlight the value judgements underpinning their construction
 - ▶ Qualitative assessments of indicators and indicator system to identify the best indicators for the policy task
 - ▶ Statistical analysis of relationships between indicators to build coherent indicator sets for multi-objective policies
 - ▶ Models which estimate important trade offs of sustainability policies (eg. biofuel targets and poverty, renewable energy targets and employment, emission reduction and competitiveness, costs and benefits of climate change action)

Results II: Data needs in the policy cycle





Results III: Composite Indicators

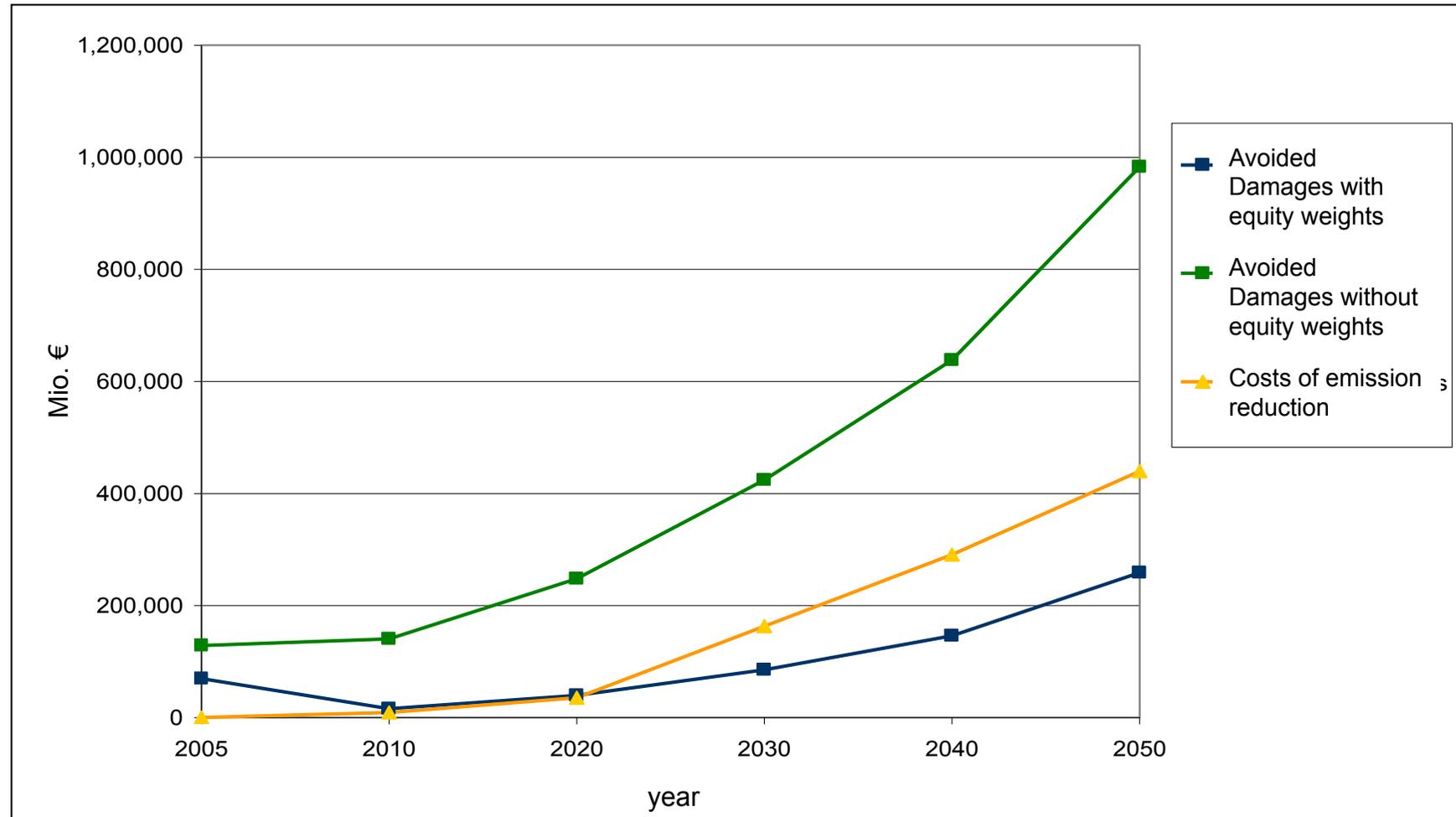
- ▶ **Composite indicators** can be very **effective tools in communicating** overarching sustainability messages to non-experts
 - ▶ **Subjectivity is intrinsic** to the construction of such indicators (Indicator selection, normalisation, weighting)
 - ▶ **Subjectivity** can be used to provide an additional layer of information by making **value judgements** more explicit and **transparent**
 - ▶ The FEEM sustainability index uses modelling techniques to develop a composite sustainability index
 - ▶ Weightings are derived from a poll of sustainability experts
 - ▶ More information on the FEEM sustainability index is available on http://www.in-stream.eu/download/INSTREAM_FSI_final.pdf
-



Results IV: Costs and Benefits of climate change action

- ▶ One trade off in climate change policy is the balance between the costs of emission reduction measures and the potential damages avoided
- ▶ Using an Impact Pathway Approach (IPA) the University of Stuttgart estimates the costs and the avoided damages of emission reduction until 2050
- ▶ Equity weighting is needed to take account of international income differences - Most damages of climate change will be caused in poor countries where damages are less “costly” (in monetary terms)
- ▶ Including equity weighting the avoided damages are estimated to be more than double the costs of emission reduction measures in 2050
- ▶ The net gain of climate change action is very small in the short term but the more significant the longer the time frame

Results IV: Costs and Benefits of Climate Change Action





Results V: Climate change action and employment in Baden-Württemberg (Germany)

- ▶ Using an input output approach, the ZEW has examined the **impact on regional employment** of a program to increase the share of renewable energy production to 20%
- ▶ Impacts on employment are of particular interest for the regional government of Baden-Wuerttemberg as it is very dependent on its strong manufacturing base
- ▶ Overall the programme has a negative impact of employment if funded exclusively internally as **investment in other sectors is crowded out**
- ▶ If some of the necessary investments can be funded externally by **building up an export industry** the overall employment effect might be positive



Results V: Climate change action and employment in Baden-Württemberg

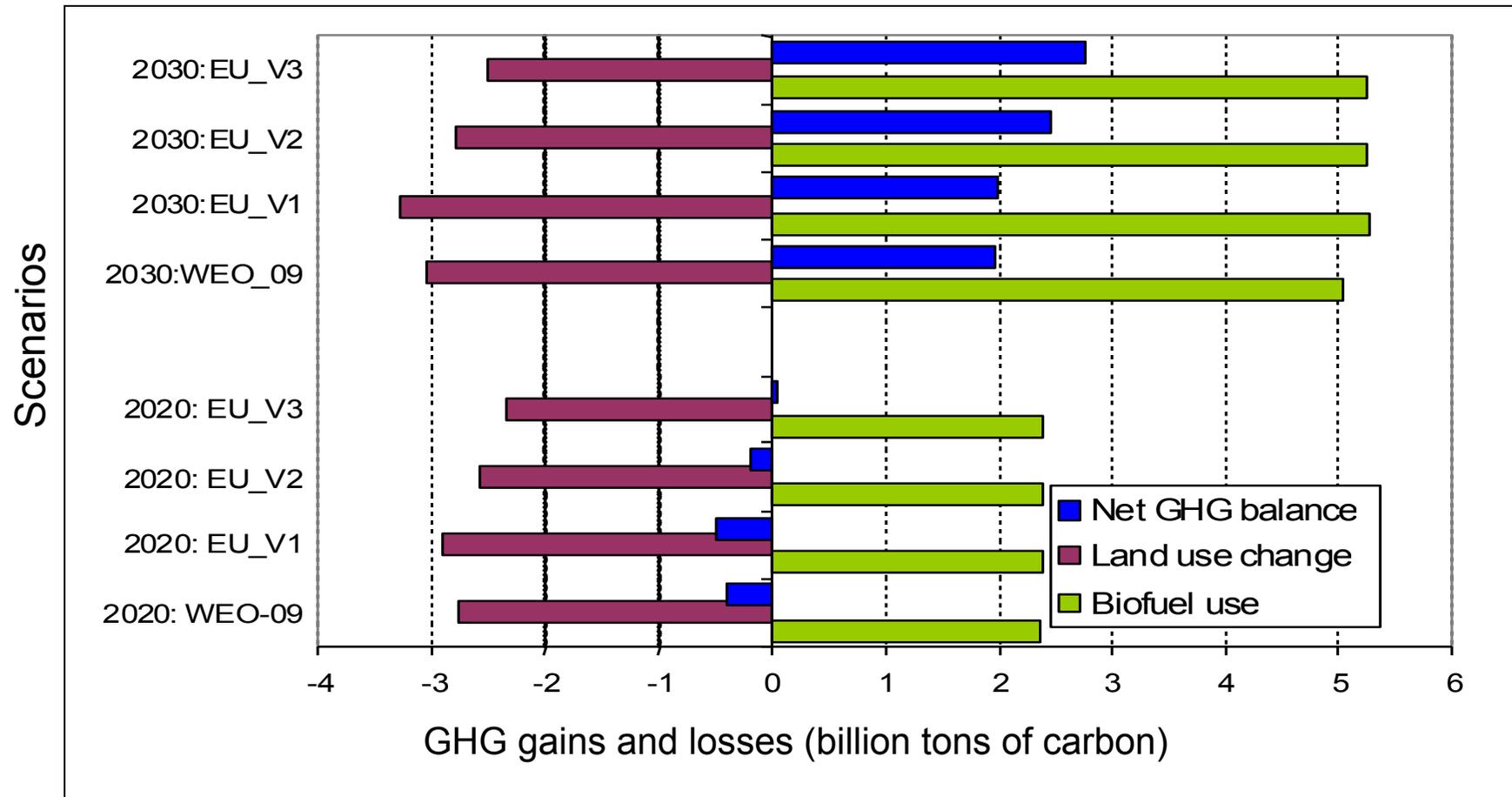
	Additional production (Million €)	Employment effects (no. of jobs)
Gross Employment effects of renewable energy sectors induced by the regional climate policy in Baden-Württemberg until 2020		105.466
Net production and employment effects induced by the regional climate policy in Baden-Württemberg until 2020, internal funding	2541.2	-34.812
Net production and employment effects induced by the regional climate policy in Baden-Württemberg until 2020, external funding by exporting	6470.5	30.662



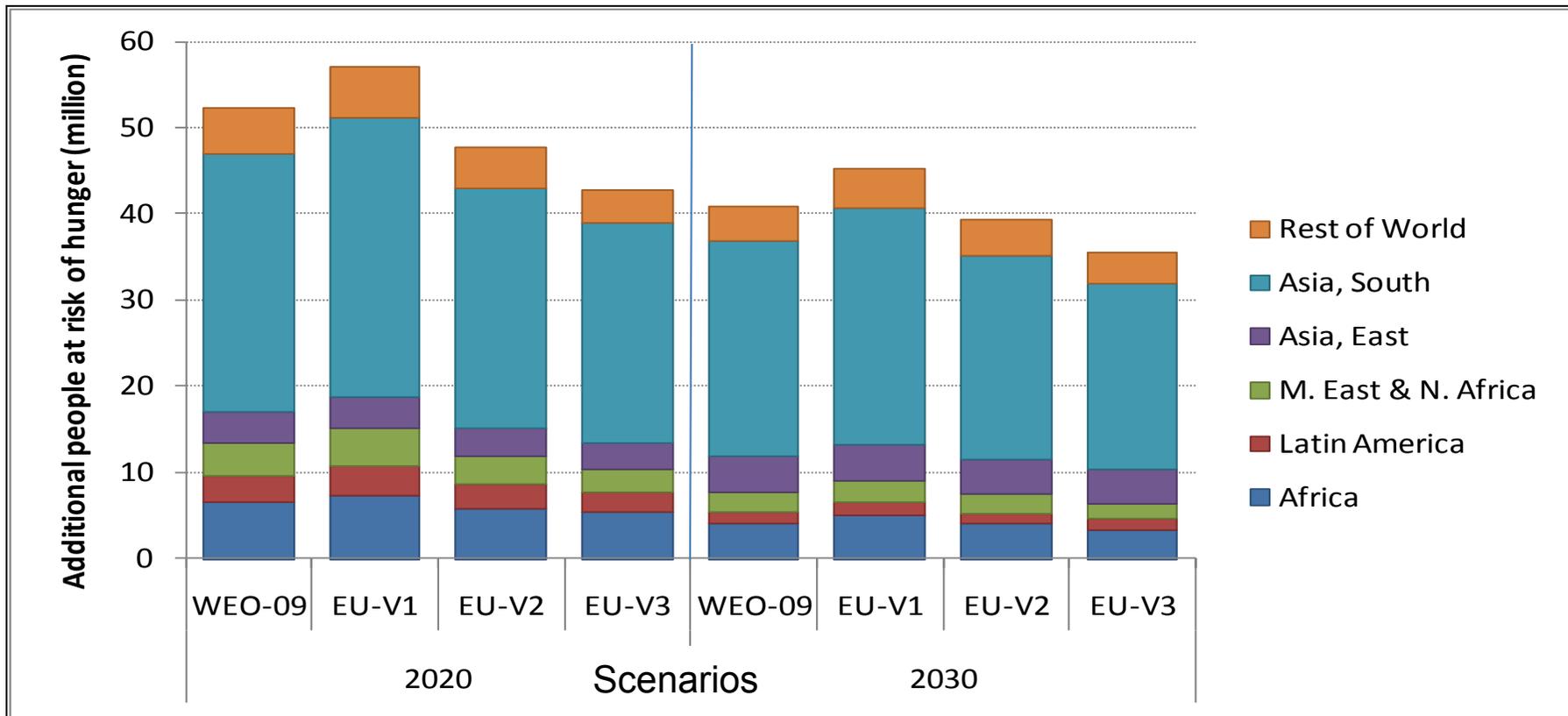
Results VI: Biofuel targets, greenhouse gas emissions and people at risk of hunger

- ▶ IIASA has analysed within IN-STREAM the impact of the EU biofuel targets on GHG emissions and the world agricultural markets in different scenarios
- ▶ In all scenarios the intended reduction in GHG emission was found to be diminished by additional GHG emissions due to increased land use caused by the additional demand for crops
- ▶ Until 2020 overall GHG emissions were estimated to be rising due to biofuel targets, only in the long term (2030) the targets were found to reduce GHG emissions due to more efficient “second generation” crops
- ▶ The increased demand for agricultural products also led to rising prices and more people at risk of hunger world wide, especially in South Asia

Results VI: Impact of Different Biofuel Scenarios on Greenhouse Gas Emissions in 2020 and in 2030



Results VI: Impact of different Biofuel Scenarios on the number of people at risk of hunger in 2020 and in 2030



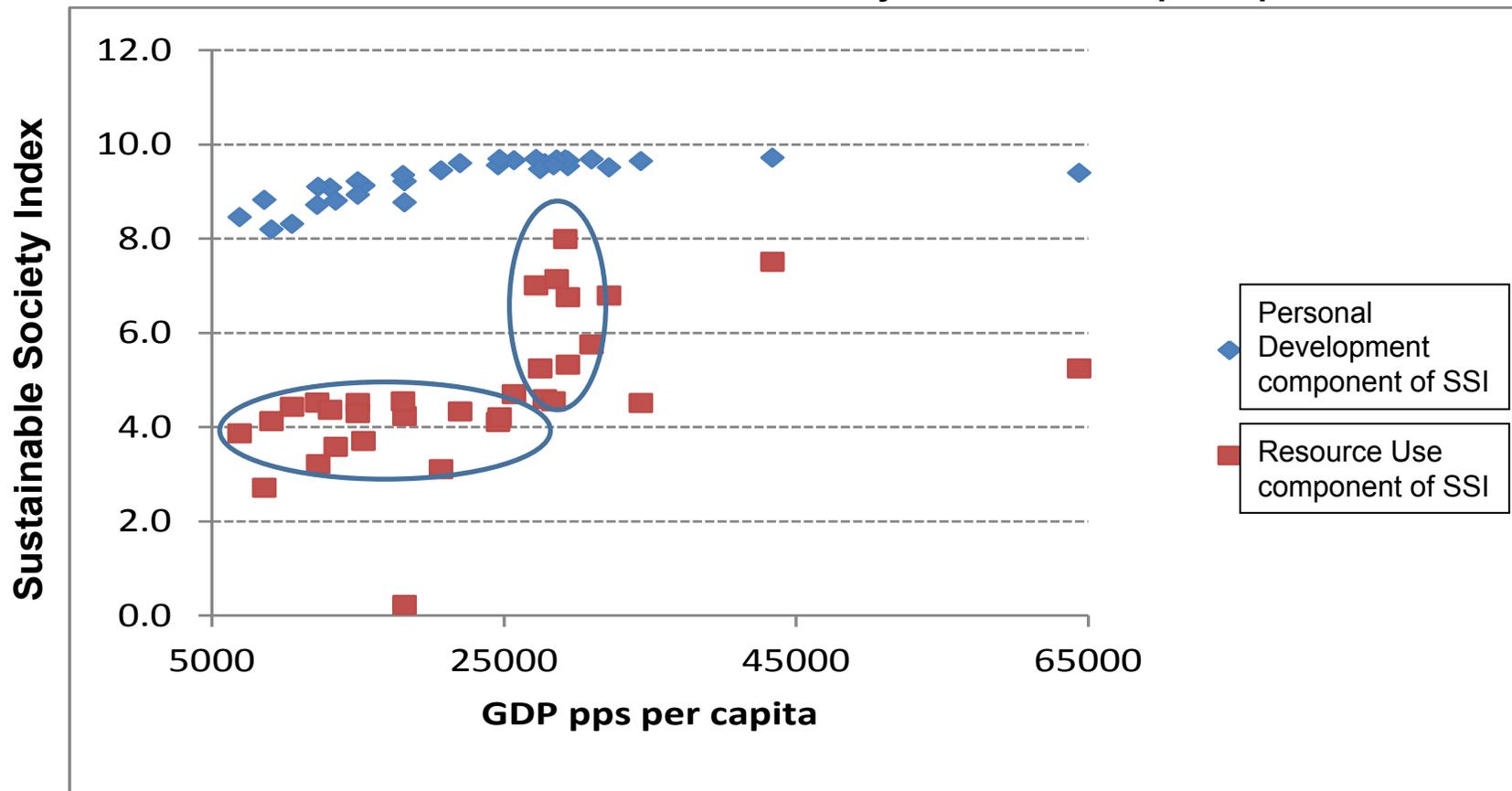


Results VII: Statistical Analysis of Indicators

- ▶ IIASA and the Ecologic Institute have analysed the statistical relationships between different sets of sustainability indicators
- ▶ The research used correlation analysis and more advanced statistical techniques like Principal Component Analysis and Cluster analysis
- ▶ Negative and positive correlations between indicators can be used to identify trade offs and synergies
- ▶ Graphical representations identify best and worst practice and can identify cases and countries with the most important lessons to teach
- ▶ Those analysis helps also to build a coherent target set for multi-objective policies
- ▶ For example, resource use is correlated with economic growth but the correlation differs significantly over countries

Results VII: Statistical Analysis of Indicators

Statistical correlation of Sustainable Society Index and GDP per capita





Results VIII: Qualitative Analysis of Indicators

- ▶ The Ecologic Institute, FEEM and IEEP have assessed a set of sustainability indicators regarding their technical robustness and their use for policy making
- ▶ Two methodologies
 - ▶ RACER (Relevant, Accepted, Credible, Easy, Robust)
 - ▶ SWOT (Strengths, Weaknesses, Opportunities, Threats)
- ▶ The results and the methodologies developed enable policy makers
 - ▶ to choose the most appropriate indicator
 - ▶ to interpret the results of those indicators in a robust way
- ▶ More information available under http://www.in-stream.eu/download/D2.2_final.pdf



Results IX: Climate Change Action and Competitiveness

- ▶ The economic crisis has intensified the discussion whether climate change action slows economic growth or can boost it
- ▶ With a computational general equilibrium (CGE) model the ZEW has estimated the impact of climate change emission pricing on overall and sectoral competitiveness
- ▶ Indicator shows the diversity of results for different measures of competitiveness
- ▶ The results clearly identify
 - ▶ the size of potential trade-offs and synergies enabling policy makers to target mitigation measures where needed
 - ▶ the disadvantages of sectoral mitigation measures for overall economic efficiency



Results X: Use of indicators in policy making

- ▶ IEEP has explored the policy needs and opportunities of an increased use of sustainability indicators for selected policy areas
- ▶ The analysis established a list of key environmental policies, selected a range of indicators, linked the indicators with steps in the policy cycle and consulted stakeholders on the practice of indicator use in policy making
- ▶ The research found that environmental indicators which can be combined with economic (or social) indicators are more useful for policy makers
- ▶ Examples were
 - ▶ Impact instead of pressure indicators
 - ▶ Ecosystem Service Indicators
 - ▶ Assessment of the public good value of agriculture
 - ▶ Impacts related to resource consumption



Recent developments: The German Enquete Commission

- ▶ In November 2010 the German Bundestag founded a Parliamentary Enquete Committee on Growth, Welfare and Quality of Life.
 - ▶ The commission will cover the following themes in its work (with leads):
 - ▶ Growth and welfare in economy and society (Conservatives)
 - ▶ **Measuring** of growth and welfare (Liberals)
 - ▶ Growth, **resource use and technical progress** (Social Democrats)
 - ▶ Political options and sustainable regulatory policy (Green Party)
 - ▶ Work life, consumption behaviour and life styles (The Left)
 - ▶ The commission is still in the process of collecting evidence and expert opinions (Currently one focus is on education policy)
 - ▶ Mayor new results are expected when research initiated by the government in response to the commission is finalised
-



<http://www.ecologic.eu> | <http://www.eius.org> **1995 - 2011**

- ▶ **Private, independent, non-partisan, mission-based, non-profit**
- ▶ Independent, constructive and competent **Voice** for:
 - ▶ **Environment** in international and European affairs
 - ▶ **International** and European dimension in environment policy
 - ▶ **Integration of environment into other policies**
- ▶ **Think Tank**, 6 founders, Euro 120K core capital, 1.3 m net assets ('10)
Governed by company law (business), '**operative foundation**'
- ▶ 135 staff: **Berlin**, Brussels, Vienna; **Washington DC**, San Mateo
- ▶ **Policy-relevant science**, and **science-based** policy analysis & advisory
- ▶ Project-driven, solution-oriented, inclusive and trans-disciplinary



Ecologic Institute

Berlin
Brussels
Vienna
Washington DC

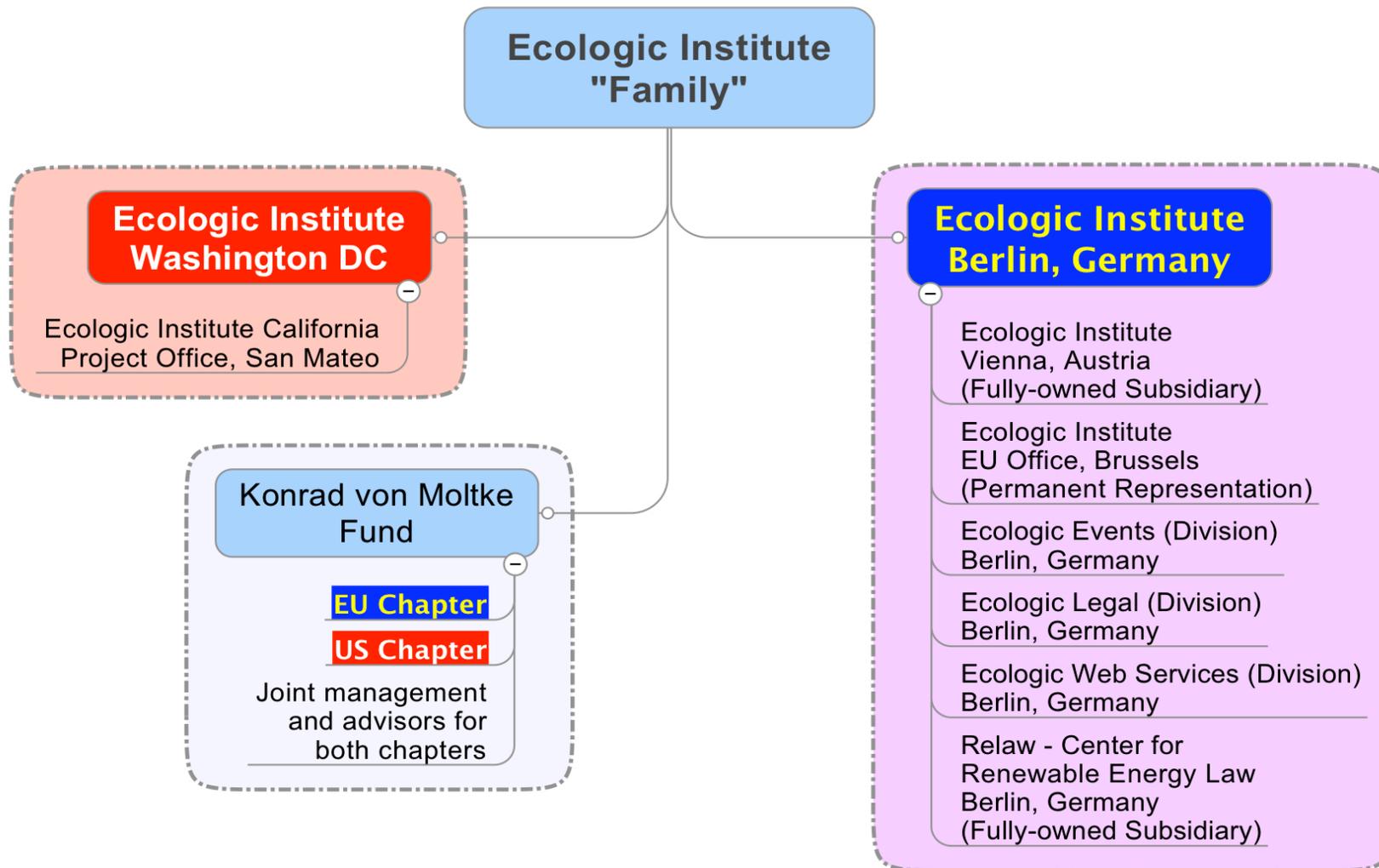


<http://www.ecologic.eu> | <http://www.eius.org>

1995 - 2011

- ▶ **1995 Ecologic Institute Berlin, Germany**
- ▶ 2000 Ecologic Legal (17 staff lawyers, 2011)
- ▶ 2001 Ecologic Institute Brussels, EU Office
- ▶ **2001 Transatlantic Program**
- ▶ 2002 Ecologic Events
- ▶ **2005 Konrad von Moltke Fund (EU chapter 75K Euro, 2011)**
- ▶ 2006 Relaw, Clearing House for renewable energy
- ▶ 2007 Ecologic Institute Vienna, Austria
- ▶ **2008 Ecologic Institute Washington, DC**
- ▶ **2009 Konrad von Moltke Fund (US chapter 25K US\$, 2011)**
- ▶ **2011 Ecologic Institute California, San Mateo Project Office**







<http://www.eius.org>

est. Earth Day 2008

- ▶ Legally and financially independent **Public Charity** (laws of the D.C.)
- ▶ Qualified under US IRC Sections 170(b)(10)(A)(vi), **501(c)(3)**, [509(a)(1)]
- ▶ Dedicated **Team of 4+4** staff (end 2010) at Dupont Circle in D.C.
- ▶ Policy-relevant work but no lobbying, in six core areas (**Programs**):
 - ▶ Explaining the **European Union** (and changing the Washington debate)
 - ▶ **Climate and Energy** (e.g. best practices in mitigation and adaptation)
 - ▶ **Infrastructure Finance & Economics of Transition** (e.g. crisis & stimulus)
 - ▶ **Transatlantic Dialogues & Exchanges** (e.g. farmers, journalists)
 - ▶ **US & EU as Partners in the World** (e.g. Arctic policy, UN reform)
 - ▶ **Biodiversity and Conservation** (e.g. access and benefit sharing)
- ▶ Focused on **Washington DC**, outreach to US states & **Canada**
- ▶ Building a relevant presence on the **Pacific Coast**



Ecologic Institute

Berlin
Brussels
Vienna
Washington DC



Beyond GDP

Measuring Welfare, Growth, Happiness and Sustainable Development

***R. Andreas Kraemer – Director – Ecologic.eu
Berlin – Brussels | Washington DC – San Mateo CA***
