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TUTKIMUSKESKUS

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Imagining post-pandemic futures in the Global South

# **Sustainability scenarios, economic growth and development theories**

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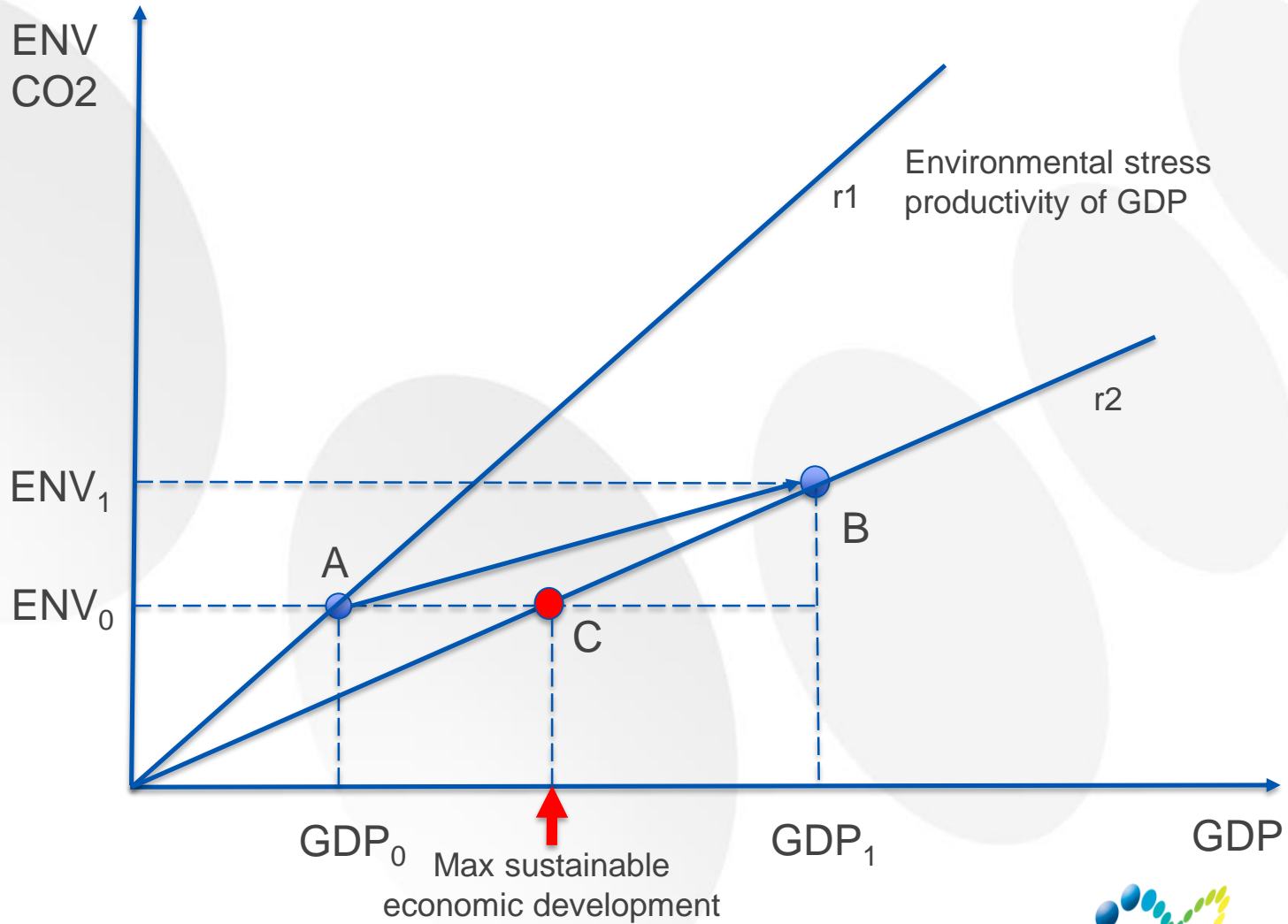
# Sustainability Window

- **Sustainability Window analysis is based on so called ASA (Advanced Sustainability Analysis) approach**
- **ASA approach analyses sustainability simultaneously in all three dimensions (environmental, social and economic)**
- **ASA analysis is based on quantitative analysis of indicators describing the development in the three dimensions**
- **Sustainability Window (SuWi) analysis is based on ASA approach**
- **SuWi analysis uses quantitative indicators**

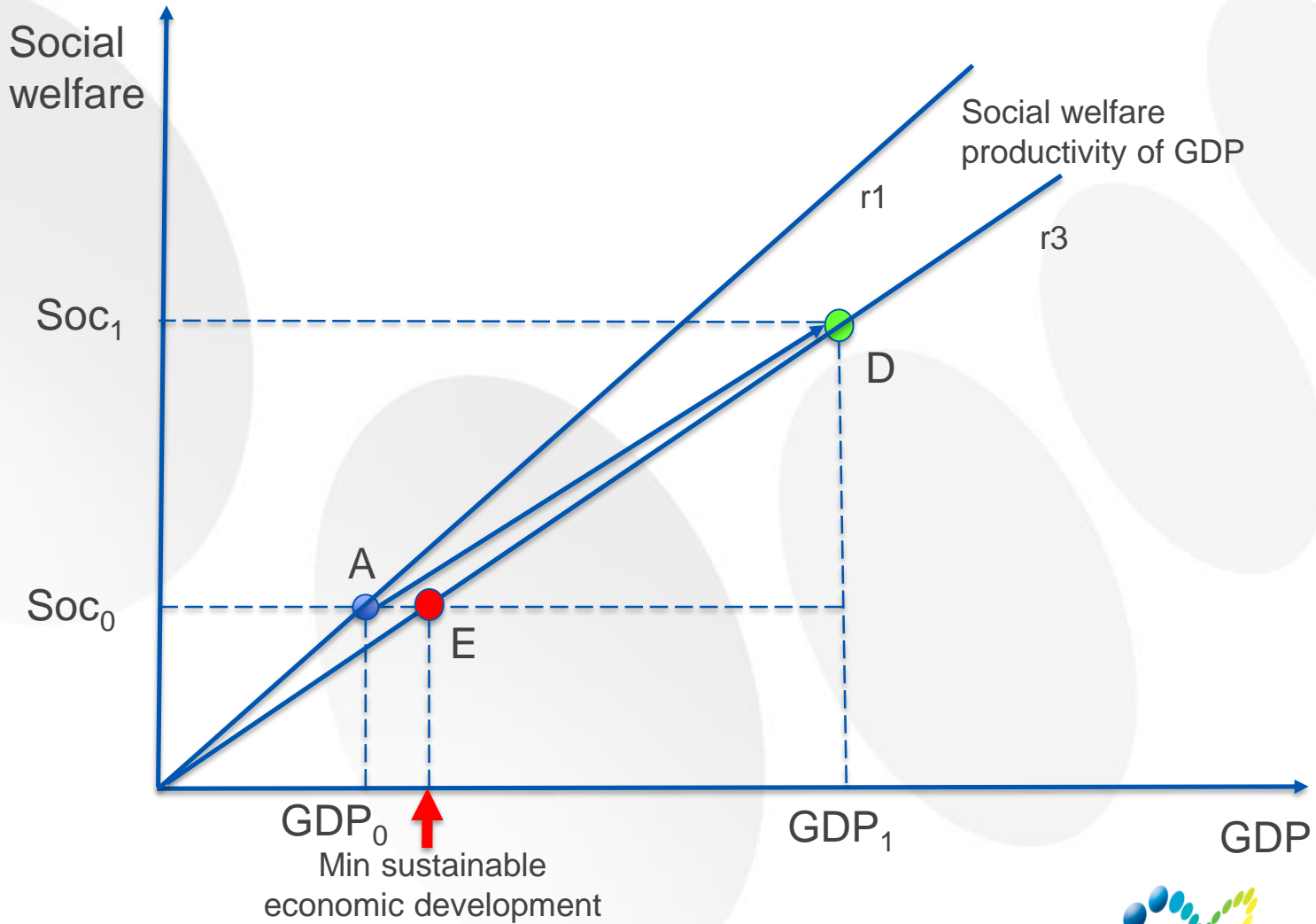
# Sustainability Window

- **Sustainability Window analysis indicates:**
  - **Maximum economic development in order to keep the environmental development within the sustainability boundaries**
  - **Minimum economic development to maintain sustainability of the social development**

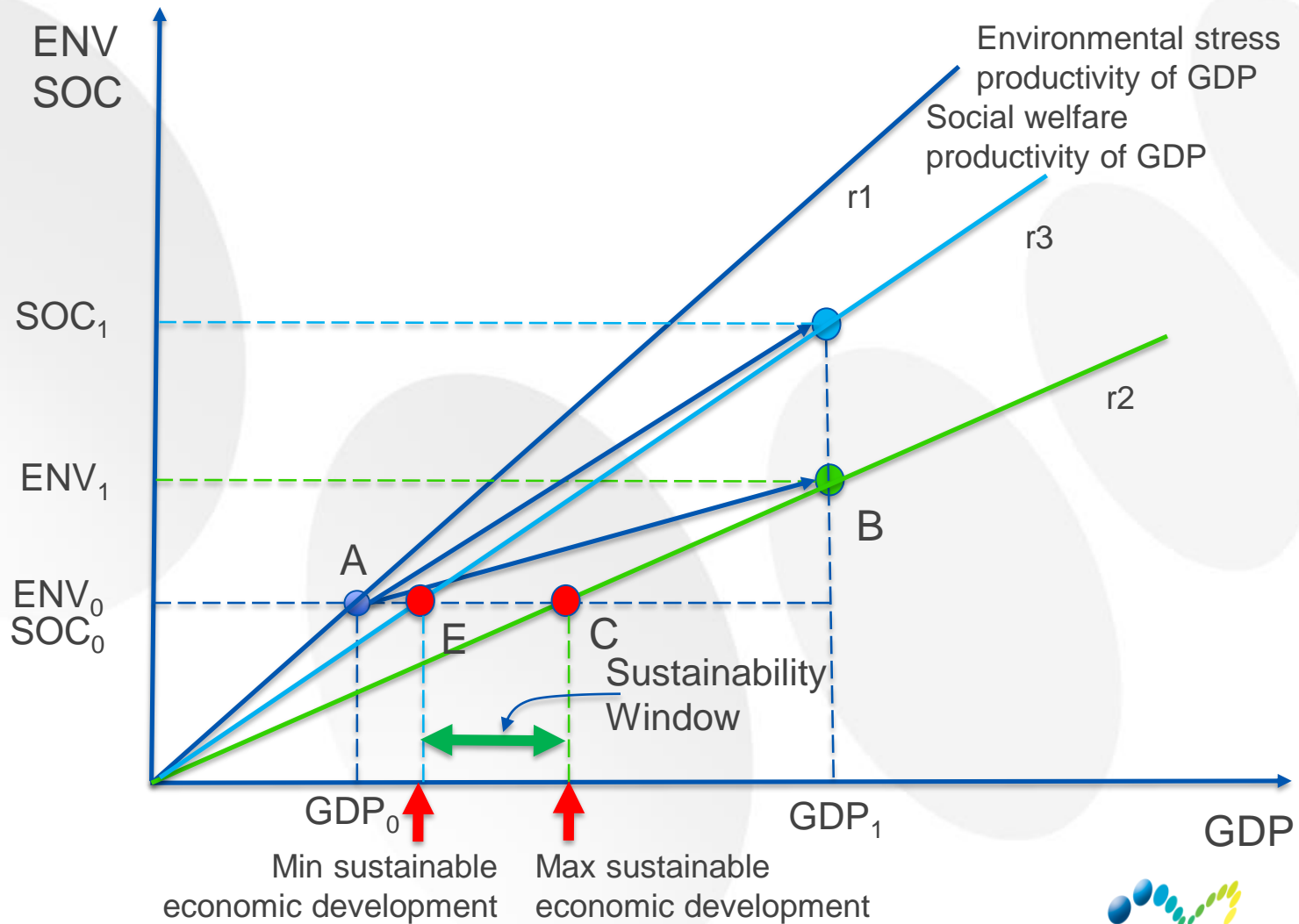
# SuWi analysis - Environment



# SuWi analysis - Social



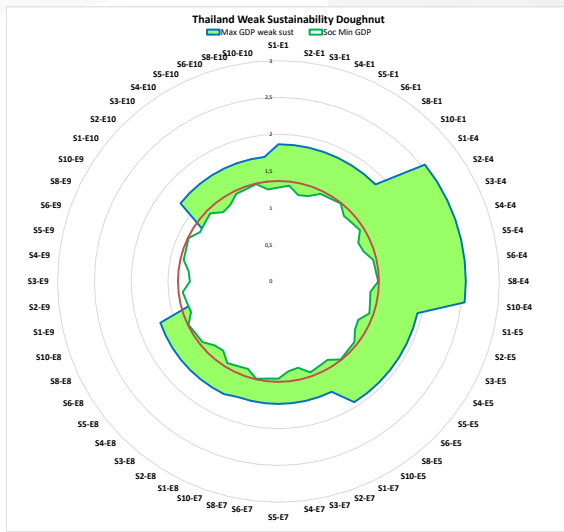
# SuWi analysis



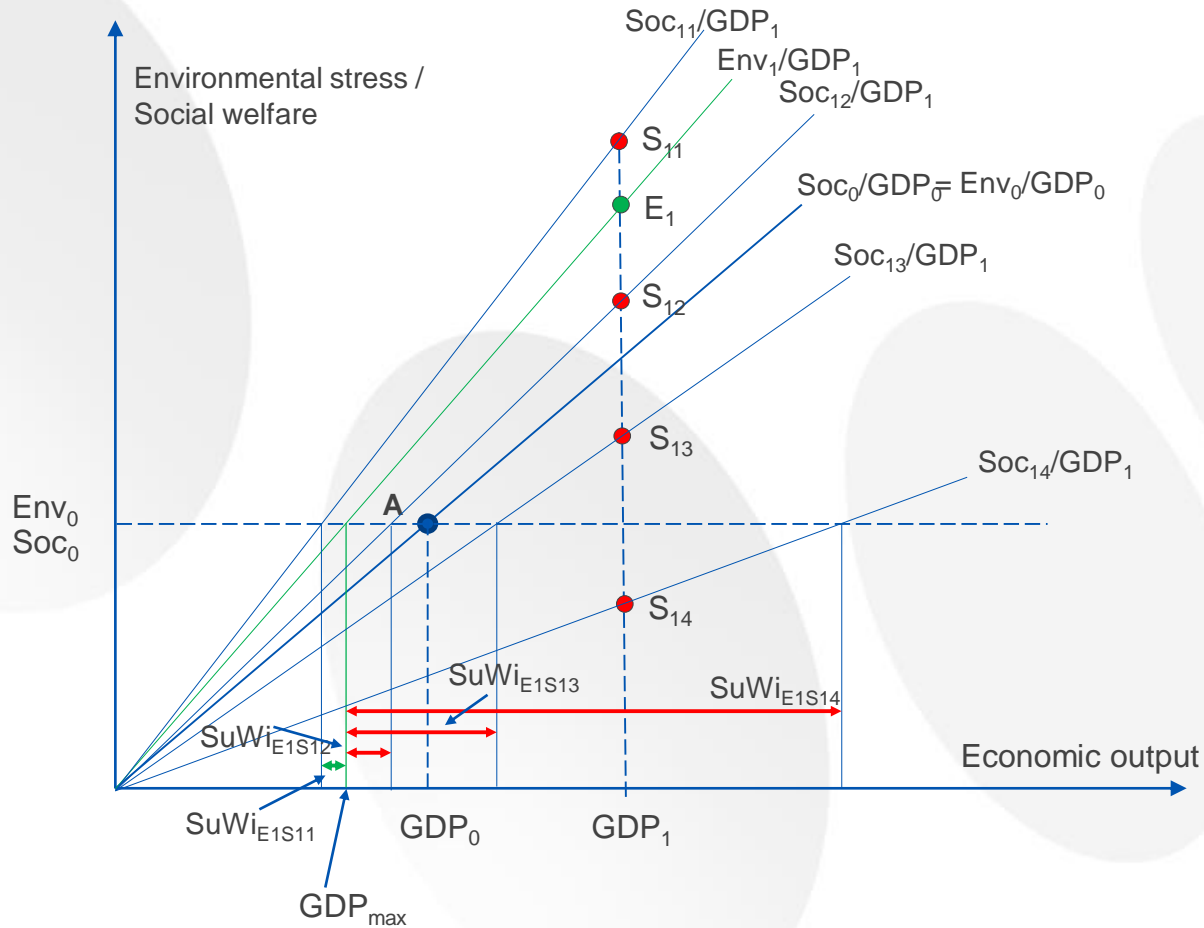


# Sustainability Window

- Maximum and minimum economic development define the Sustainability Window within which the development is sustainable in regard the chosen indicators
- SuWi approach is similar to Doughnut Economy approach by Kate Raworth, which represents the available space for economic growth between a lower and upper limit, i.e. between the social foundation and the environmental ceiling



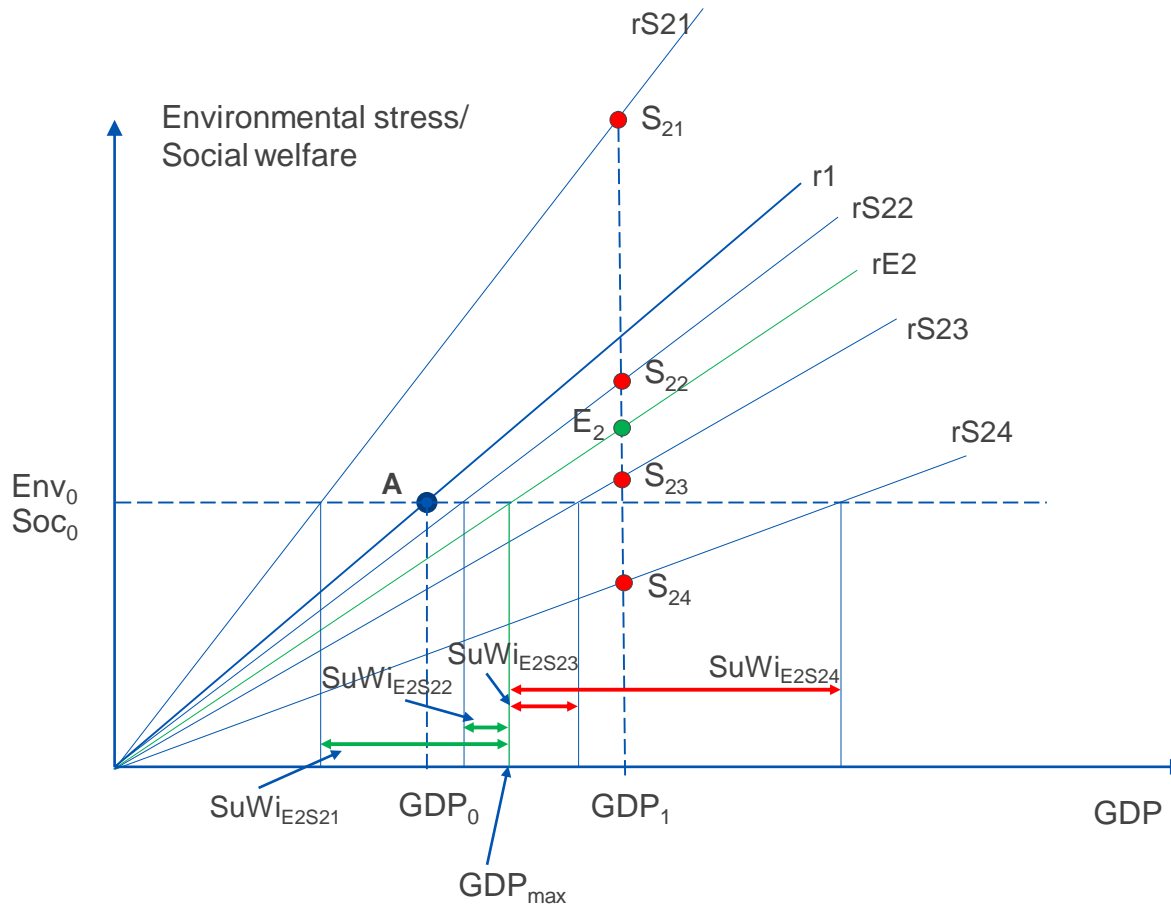
# Sustainability Window



**Problem with all cases:  $GDP_1 > GDP_{max}$**

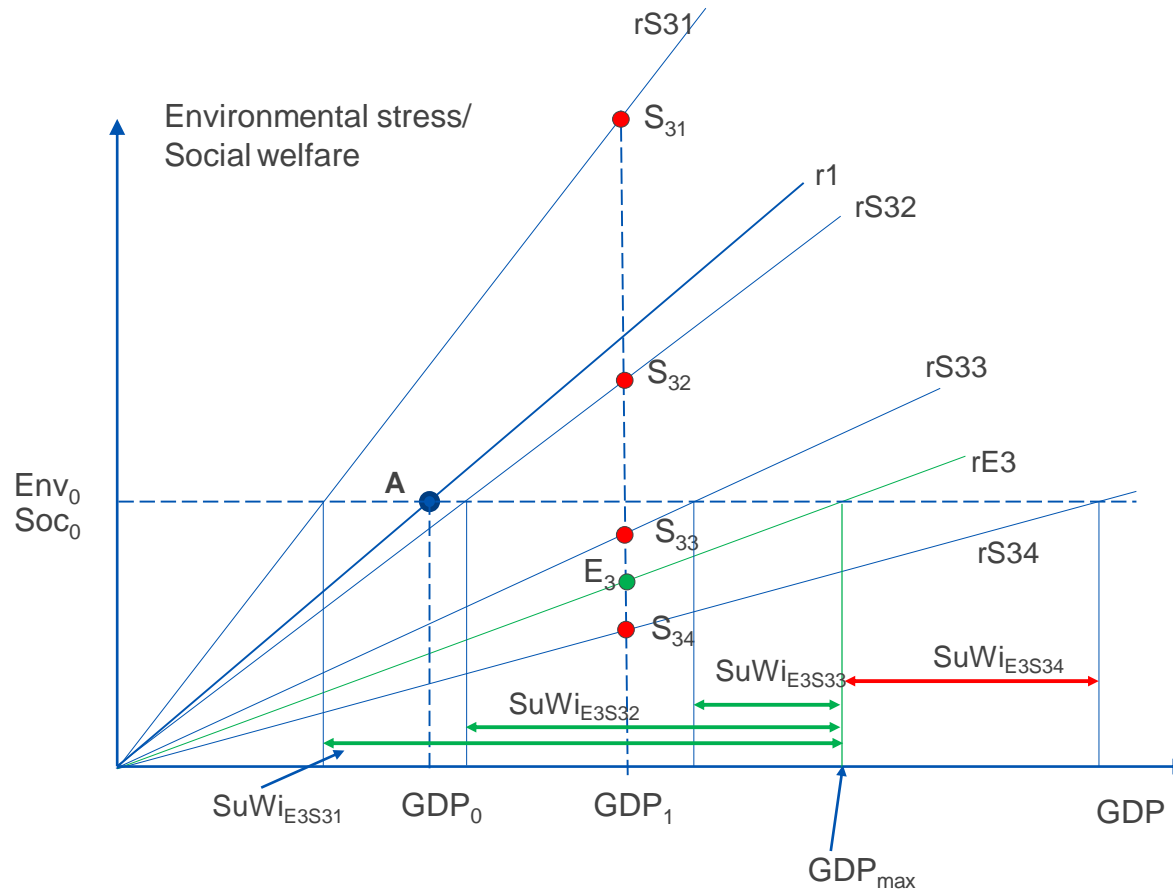


# Sustainability Window



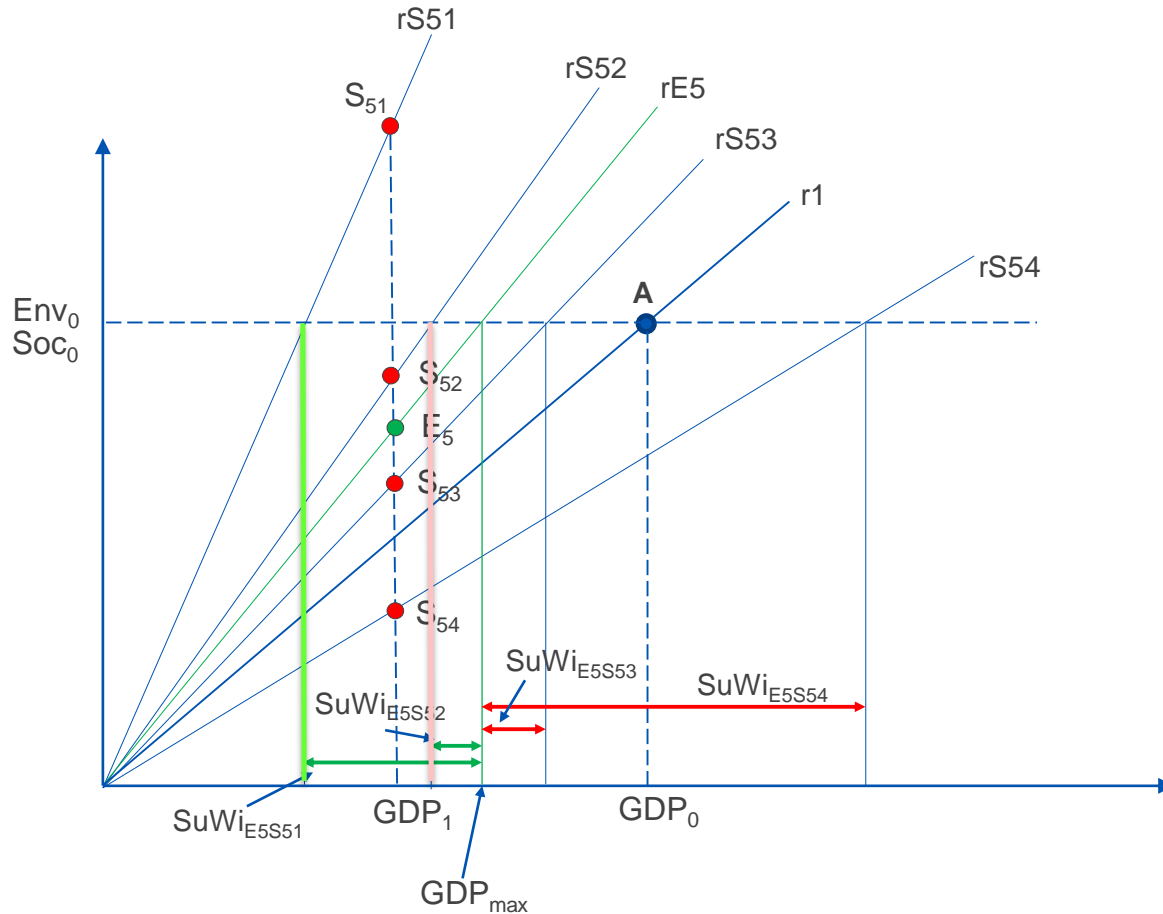
**Problem with all cases:  $GDP_1 > GDP_{max}$**

# Sustainability Window



E3S31 ja E3S32 are sustainable

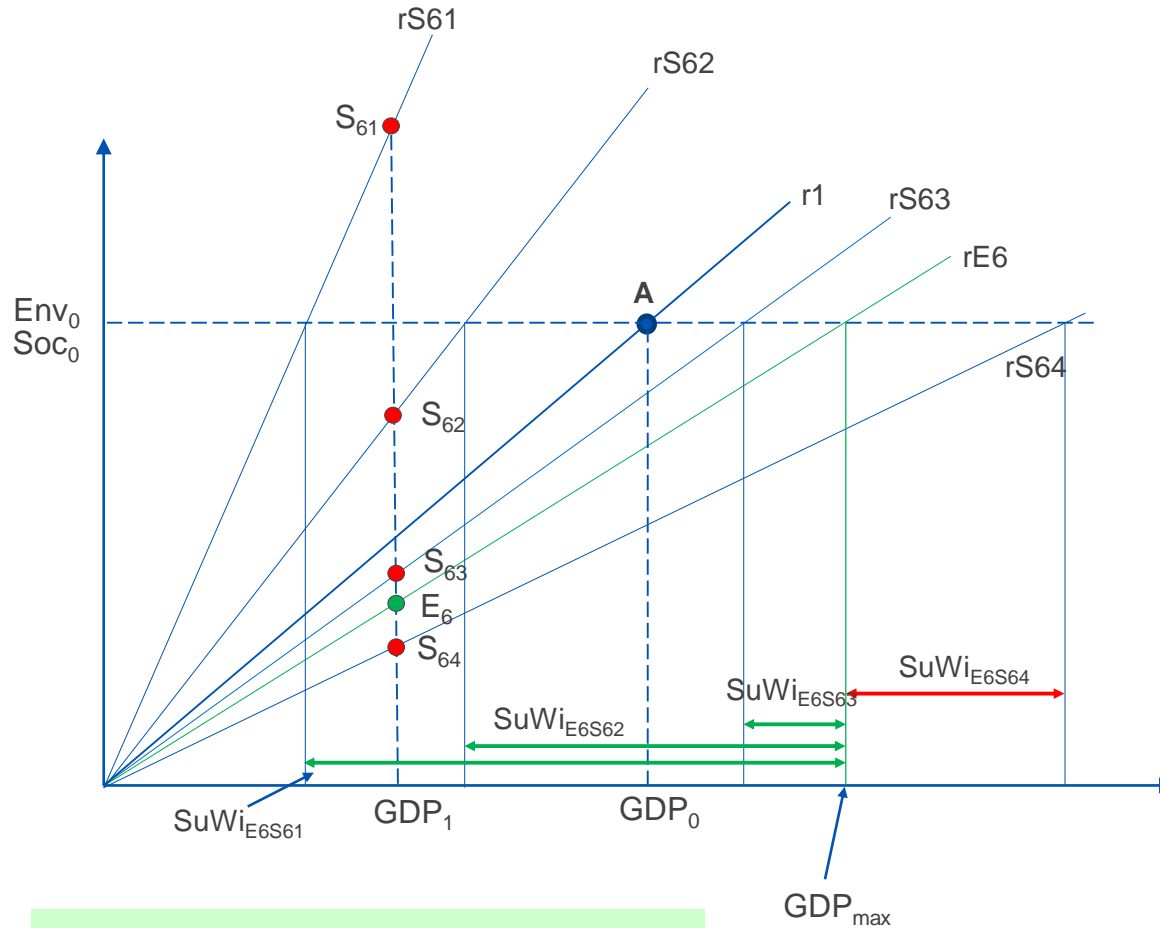
# SuWi analysis with decrease in GDP



In all cases:  $GDP_1 < GDP_{max}$

$GDP_1 > GDP_{min}$  for  $S_{51}$

# SuWi analysis with decrease in GDP



In all cases:  $GDP_1 < GDP_{max}$

$GDP_1 > GDP_{min}$  for  $S_{61}$

# Sustainability Window

Figure No.	SW option	SuWi in figure	SuWi <sup>1</sup>	New GDP inside SuWi	$\Delta$ GDP	$\Delta$ SW	$\Delta$ ES	$\Delta$ SW/ $\Delta$ GDP > 1	$\Delta$ ES/ $\Delta$ GDP > 1	Comments
1	1	E1 S11	Positive	No	+	+	+	+	+	
	2	E1S12	Negative	No	+	+	+	+	+	
	3	E1S13	Negative	No	+	-	+	-	+	
	4	E1S14	Negative	Yes	+	-	+	-	+	
2	1	E2S21	Positive	No	+	+	+	+	-	
	2	E2S22	Positive	No	+	+	+	-	-	
	3	E2S23	Negative	No	+	+	+	-	-	
	4	E2S24	Negative	Yes	+	-	+	-	-	
3	1	E3S31	Positive	Yes	+	+	-	+	-	Sustainable growth
	2	E3S32	Positive	Yes	+	+	-	-	-	Sustainable growth
	3	E3S33	Positive	No	+	-	-	-	-	
	4	E3S34	Negative	No	+	-	-	-	-	
4	1	E4S41	Positive	No	-	+	+	+	+	
	2	E4S42	Negative	No	-	+	+	+	+	
	3	E4S43	Negative	Yes	-	-	+	+	+	
	4	E4S44	Negative	Yes	-	-	+	-	+	
5	1	E5S51	Positive	Yes	-	+	-	+	+	Sustainable degrowth
	2	E5S52	Positive	No	-	-	-	+	+	
	3	E5S53	Negative	No	-	-	-	+	+	
	4	E5S54	Negative	No	-	-	-	-	+	
6	1	E6S61	Positive	Yes	-	+	-	+	-	Sustainable degrowth
	2	E6S62	Positive	No	-	-	-	+	-	
	3	E6S53	Positive	No	-	-	-	-	-	
	4	E6S64	Negative	No	-	-	-	-	-	

<sup>1</sup> SuWi is positive, if DSW>DES. When DES>DSW, SuWi is negative

24 different options

4 options fulfil social and environmental sustainability criteria



# Sustainability Window

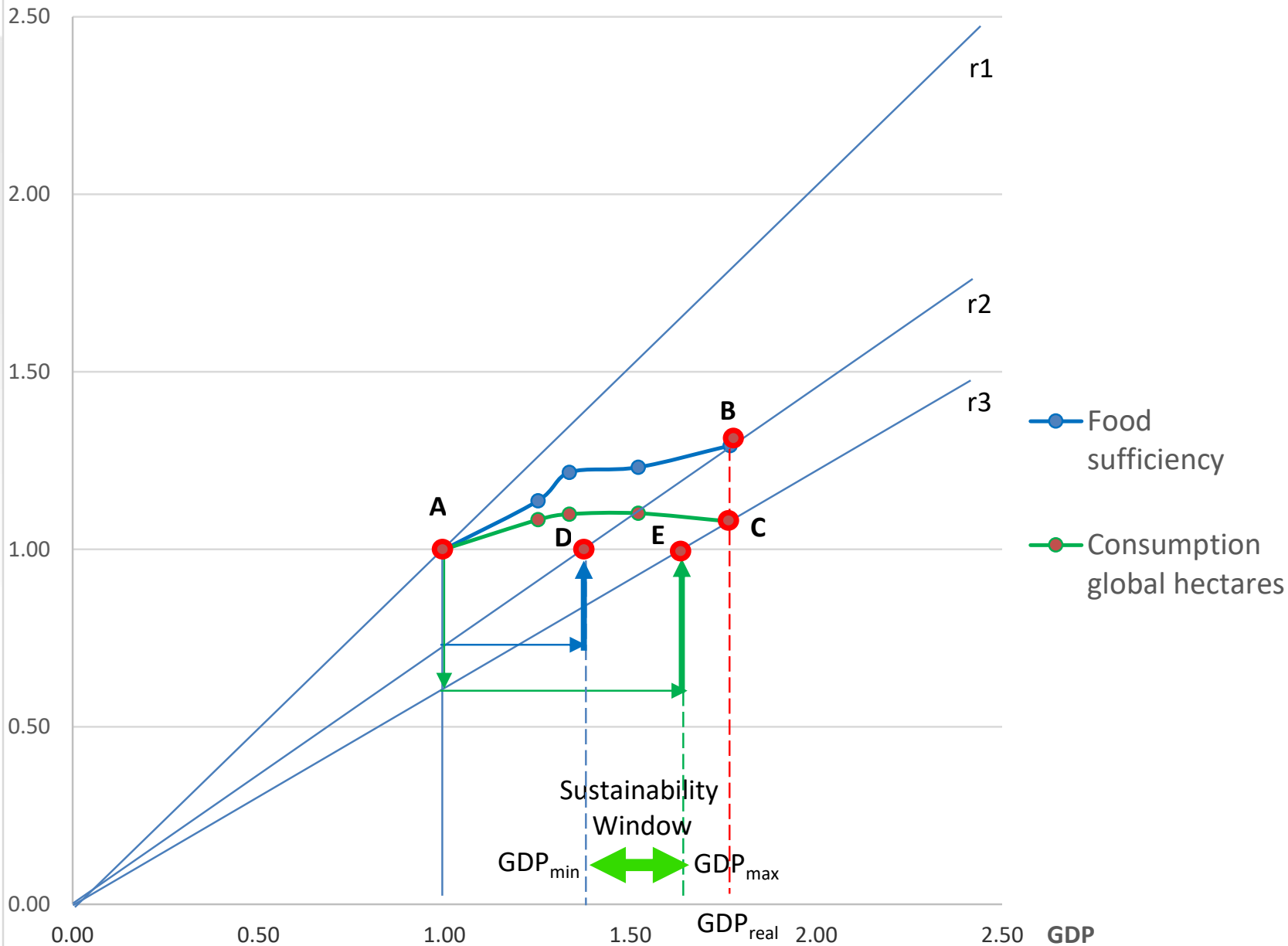
## Strong and weak sustainability

- Strong sustainability and Weak sustainability
- Strong sustainability in environmental sense means that environmental stress should not increase
- Weak sustainability means that the intensity of environmental stress (Env.Stress/GDP) should not increase
- Sustainability Window for Strong and Weak sustainability
- Different indicators to describe social, environmental and economic development



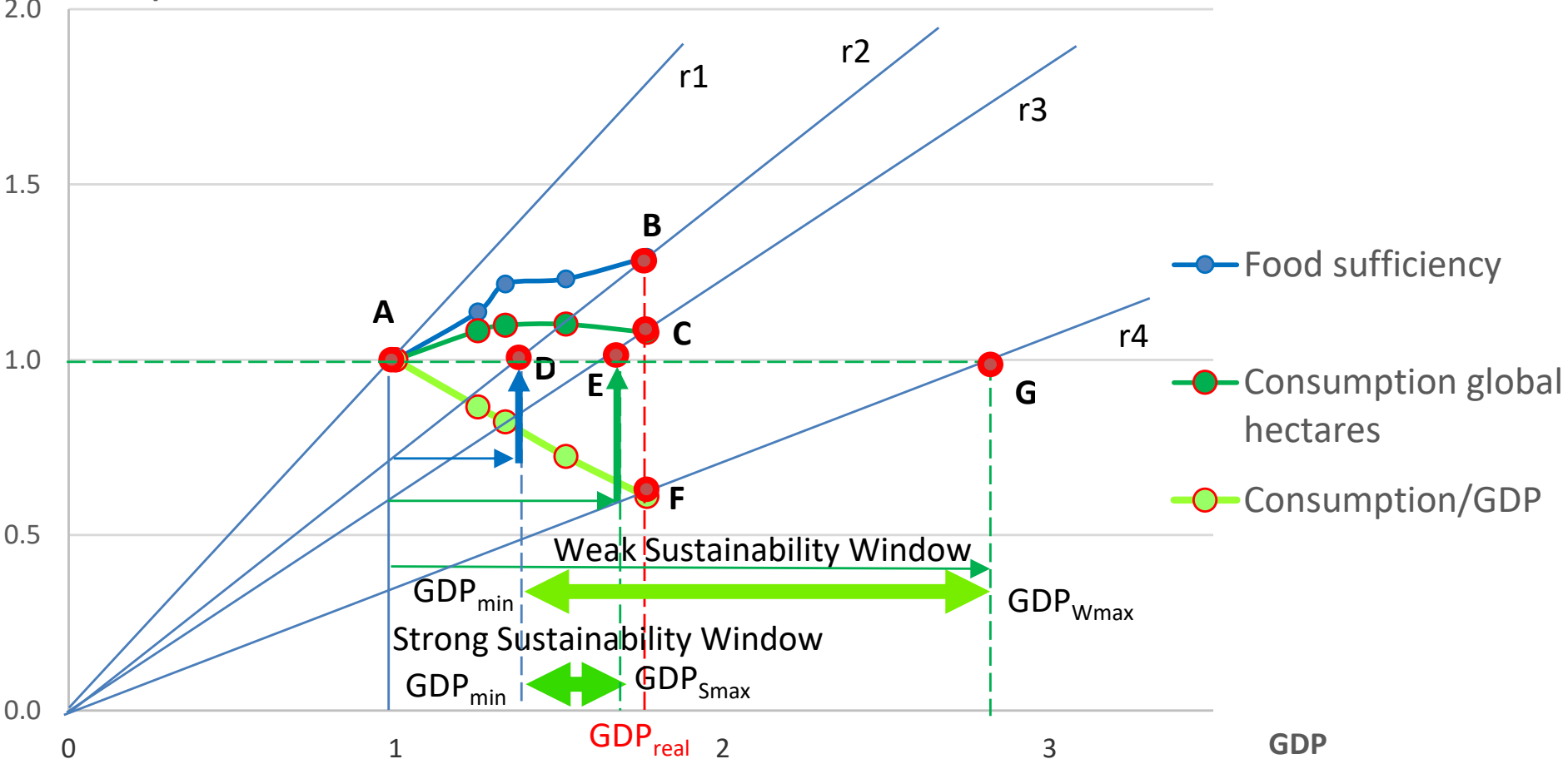
Food sufficiency /  
Consumption

# Cambodia

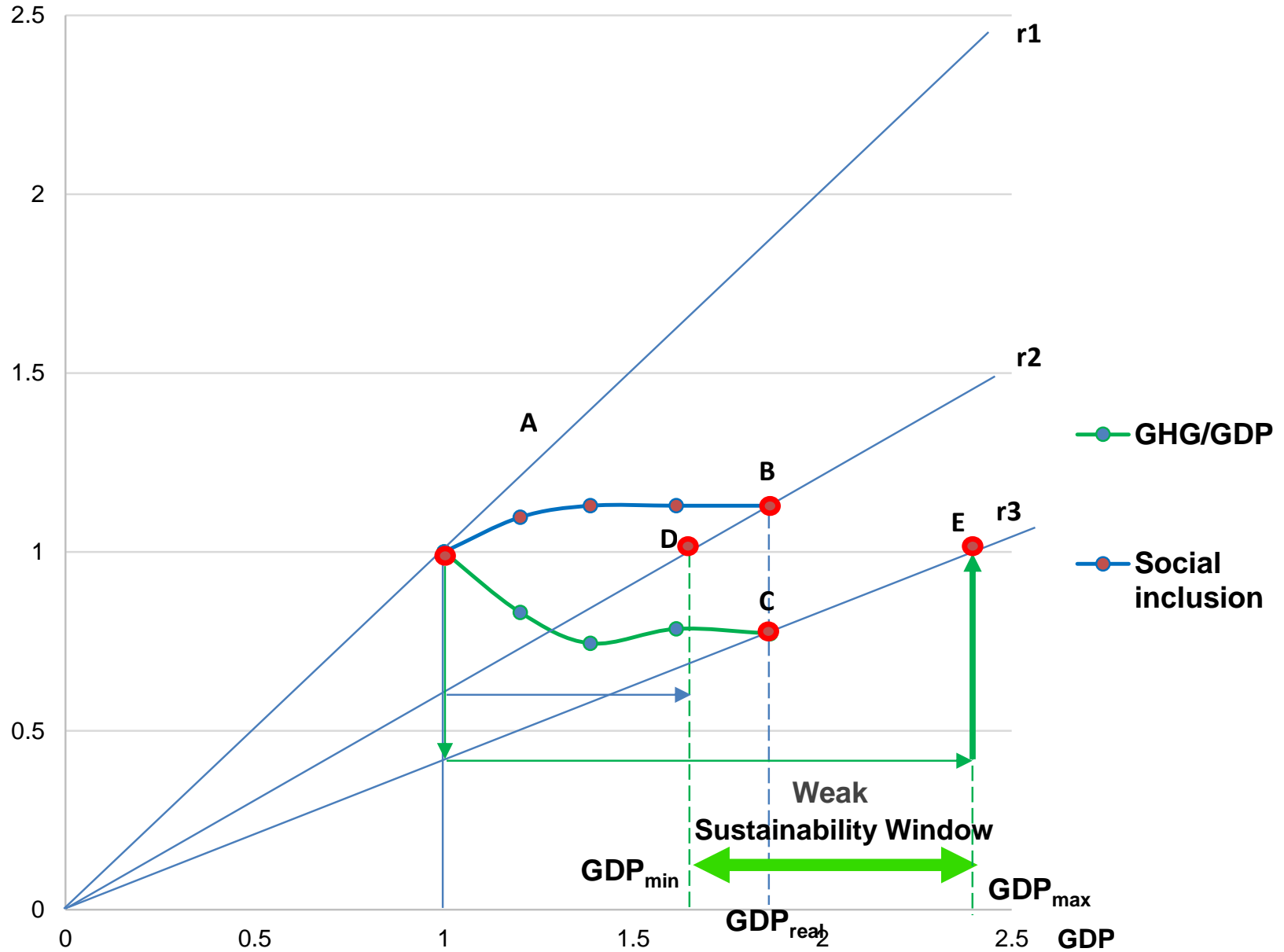


Food sufficiency /  
Consumption

# Cambodia



# LAOS



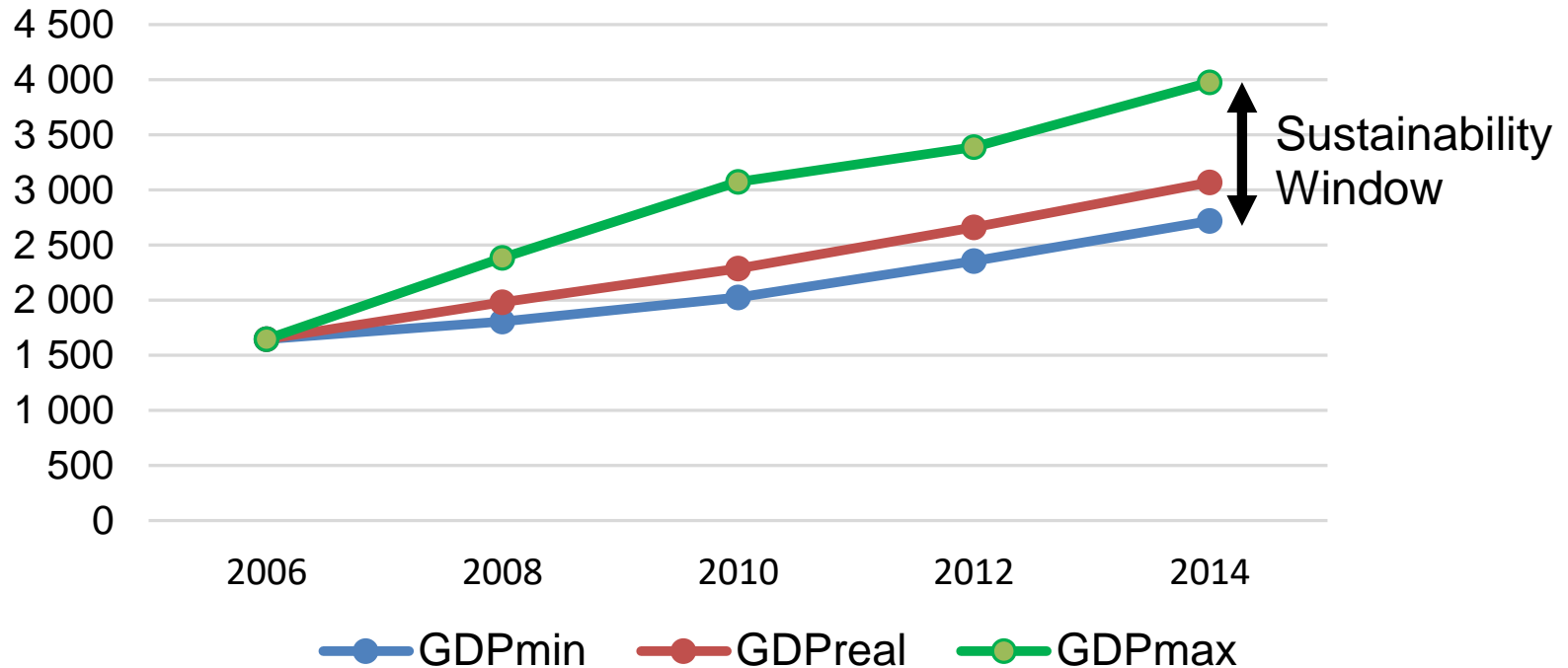
# Sustainability Window

- We cannot often define the absolute level of sustainability related to some indicators
- For instance, what is the absolute level of sustainable ecological diversity?
- In the SuWi analysis we normally define development towards more sustainable direction –
  - ✓ environmental stress does not increase and
  - ✓ social welfare does not decrease
- It is possible to have absolute levels of sustainability in the SuWi analysis as a starting point (and not refer to direction of development)

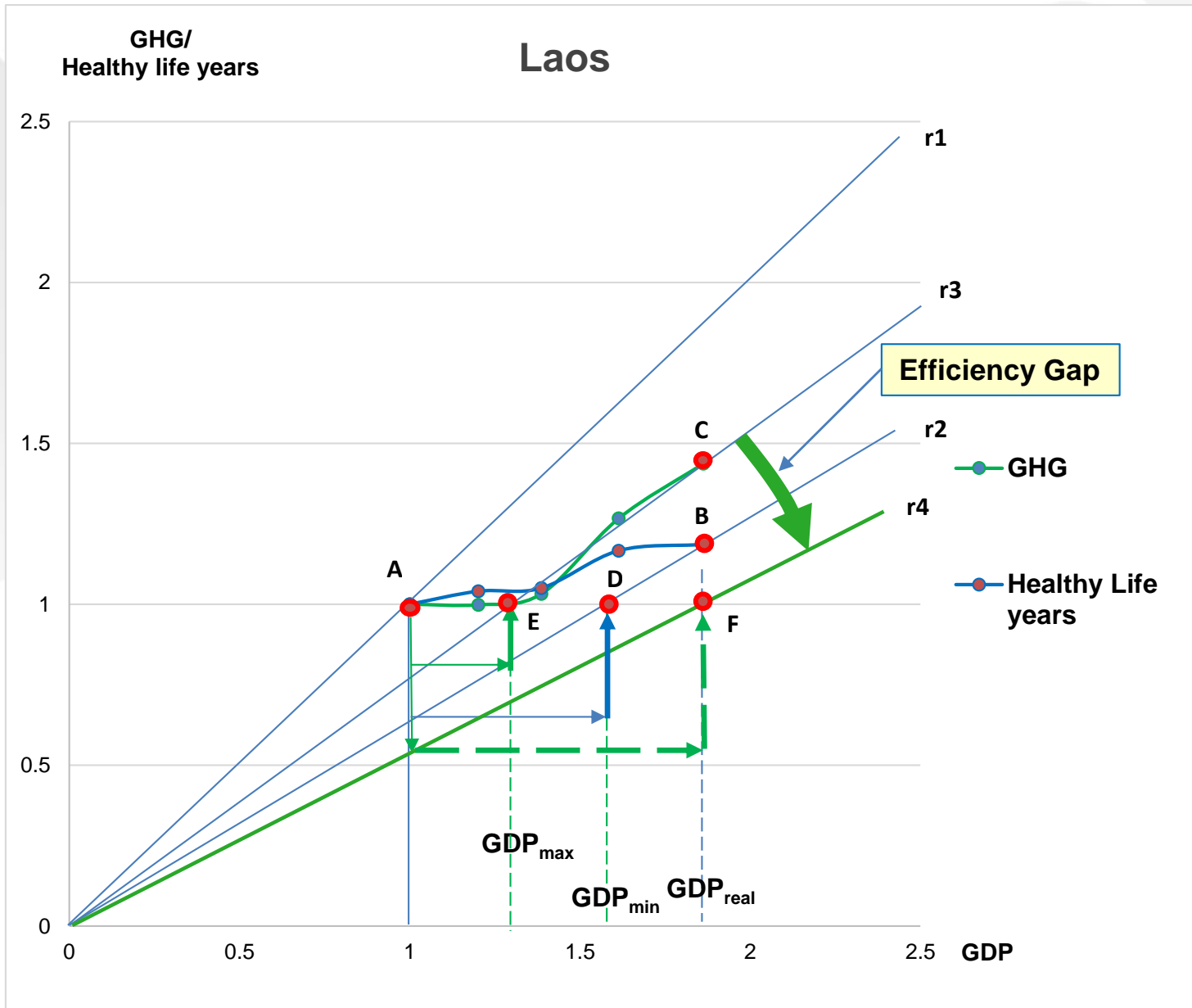
# Dynamics of Weak Sustainability Window in Laos

## Change in Sustainability Window (GHG/GDP and Social inclusion)

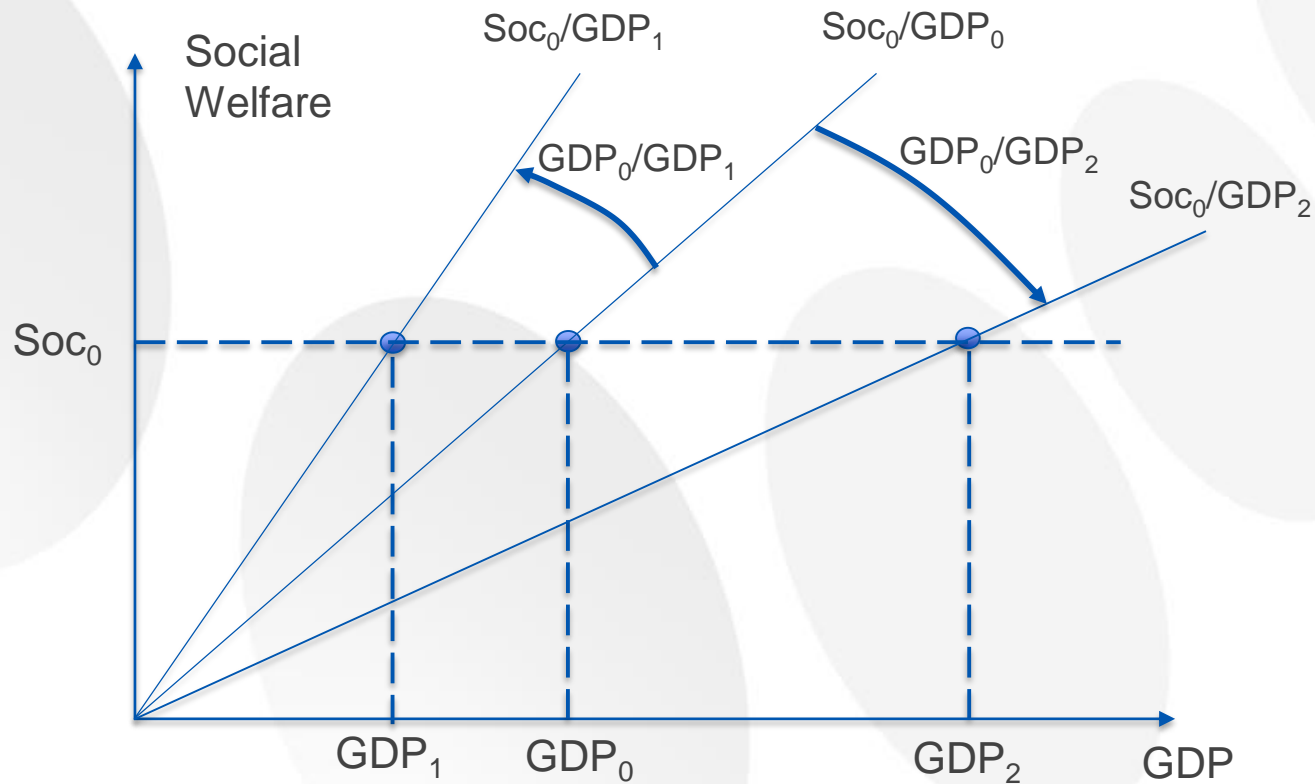
Mill USD



# Efficiency Gap analysis



# Social welfare productivity analysis

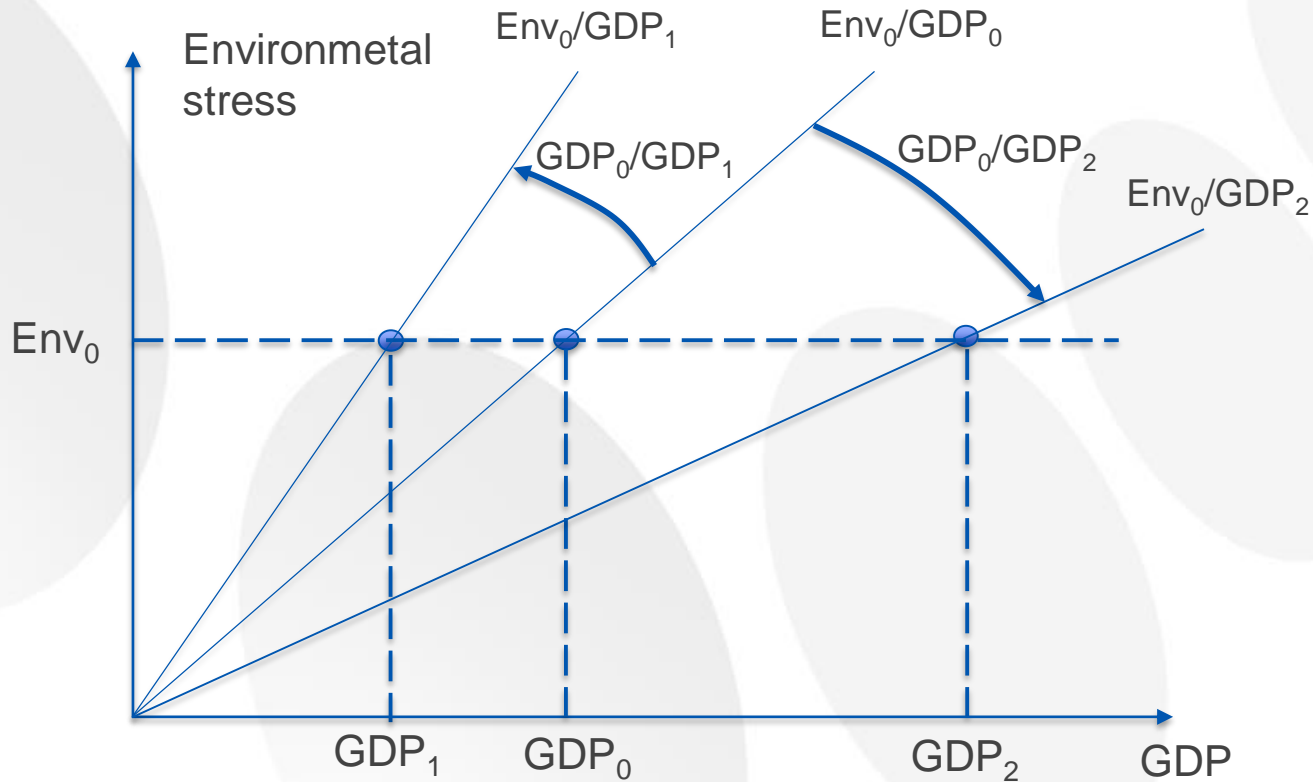


De-growth: Required increase in Social welfare productivity =  $GDP_0/GDP_1$

Growth: Allowed decrease in Social welfare productivity =  $GDP_0/GDP_2$



# Environmental stress productivity analysis



De-growth: Allowed increase in Environmental stress productivity =  $GDP_0/GDP_1$

Growth: Required decrease in Environmental stress welfare productivity =  $GDP_0/GDP_2$



- Modernisation theories (Émile Durkheim, David Apter, Seymour Martin Lipset, Talcott Parsons, Walt W. Rostow, Harrod-Domar model) - emphasize mainly the economic dimension
- Dependence theories (Raúl Prebisch, Celso Furtado, Aníbal Pinto, Paul A. Baran, Paul Sweezy, Andre Gunder Frank) - mainly the economic and political dimension
- World System Theory (Immanuel Wallerstein) - mainly economic and political development
- Basic Needs approach (ILO) – social welfare aspect

- Neoclassical theories (Adam Smith, David Ricardo), Structural adjustment (IMF) – mainly economic aspects
- Post-Development theories (Wolfgang Sachs, Majid Rahnema, Arturo Escobar) – cultural involvement, local development, grassroots development
- Sustainable Development (Brundtland Commission) – **SuWi is mainly based on this approach (social, environmental, economic dimensions)**
- Human development theory (Amartya Sen and Mahbub ul Haq) - ecology, sustainable development, feminism and welfare economics

# Conclusions

- Sustainability Window (SuWi) analysis can be utilized for simultaneous analysis of development in the three different dimensions of sustainability (social (including cultural), environmental and economic)
- SuWi provides an efficient tool for comparative analysis
- SuWi provides information of the dynamics of sustainability
- The approach can be used for Efficiency Gap analysis and for scenario construction
- SuWi analysis is dependent on the availability of **reliable indicator** data of development

# Thank you



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