PRINCIPLES OF SUSTAINABLE FINANCE

Chapter 1: Sustainability and the transition challenge

Overview of the book

Part I: What is sustainability and why does it matter?

1. **Sustainability and the transition challenge**

Part II: Sustainability's challenges to corporates

2. Externalities - internalisation
3. Governance and behaviour
4. Coalitions for sustainable finance
5. Strategy and intangibles – changing business models
6. Integrated reporting - metrics and data

Part III: Financing sustainability

7. Investing for long-term value creation
8. Equity – investing with an ownership stake
9. Bonds – investing without voting power
10. Banks – new forms of lending
11. Insurance – managing long-term risk

Part IV: Epilogue

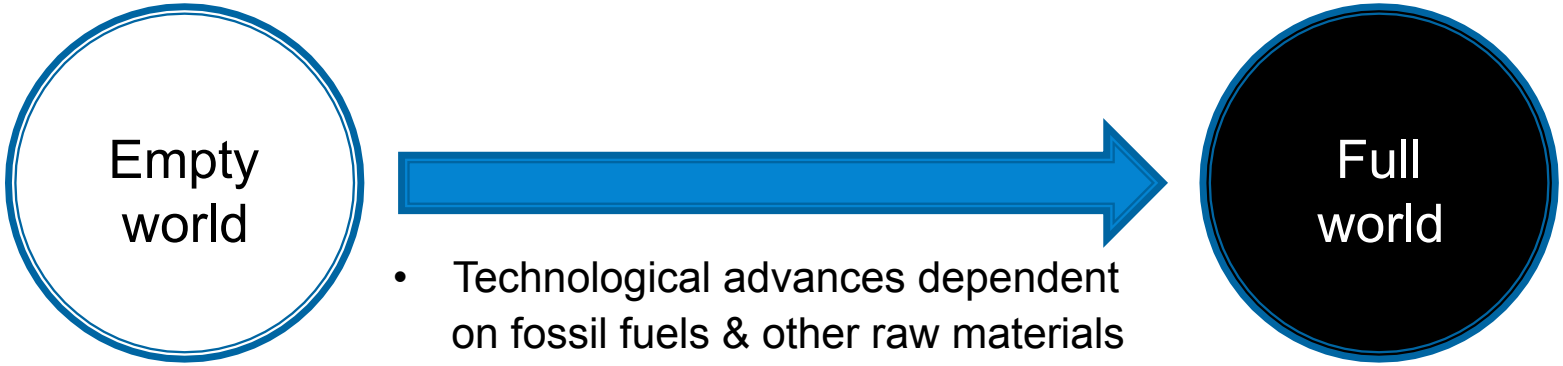
12. Transition management and integrated thinking

Learning objectives – chapter 1

- explain the planet's social and environmental challenges
- list and understand the United Nations Sustainable Development Goals
- understand the transition of the economic system
- explain the main functions of the financial system and how to apply them to sustainability
- explain the various stages of sustainable finance

Why does sustainability matter?

From pre to post Industrial Revolution

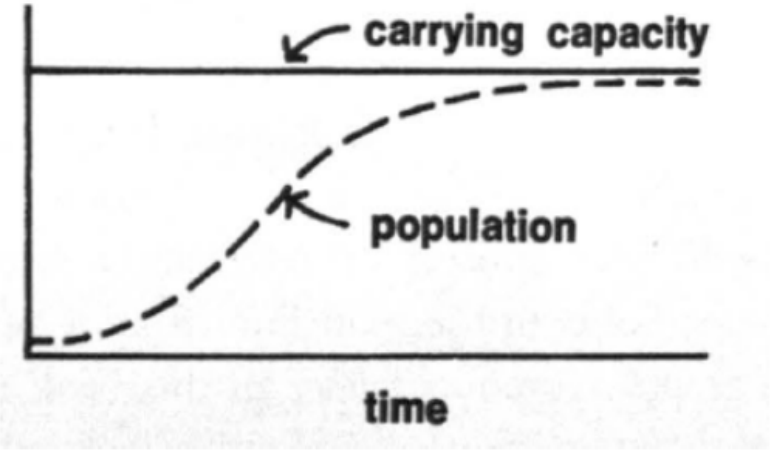


Abundance of goods and services from nature

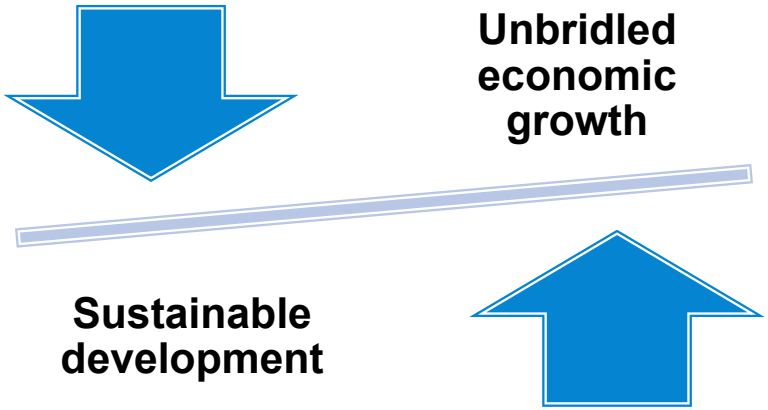
- Technological advances dependent on fossil fuels & other raw materials
- Massive production & consumption
- Economic & population growth

Club of Rome (1973): Limits to Growth

Figure 1.1 The world model



Tensions mounting



Box 1.1 Deepwater Horizon oil spill

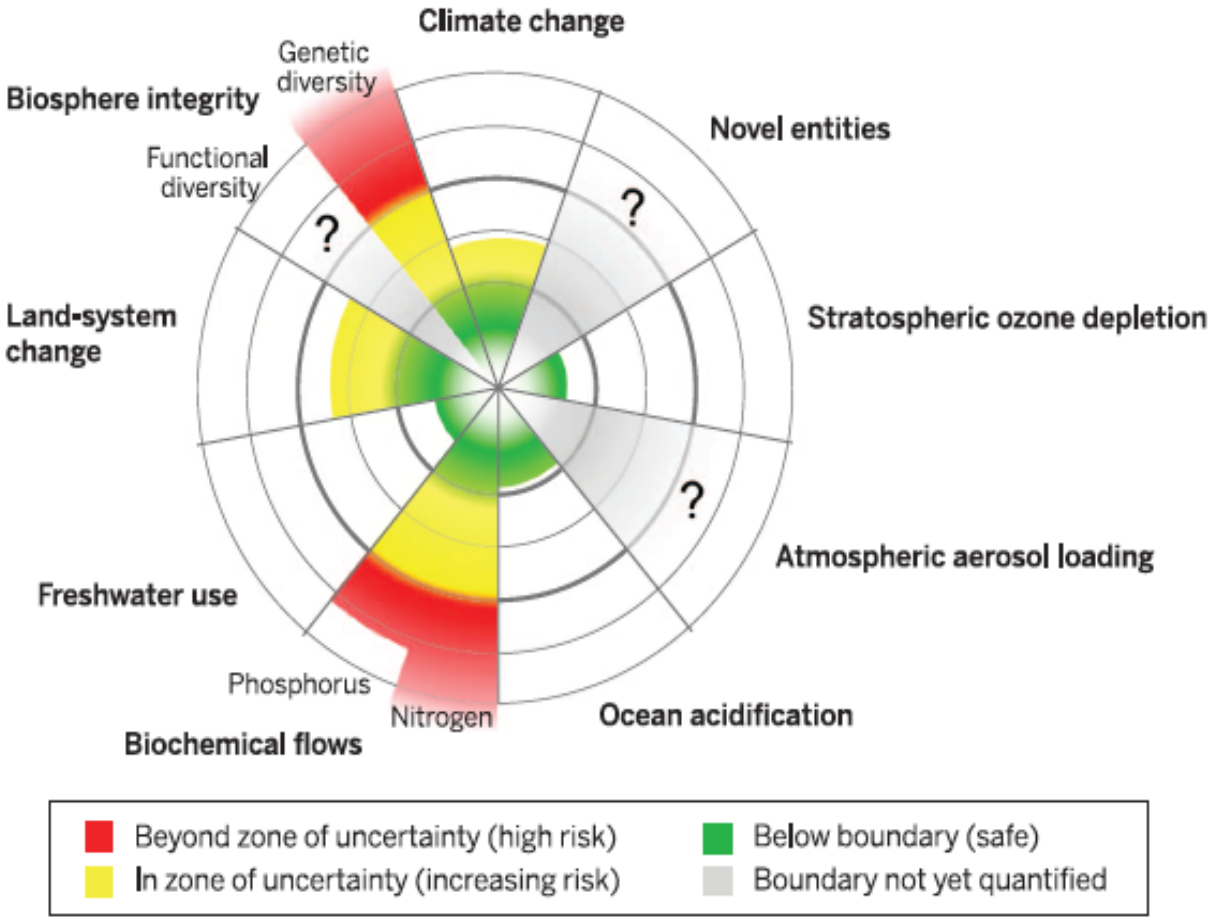
- **Explosion** on oil drilling rig of BP in Gulf of Mexico killed 11 workers + largest accidental marine oil spill
- Caused by **cost-cutting decisions** and **inadequate safety system**

Box 1.2 Rana Plaza factory collapse

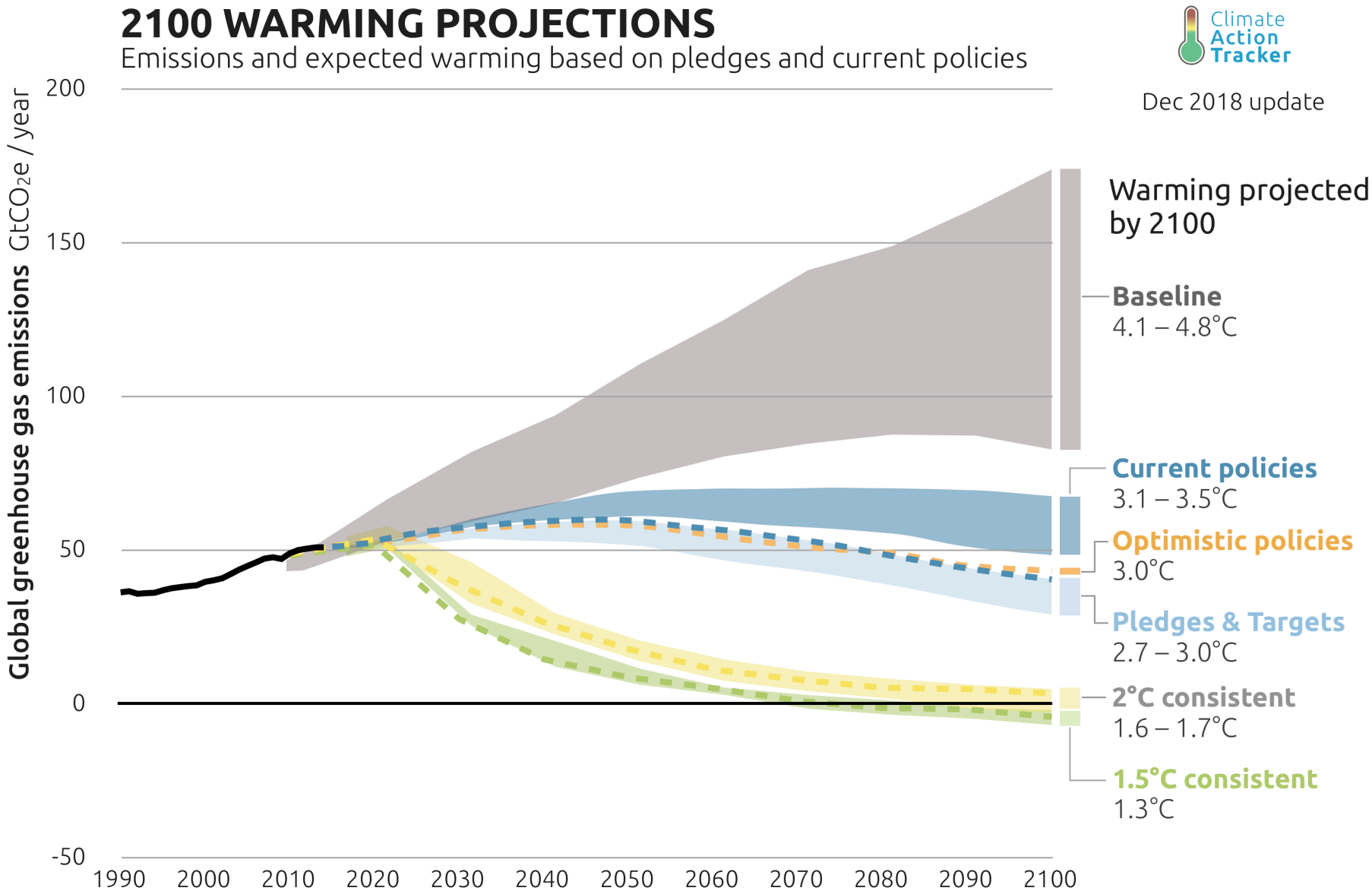
- Eight-storey factory collapse in Bangladesh due to **structural failure**
- Owners of clothing factories **ignored evacuation warnings**
- 1,129 deaths - 2,500 injured

Environmental challenges: planetary boundaries

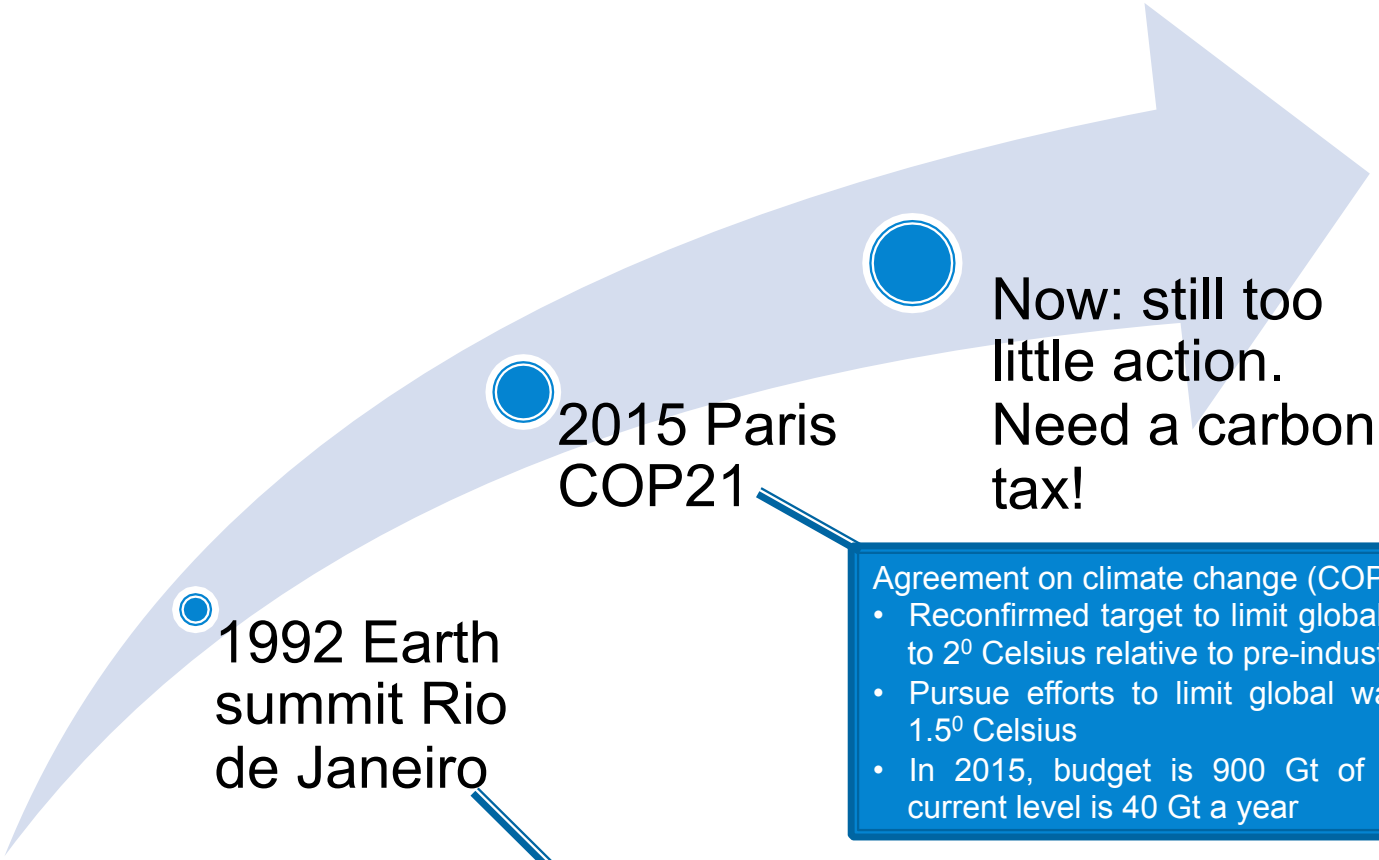
- Keep planet **liveable** for current and future generations
- Steffen *et al* (Science, 2015): **planetary boundaries** at risk being crossed



Climate policy gap



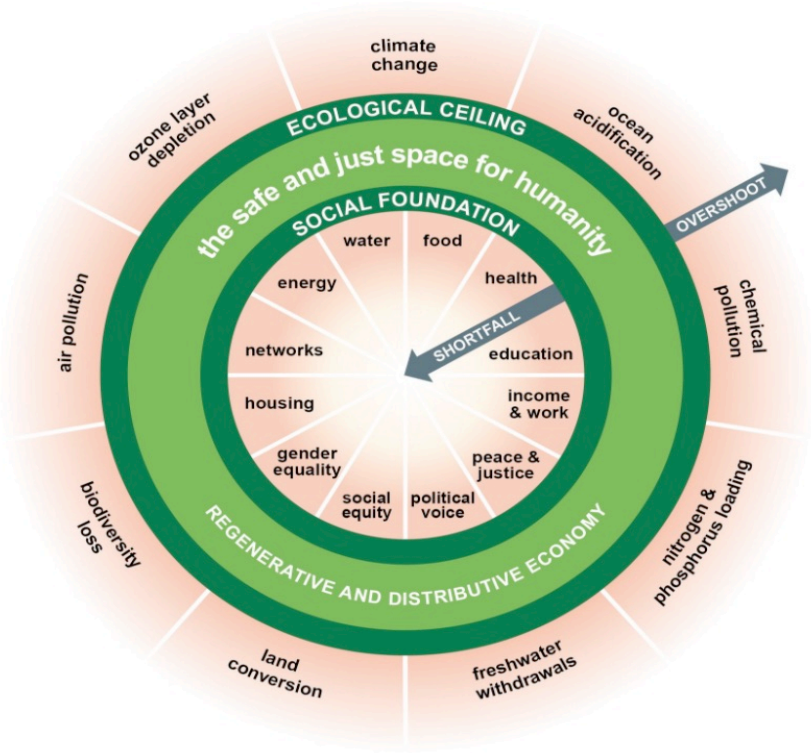
Climate action is urgent



Social foundations

- **Social boundaries** or foundations (Doughnut of Kate Raworth, 2017)
  - Food security (no hunger)
  - Adequate income (no poverty with income < $3.10 a day)
  - Access to health care
  - Access to water and clean cooking facilities
  - Education
  - Decent work
  - Modern energy services
  - Gender equality and social equity
  - Political voice

- Many people **live below** these social foundations



Sustainable development

- **Sustainable development** combines planetary and social boundaries:
  - **Sustainable development** means that **current and future** generations have the **resources needed**, such as food, water, healthcare and energy, **without stressing** processes within the Earth system

- To guide **transformation**, the United Nations has developed the 2030 Agenda for Sustainable Development
  - 17 UN Social Development Goals (**SDGs**) to stimulate action

Global goals for sustainable development

Graphics by Jerker Lokrantz/Azote

Systems approach

- Tempting to address challenges at each level
  - Need for a **holistic system perspective**
  - **Adaptive capacity** of system (e.g. eco-system or production process)
- But **cross-system interactions** and **uncertain thresholds**
  - Example: global warming -> extreme weather events affecting vulnerable countries -> economic downturn and poverty upturn
- We need a **guide for trade-offs** between economic, social and ecological goals
- **Finance can help** in decision-making on trade-offs

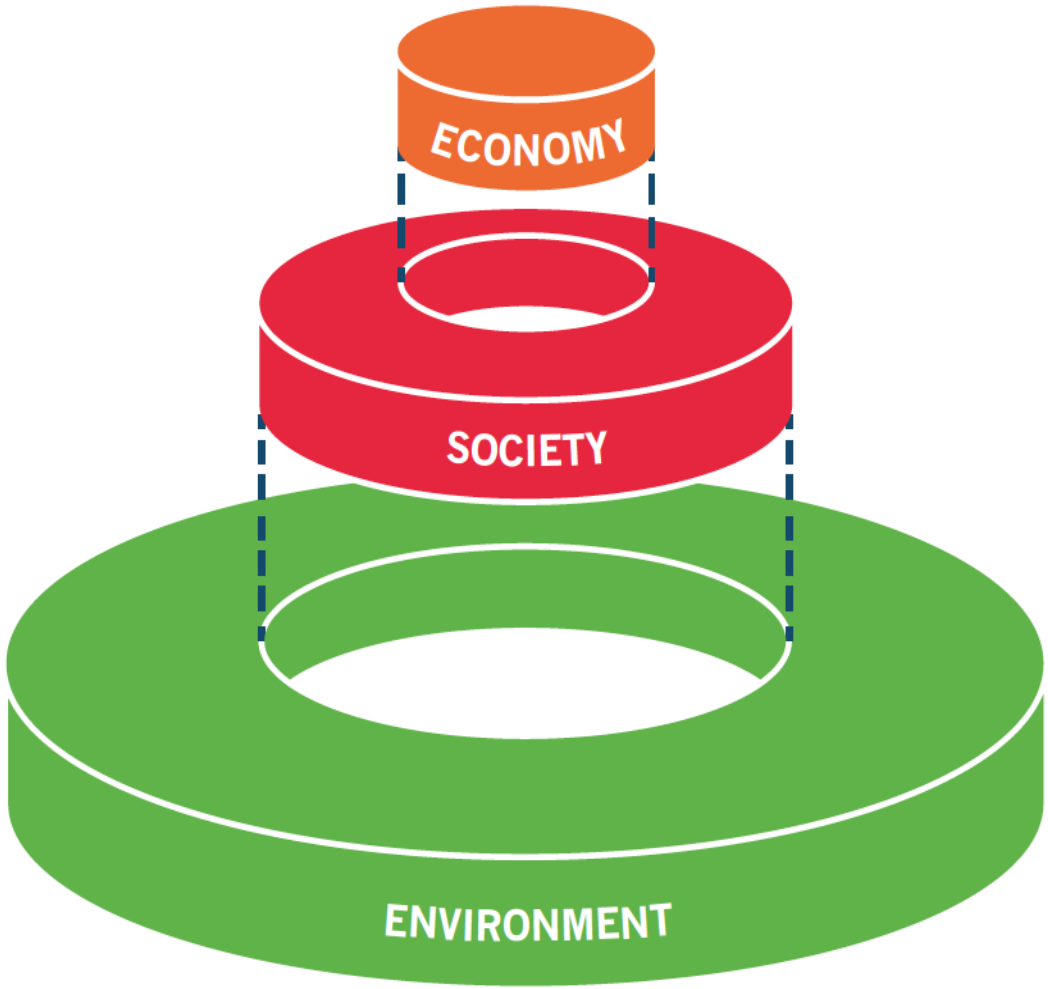
Role of the financial system

Functions of the financial system

Levine (2015):

Allocate capital to its most productive use	Price risk for trading and valuation	Exert influence over corporates (corporate governance)
• can assist in making strategic decisions on the trade-offs	• risk management can help dealing with uncertainties in future (eg. scenario analysis)	• controlling and directing corporate boards (engagement) towards sustainable business practices (see Chapter 3)

Managing sustainable development



- financial return and risk: **F**
- impact on society: **S**
- impact on environment: **E**

Framework for sustainable finance

Sustainable Finance Typology	Value created	Ranking of factors	Optimisation	Horizon
Finance-as-usual	Shareholder value	F	Max F	Short term
Sustainable Finance 1.0	Refined shareholder value	F >> S and E	Max F subject to S and E	Short term
Sustainable Finance 2.0	Stakeholder value (triple bottom line)	I = F + S + E	Optimise I	Medium term
Sustainable Finance 3.0	Common good value	S and E > F	Optimise S and E subject to F	Long term

Note: F = financial value; S = social impact; E = environmental impact; I = integrated value.

Finance as usual

- Traditional finance textbooks
  - **Profit maximisation** -> maximise shareholder value
  - By looking for optimal **financial risk and return** combination
  - Only factor F
- Friedman (1970): the business of business is **business**
  - Only social responsibility is making **profit**
  - **Charity** is private decision of citizens
- Overly high discount rates (in particular for UK and US) -> evidence of **myopia / short termism**

Sustainable Finance 1.0

- Refined shareholder value
  - **Profit maximisation**, but avoiding **'sin' stocks** (i.e. extreme negative impact like cluster-mines or tobacco)

$$\max\ FV = F(\text{profits, risk}) \quad subject\ to\ F'_{\text{profits}} > 0,\ F'_{\text{risk}} < 0,\ SEV \geq SEV^{min} \qquad (1.1)$$

  - Ranking factors: F >> S + E (= SEV)
  - **Profit motive** is still leading
  - Question: does **exclusion** work?

Sustainable Finance 2.0

Stakeholder approach

- All **stakeholders:** employees, clients, shareholders, society, environment
- Optimise **integrated value**: IV = F + S + E

$$\max\ IV = F(\text{ integrated profits, integrated risk }) \quad s.t.\ F'_{\text{integr. profits}} > 0, \quad F'_{\text{integr. risk}} < 0,$$

$$SEV^{p}_{t+1} \geq SEV^{p}_{t} \qquad (1.2)$$

Caveats

- Not everything can be **monetised** (e.g. human life, destroying rain forest)
- **Perverse effects** - high profit but extra negative impact: $SEV_{t+1} \geq SEV_t$
- **Private** discount factor > **public** discount factor (Stern, 2008)

Sustainable Finance 3.0

Stewardship: working for the **common good**

- Environmental and social challenges come **first**
- But need to have **financial viability (fair return)**

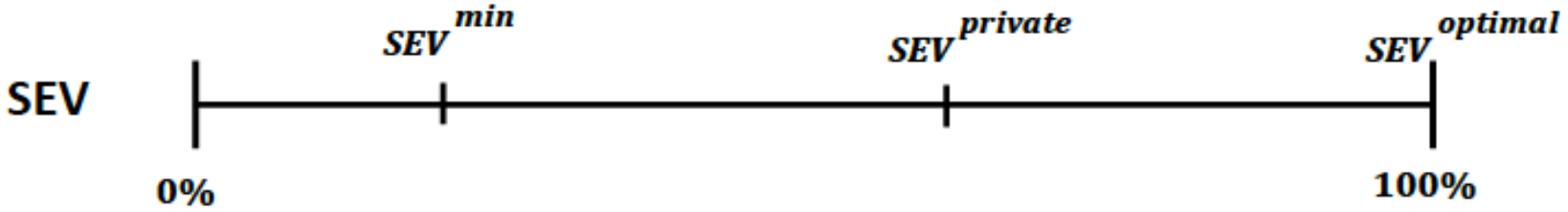
$$\max SEV = F(\text{impact}, \text{risk}) \quad s.t. \; F'_{\text{impact}} > 0, \; F'_{\text{risk}} < 0, \; FV_{t+1} \geq FV_{t+1}^{min} \qquad (1.3)$$

$$FV_{t+1}^{min} = \left(1 + r^{fair}\right) FV_t^{min} \qquad r^{fair} \geq 0 \text{ is a fair financial return}$$

- Research indicates that sustainable companies are **more resilient** -> better able to cope with (LT) shocks, without extra (ST) costs

Comparing the stages

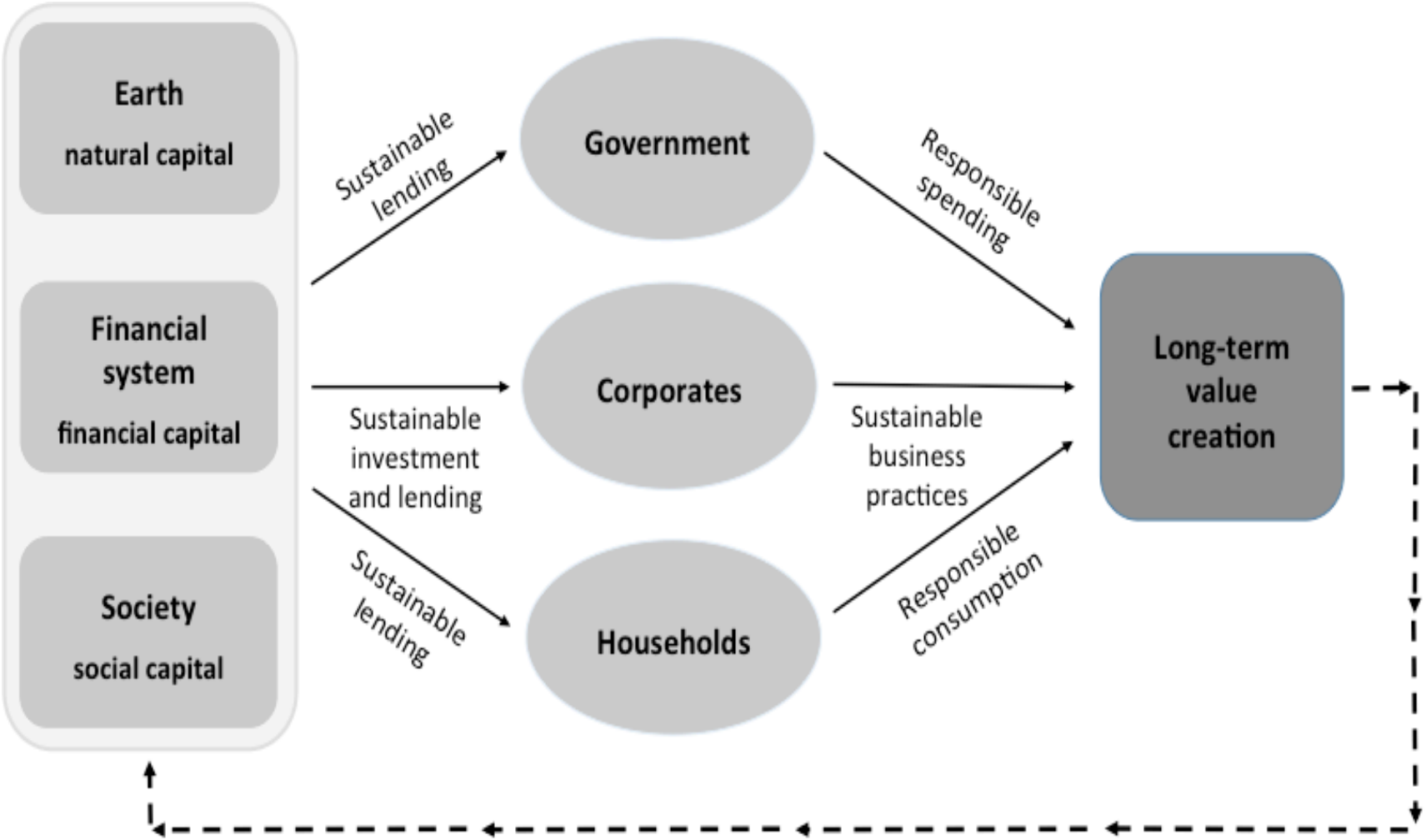
Figure 1.6: Levels of social-environmental value (SEV)



- Discussion
  - **Pros** and **cons** of approaches (SF 1.0, 2.0, 3.0)
  - **Where are we** now?
  - Debate: **exclusion** versus **inclusion**

Challenges to integration of sustainability into finance

Long-term value creation (Fig 1.7)



Discussion: barriers

What is the most important **barrier** to sustainable finance?

1. Value: **shareholder value** (profit) versus **common good**
2. Horizon: **short term** versus **long term**

Conclusions

- **Sustainable finance**: from finance as a **goal** (profit max) to finance as a **means** to support transition to sustainable economy

- **Transition** to low carbon economy
  - Things may move fast: air pollution California -> regulation -> electric cars / solar

- Finance is about **anticipating** events and price them in for today's investment decisions
  - Finance can thus contribute to a **swift(er) transition**
  - Need for **LT patient capital**