

SOLUTIONS

2005 Annual Symposium, London

Comments on assessment criteria and framework

- System views
- Appraisal framework

Lars Lundqvist

Division of Transport and Location Analysis

Department of Transport and Economics

School of Architecture and the Built Environment

KTH – Royal Institute of Technology

System views

- Time perspectives (short, middle, long)
- Speed of processes (slow, intermediate, high)
- Indicators
- Sustainability appraisal
- Feed-back: markets, monitoring \Rightarrow policy adjustment

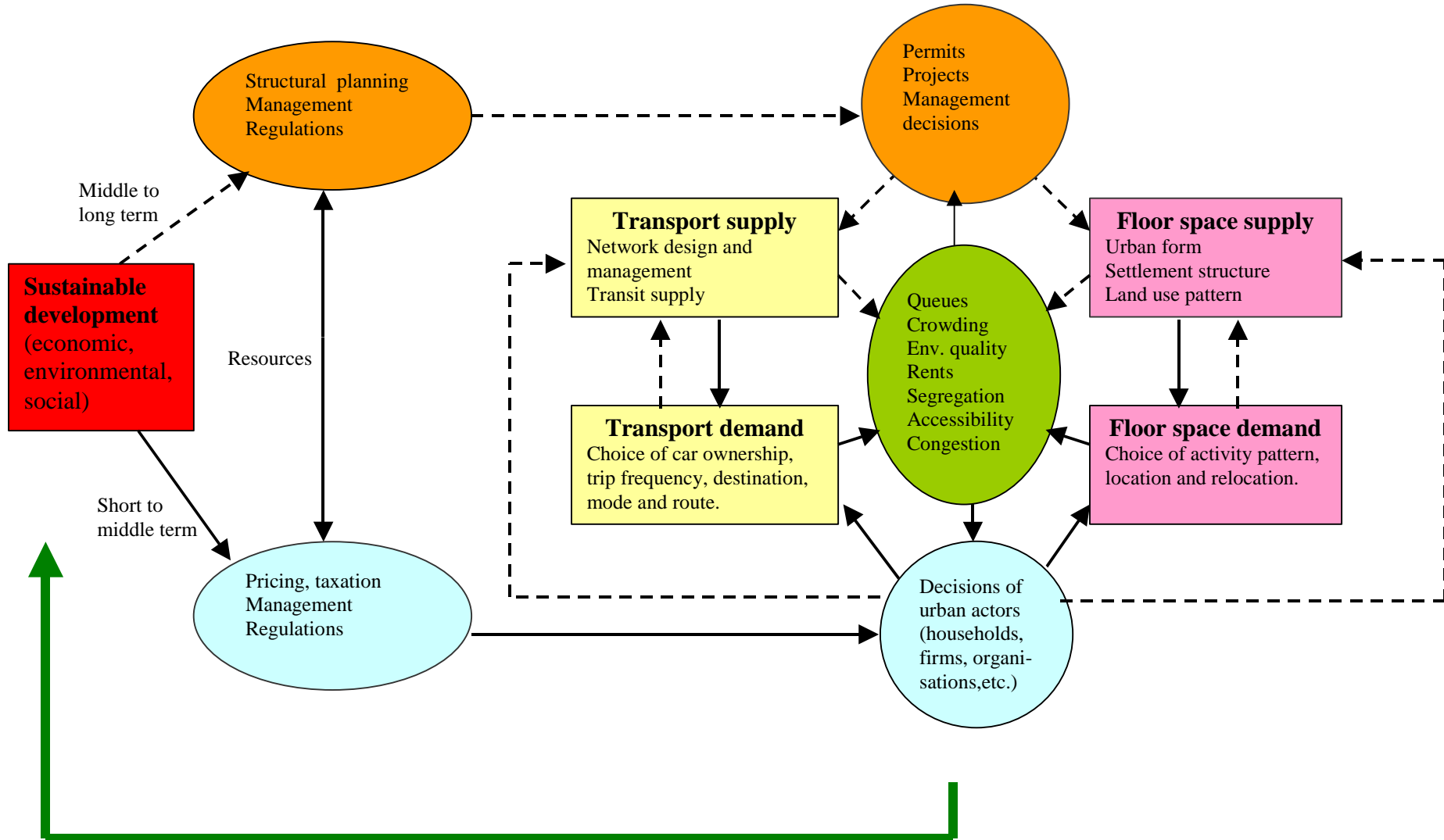
Decision making system

Infrastructure and activity system

Political evaluation Planning and policymaking

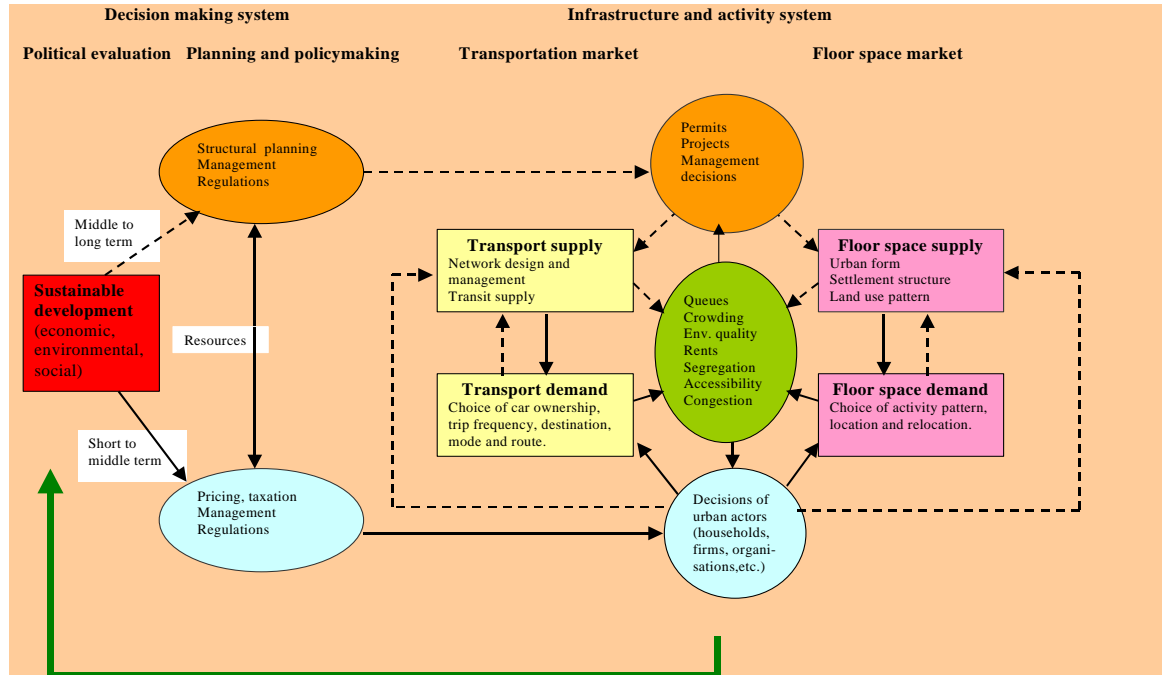
Transportation market

Floor space market



Global technology and energy development

Global economic development



Global climate and environmental development

Global development of population and social conditions

Comments with regard to system views

- Time perspectives

- » focus on (four local and) four strategic physical design options including transport investment options (long term)
- » road pricing is the only policy measure representing incentives in a shorter time perspective

- Influences from global developments

- » global developments of social, economic, technological, energy and environmental systems are likely to have strong impacts on the outcome of sustainability assessments
- » only very few sensitivity analyses are envisaged in SOLUTIONS

Appraisal framework

- Economic appraisal
- Sustainability appraisal
 - » approach
 - » criteria (indicators)
 - » overall sustainability performance

Comments with regard to economic appraisal

- In the absence of economies of scale and externalities, “CBA on the road” measures the welfare effects of an infrastructure investment correctly, provided that the transport demand is calculated with enough sophistication (taking income effects and effects on land use and property markets into account).
- Land prices are distorted, if social marginal cost pricing is not applied in transport in a situation with congestion.
- EV or expected maximum utility are the predominantly used measures of welfare effects in SCGE contexts with imperfect competition and congestion (cf Anas, Bröcker, Miyagi, Oosterhaven).
- Internalising congestion costs should (by definition) increase economic efficiency and welfare (cf Anas’ results). Why does the congestion charging system in Cambridge give a negative welfare outcome? Are the revenues not recycled?

Comments with regard to sustainability appraisal: approach

- The general approach can easily be supported: best practice in SEA-SA analyses and checking the applicability of SEA-SA stages to SOLUTIONS
- Principles:
 - » Intergenerational equity not mentioned explicitly (weak or strong sustainability?)
 - » SEA-SA practice outside the UK?
 - » The earlier aim for assessment of overall sustainability has been omitted?
 - » No explicit discussion of handling of uncertainties
- Framework:
 - » Suggests LT→E approach rather than integrated LTE modelling of spatial designs!

Comments with regard to sustainability appraisal: criteria

- Criteria based on survey of indicators suggested in UK planning guidance and comparisons with PROPOLIS. Why not a broader survey of criteria for sustainable development?
- Transportation bias in criteria selection? This is a common feature of many international proposals for sustainability indicators. Did you search for comprehensive sets of sustainability indicators?
- A comparison of the PROPOLIS, PROSPECTS and SOLUTIONS (2004, 2005) indicator lists shows a growing similarity between PROPOLIS and SOLUTIONS (cf. transportation bias above), although there are still some added features in SOLUTIONS pointing in the direction of SEA-SA guidance.
- Are equity and health indicators (e.g. noise and exposure to poor air) best viewed as strategic scale indicators (cf. PROPOLIS)?

Summary of transport and land use appraisal criteria (adapted from Mitchell (2004a))

	NATA	SEA directive	SEA guidance (SE 2003)	SEA-SA guidance (DETR 2003)	Local quality of life counts (DETR 2000)	Integrative appraisal template DTLR (2002)	Local Transport Plans		PROPOLIS (Wegener, 2003)	PROSPECTS (Methodological guidebook, 2003)	SOLUTIONS (Mitchell, 2004b)	SOLUTIONS (Mitchell, 2005)
ECONOMY	X											
Transport economic efficiency - business users/transport providers	X			X		X					X	X
Transport economic efficiency - consumer users	X			X		X					X	X
Reliability	X										X	
Value for money relative to impact on public accounts (inc. investment)	X			X		X						
Wider economic impacts	X											
Affordability and financial sustainability	X							(X)				
Access to rewarding work; employment				X	X							
Benefits					X			X	X	X	X	X
Business start ups and closures					X							
Companies with environmental management systems					X							
Social and community enterprise					X							
ENVIRONMENT (Natural)	X											
Air quality (and emissions)	X	X	X	X	X	(X)	X		X	X	X	X
Biodiversity, flora and fauna (habitats and species)	X	X	X	X	(X)	X					X	
Greenhouse gas emission	X	X	X	X		X		X	X	X	X	X
Landscape	X	X	X	X		X					X	
Noise (and vibration)	X		(X)	X	X	X		X	X	X	X	X
Soils (quality and quality)		X	X	(X)								

	NATA	SEA directive	SEA guidance (SE 2003)	SEA-SA guidance (DETR 2003)	Local quality of life counts (DETR 2000)	Integrative appraisal template DTLR (2002)	Local Transport Plans	PROPOLIS (Wegener, 2003)	PROSPECTS (Methodological guidebook, 2003)	SOLUTIONS (Mitchell, 2004b)	SOLUTIONS (Mitchell, 2005)
Water environment	X	X	X								
(a) Water abstraction and groundwater recharge				X							
(b) Water pollution				X	X					X	
(c) Flood risk / vulnerability to extreme weather				X		X				X	(X)
Environmental capacity			X	X							
ENVIRONMENT (Resources and material assets)	X					X					
Energy use			X		X	X				X	X
Energy supply - renewable capacity			X			X					
Green space			X			X		X	X	X	(X)
Derelict, degraded and contaminated land			X			X					
Water use					X	X				X	
Waste arising and recycling			X	X	X	X					
ENVIRONMENT (Built)	X										
Heritage of historic resources	X	X	X	X		X				X	(X)
Townscape	X		X	X						X	
Urban form (urban space quality)			X	(X)							
Design quality			X								
Local distinctiveness				X		X					
SOCIAL	X										
Health	X	X		X		X					
Physical fitness	X					X				X	
Journey ambience	X									X	
Mortality by cause					X						

	NATA	SEA directive	SEA guidance (SE 2003)	SEA-SA guidance (DETR 2003)	Local quality of life counts (DETR 2000)	Integrative appraisal template DTLR (2002)	Local Transport Plans	PROPOLIS (Wegener, 2003)	PROSPECTS (Methodological guidebook, 2003)	SOLUTIONS (Mitchell, 2004b)	SOLUTIONS (Mitchell, 2005)
Community well being					X						
Safety	X					X					
Accidents	X						X	X	X	X	X
Security	X									?	
Crime and fear of crime				X	X	X					
Accessibility (key services)	X				X						
Access to the transport system	X						X				
Option values	X									?	
Severance	X									X	
Access to skills and knowledge (and information)				X		X	X				
Access to culture, leisure and recreation				X		X		X			X
Access to open space				X				X			X
Inclusion											
Social distribution of impacts (i.e. by income, age, gender etc.)	X			X		X		X	X	X	X
Adult and youth educational achievement					X	X					
Homelessness (and affordable homes)					X	X					
Social participation (local voluntary action)					X	X					
Tenant satisfaction					X						
OTHER	X										
Integration	X										
Improve transport interchange	X									X	
Integrate transport policy with land use policy	X									X	

	NATA	SEA directive	SEA guidance (SE 2003)	SEA-SA guidance (DETR 2003)	Local quality of life counts (DETR 2000)	Integrative appraisal template DTLR (2002)	Local Transport Plans		PROPOLIS (Wegener, 2003)	PROSPECTS (Methodological guidebook, 2003)	SOLUTIONS (Mitchell, 2004b)	SOLUTIONS (Mitchell, 2005)
Integrate transport policy with other government policy	X										X	
Impact on other public services						X						
Practicality and public acceptability	X										X	
Feasibility, complexity, time scale, phasing, political nature	X											
BACKGROUND / PROCESS CRITERIA												
Population		X										
Road traffic volumes (and by route / area)					X		X					
Journey lengths			X									
Journeys by public transport, walking and cycling			X				X					
Travel to work and school by mode					X							
Road condition / lifespan							X					
Satisfaction with public transport services							X					
New homes on brown field land					X							
ADDITIONAL CRITERIA NOT LISTED ABOVE												
Productive land lost to development											X	X
Brownfield land use											X	
Access to public transport											X	X
Consumption of natural resources (oil, land, new construction)								X				(X)
Environmental quality (fragmentation & quality of open space)								X				X

	NATA	SEA directive	SEA guidance (SE 2003)	SEA-SA guidance (DETR 2003)	Local quality of life counts (DETR 2000)	Integrative appraisal template DTLR (2002)	Local Transport Plans		PROPOLIS (Wegener, 2003)	PROSPECTS (Methodological guidebook, 2003)	SOLUTIONS (Mitchell, 2004b)	SOLUTIONS (Mitchell, 2005)
Equity, segregation									X			X
Opportunities (housing standard, vitality of city centre and surrounding region, productivity gain from land use)									X			(X)
Total time spent in traffic, level of service PT & SM									X			
Transport benefits: user, operator, government									X	X	X	X
External costs (accidents, emissions, greenhouse gases, noise)									X			
Equity: income										X		
Accessibility: without car, mobility impaired										X		
Livable streets, vulnerable users, local activities										X		
Main land uses										X		

Comments with regard to sustainability appraisal: overall sustainability performance

My opinion:

- The performance matrix is not enough
- The ambition should be to say something on the overall sustainability performance by either:
 - » partial aggregation (cf. PROPOLIS) combined with graphical techniques and qualitative judgement
 - » developing a combination of sustainability objectives and constraints (cf. PROSPECTS)
 - » using MCA techniques with stakeholder involvement
- A major issue is how to handle intergenerational equity (cf. PROSPECTS)