Place-Based Evaluation for Integrated Land-Use Management

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Preface

Many of our activities to provide adequate infrastructures and develop liveable cities and regions involve evaluation. Planners, policy makers, researchers, politicians, and citizens worldwide need to estimate the success and understand the future impacts of policies and projects. These actors typically analyse their utilization, assess the social or economic opportunities that infrastructures, cities and regions provide, and project their projects' environmental effects. Evaluation involves tools and institutional arrangements for the interpretation of possible or actual impacts of proposals and existing results. Planning evaluation is about making judgments about the value of proposals and policies in urban planning and land use management. We need evaluation to make good decisions on future infrastructure, and to understand failures and successes of earlier decisions as well.

These kinds of evaluation-related activities have been central to research by the 'Planning and Evaluation Network', an extensive international network of academics from a variety of experiences and disciplines (urban planning, regional studies, policy sciences, environmental management). The members of this network aim to share research, exchange views and discuss the current state and future of evaluation in planning. This volume contains a set of original contributions that address an emerging theme focusing on place and local integration for evaluating infrastructure and planning projects. The chapters present some new lines of thought, policy innovations and cases from practice in Europe and the USA.

All the contributions were presented and discussed at the 8th International Workshop on Evaluation in Planning at the University of Groningen in 2013. Later the contributions were reviewed by expert policy practitioners as well: officials from the Dutch Ministry of Infrastructure and Environment, who provided constructive reflection and support. This book has been compiled following a tradition that owes a great deal to the driving force of Professor Abdul Khakee. This approach expresses international academic insights as well as policy practice, identifies policy innovations and employs case study illustration.

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List of Abbreviations

AHP	Analytic Hierarchy Process
AICP	American Institute of Certified Planners
AIR	*Architectuurinstituut Rotterdam* (Rotterdam Architectural Institute)
AVI	Italian Vulnerability Area
BAD	Benefit Assessment District
BCA	Benefit-Cost Analysis
BID	Business Improvement District
BREEAM	Building Research Establishment Environmental Assessment Method
BRS	Business Rate Supplement
CAB	Citizen Advisory Boards
CBA	Cost-Benefit Analysis
CCF	Climate Challenge Fund
CEE	Central East-European
CGE	Computable General Equilibrium
CHF	Swiss Francs
CIA	Community Impact Assessment
CIL	Community Infrastructure Levy
CO_2	Carbon Dioxide
CSR	Corporate Social Responsibility
DBFM	Design-Build-Finance-Maintain
DCLG	Department for Communities and Local Government
DFB	Design-Finance-Build
DLR	Docklands Light Railway
DM	Decision Maker
DOD	US Department of Defence
DOE	US Department of Energy
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	US Environmental Protection Agency
ESDP	European Spatial Development Perspective
EU	European Union
EUR	Euros
FPIC	Free, Prior and Informed Consent
GBP	British Pounds
GDP	Gross Domestic Product

GHG	Greenhouse Gas
GHGs	Greenhouse gas emissions
GIS	Geographic Information Systems
GLA	Greater London Authority
GTH	Green Road Infrastructure
GVA	Gross Value Added
HCfSE	Head of Centre for Sport and Exercise
HIA	Health Impact Assessment
I&M	*Infrastructuur en Milieu* (Dutch Ministry of Infrastructure and Environment)
ICLEI	International Council for Local Environmental Initiatives
IEA	International Energy Agency
IIED	International Institute for Environment and Development
IPCC	Intergovernmental Panel on Climate Change
IPM	Ideal Point Methods
ISO	International Organization for Standardization
KSH	Hungarian Statistical office
LULU	Locally Unwanted Land Uses
MTH	Mestre Through Highway (*Passante di Mestre*)
NCE	Normal Curve Equivalent
NGO	Non-Governmental Organization
NIMBY	'Not In My Backyard'
NIS	Negative Ideal Solution
NMVOCs	Non-methane Volatile Organic Compounds
NNDR	National Non-Domestic Rates
NO_X	Nitrogen Oxide
NPPF	National Planning Policy Framework
NPV	Net Present Value
OECD	Organisation for Economic Co-operation and Development
PBL	Netherlands Environmental Assessment Agency
PDM	*Plano Director Municipal*
PIE	Plan Implementation Evaluation
PIS	Positive Ideal Solution
PM_{10}	Particulate Matter <10 microns
POS	*Plan d' Occupation des Sols*
PPG	Planning Policy Guidance
PPP	People-Planet-Profit
PPP	public-private partnership
PPR	Plan-Process-Results
PPS	Planning Policy Statement
PUD	Planned Unit Development
R&D	Research and Development
RTPI	Royal Town Planning Institute
RWS	*Rijkswaterstaat* (Dutch Public Works Agency)

SEA	Strategic Environmental Assessment
SFMR	Regional Railway System
SHLAA	Strategic Housing Land Availability Assessment
SHMA	Strategic Housing Market Assessment
SIA	Social Impact Assessment
SIMP	Social Impact Management Plan
SOM	Self-Organising Map
SO_X	Sulfur Oxides
SRI	Socially Responsible Investment
TDR	Transferable Development Right
TEEB	The Economics of Ecosystems and Biodiversity
TEN	Trans European Network
TfL	Transport for London
THW	Transition Heriot-Watt
TIF	Tax Increment Financing
TOD	Transit Oriented Development
UN	United Nations
USD	US Dollars
VC	Value Capture
VCF	Value Capture Finance
VOC	Volatile Organic Compounds
WHO	World Health Organization
WTP	Willingness To Pay
WTPs	Water Treatment Plants

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Chapter 1
Place-Based Evaluation for Infrastructure and Spatial Projects: An Introduction

Johan Woltjer, Ernest Alexander, Angela Hull and Matthias Ruth

Introduction

In recent years, there have been some major changes in the management of planning projects and infrastructure development, such as roads, rail and waterways. The emphasis is increasingly on local and regional integration of these projects. Besides the linkages between projects, their value and interactions with other related planning matters including environment, housing, industry, green and water have become more pertinent. In other words, land-use planning and infrastructure management have become spatially and thematically more integrated (e.g. Black, 2010; Bertolini, 2012; Geerlings et al., 2012; Hull, 2008; Hijdra et al., 2013; Busscher et al., 2014).

These changes have a profound influence on questions of evaluation: the qualities legitimate project proposals should have, the benefits and costs related to development initiatives, the complexity and effectiveness of integrated land-use management practice. These kinds of questions are central to planning evaluation. The assumption behind planning evaluation practices is that well-considered assessment and analysis help planners to clarify impacts of projects, make proposals more legitimate and make planning intervention useful given societal needs. Evaluation research has been involved in suggesting tools and designing rules and measures, not only for expressing levels of socio-economic progress and development, but also in terms of environmental and institutional realities (Khakee et al., 2008; Oliveira and Pinho, 2010).

The challenge now is to reinforce local and regional consideration of planning projects, and establish a stronger place-based understanding for their evaluation. Planning evaluation then implies looking at local and regional circumstances, and establishing an 'open eye' among evaluators for the specifics of cases in terms of local values, benefits, impacts, synergies, use, complexities and spatial change. This book, therefore, presents pointers for improving evaluation and the institutional design of evaluation processes for place-based infrastructure development and spatial planning.

This book brings together contributions from experts in the fields of spatial planning, regional science and infrastructure management to tackle an emerging agenda of spatially-oriented integrated evaluation. The book sets out to clarify

the nature and roles of evaluation in the wider context of current planning and policy practices, presenting current academic thinking and concepts, case studies, methods, and policy and practice review to examine and assess integrated land-use management.

Place-Based Evaluation

The idea of incorporating and internalising various place-based factors into regional policy-making and planning evaluation has been a prominent theme in recent years (e.g. McCann et al., 2012). Emphasizing place in planning evaluation implies a broad definition and scope of projects, plans and programs. Local capacities such as levels of innovation, ecological resources, financial opportunity or political support are important, as are externalities between infrastructure and environmental factors. A place-based approach implies the integration of distinctive spatial circumstances into broader policy-making and evaluation practice. Evaluation tools, then, are area-oriented, and seek to express qualities at specific locations. Assessment of infrastructure and spatial projects requires less focus on generic indicators such as regional income, and relies more on contingent, specific markers for evaluation like local capacity.

A place-based approach raises several implications for planning evaluation research and practice. The emphasis on place and spatial context implies the need for distinct assessment items for evaluation such as co-benefits and co-costs, social impacts, individual value, long-term effects, and community engagement. Methodological improvements are also needed. Evaluation tools such as cost-benefit analysis (CBA), geographical information systems (GIS), scenario studies, institutional analysis and environmental assessment should express local geographies more clearly. Overall, the book has four kinds of implications: the need to express value and benefit, a focus on impacts in place, locally based spatial analysis, and the importance of institutional design for spatial change. These implications are briefly discussed below.

A first implication of a place-based approach is that evaluation practice emphasizes the importance of *expressing value and benefit* in land-use and infrastructure development. An important aspect is that evaluation can help clarify the values spatial plans and projects derive from infrastructure. Tools such as impact studies, economic assessments, and broader cost-benefit analysis can be helpful. Decisions on value-capture, for example, may then be better informed. Another aspect is that land-use projects typically generate mutual benefits and costs such as longer-term accessibility changes to green and urban space, which determine the quality of cities and regions. At the same time, little is known about these co-benefits and co-costs (Ruth, 2013). Evaluation practice, therefore, should also focus on the measurement and consideration of hidden and cumulative benefits from infrastructure use and the broader potential of infrastructure projects, and include these kinds of benefits and costs. Evaluation

that includes co-benefits and co-costs requires decisions on the demarcation of the relevant area and time horizon.

The second implication involves a *focus on impacts in place*. Understanding local conditions and local capacities is increasingly important in planning evaluation. Place-oriented evaluation explores both the spatial and institutional integration of physical infrastructures with other uses. An important consequence of this approach is that recipients and users of infrastructure facilities and impacts are a key point of reference in evaluation. In other words: linkages between infrastructure supply and demand, and those affected (individuals, places, groups, users, communities), are central. The evaluation process involves looking at specific effects on certain groups in society, and estimating how impacts are accumulated over time, in space, and origin.

A third implication of a place-based approach to evaluation involves *locally based spatial analysis*. A local emphasis in evaluation implies that evaluators work with open source, contextualized, and community-oriented evaluation data. Professional and administrative data from specialist monitoring systems, for example for noise measurement or using transport modelling, would be supplemented by local insight and knowledge. Such an emphasis also implies the need for participatory processes in applying tools such as cost-benefit analysis (CBA). Local involvement in CBA can make evaluation situation-specific, and thus provide a better understanding of relevant environmental conditions and capacities. It also allows for learning processes aimed at generating knowledge, structuring options, identifying compliance, and perhaps improvement of the underlying plan or project.

The fourth kind of implications involves *institutional design for spatial change* and stakeholder opportunity. This means that evaluation should concentrate on how local institutions determine who is involved in spatial change and who might benefit from projects and potentially contribute to them. Benefits and contributions may range from issues of employment, the improvement of facilities, combining investments, or contributions in terms of knowledge and commitment. Such an involvement involves institutional design for value-capture, partnerships, social responsibility and 'buy-in'. Such an approach needs evaluative insight into the position of the parties involved in an infrastructure project, and the extent to which the infrastructure project or plan offers improved options and opportunities for local stakeholders.

Overview of the Book

The chapters of the book are organized into four parts:

- Part I: Evaluating Value and Benefit in Land-Use and Infrastructure Development;
- Part II: Understanding the Evaluation of Impacts and Space;

- Part III: Spatial Analysis for Integrated Projects;
- Part IV: Evaluating Planning Intervention, Institutions and Spatial Change.

Part I: Evaluating Value and Benefit in Land-Use and Infrastructure Development

The chapters in this section show how places of infrastructure projects are often associated with planned projects' direct economic value and costs. But the longer-term and more indirect user benefits from public values embedded in projects such as transit, highways and waterways also deserve attention. Evaluation practices, therefore, should better understand the relation between assets and users, and apply user-oriented criteria. Measurement of such values should be dynamic, ongoing, and include implicit and more indirect benefits and place-specific characteristics of a plan or project. New institutional arrangements are required to make these benefits explicit.

Ernest Alexander in his chapter discusses the important role of institutional design for planning and delivering infrastructure projects. Institutional design characteristics such as organizational structures, rules and procedures are essential to facilitate effective planning processes. This chapter asks the question what kind of institutions, organization and processes are best suited for effective planning, delivery and operation of a particular infrastructure project in its specific context. Value capture is seen as critical, as it ensures the funding needed to make projects feasible. The position of evaluation includes assessing alternative institutional designs' value-capture potential. The chapter, therefore, emphasises the need for considering alternative institutional designs for value capture, particularly special assessments, functional authorities, and specified forms of public-private partnership.

Matthias Ruth, *Junming Zhu*, *Nancy S. Lee and Sahar Mirzaee* call attention to a couple of innovative aspects for policy and planning – the co-benefits and co-costs of environmental planning, policy and investments, and the indeterminacy of causal relationships between system interventions and outcomes. Their chapter argues that plans, policies and investments generate co-benefits and co-costs (such as health benefits from policies proposing traffic congestion reductions to improve transport), and that their magnitude can easily be decisive for decision making. The chapter also explores how co-cost and co-benefit analysis may be used to help shape planning, particularly through institutional innovation needed for capture of co-benefits, and minimization of co-costs.

The chapter by *Karsten Rusche and Jost Wilker* starts from the principle that high quality green environments have a significant positive impact on the attractiveness of cities and regions, and deliver economic, social and environmental benefits. The role of evaluation in this chapter largely is to clarify and justify investments in green infrastructure. The chapter focuses on the economic value and individual benefits of a series of landscape parks in the city of Stuttgart. Results from the

analysis in this chapter show that benefits from green infrastructure generally well exceed their costs. The most significant benefit gains are generated through recreation and leisure, improved river access, and health and well-being. A detailed analysis like this shows specific values from green, and the usefulness to specify benefits for use in strategic planning.

Anastasia Roukouni, *Francesca Medda*, *Maria Giannopoulou and Athanasios Vavatsikos* use the Crossrail project in London to show how evaluation can express the contribution of transport investment to sustainable economic growth. The focus is on land value capture as a tool for funding high cost public transport systems. In the case, a levy called the Business Rate Supplement is used to raise funds from infrastructure generated value. Special attention in the analysis is spent on issues of timing, as value capture strategies are based on dynamic development, and distance, given space infrastructure and their zones of impact. The chapter essentially highlights the idea of assessing added value and using value capture finance for large transport infrastructure investment at a wide level of scale.

Part II: Understanding the Evaluation of Impacts and Space

The understanding from this theme is that evaluation activities should express more clearly the place-based spatial characteristics within which planning and plans unfold, and the impacts plan implementation has on local economies, the communities in which these economies function, and the ecosystems within which all of them are embedded. These characteristics include, in particular, institutional capacities, local economic potential, social impacts, and benefits broadly defined. Therefore, evaluation work must be place-based, and should contribute to raising spatial awareness among public and private stakeholders. One way to generate such awareness is to develop participatory evaluation processes that include the dissemination of planning and decision support tools and results to the broader public, and the associated generation of a community-based 'evaluation vocabulary'.

One such evaluation process is the Social Impact Assessment (SIA) discussed by *Frank Vanclay and Ana Maria Esteves*, who emphasize recent trends in moving SIA from traditional ex ante prediction of negative impacts to a new paradigm of seeking to maximize positive outcomes to communities while minimizing harm. Since plans are established and investment and policy decisions are typically made under incomplete information, the SIA process is carried out as an adaptive management process in which all stages from pre-establishment of plans to outcomes post closure are monitored and evaluated to inform subsequent adjustments, learning, and re-intervention in the complex systems that plans try to shape.

Since communities are integral to the success of plans and the adaptive management that should guide them, engaging communities is essential to both the planning and evaluation process. Despite considerable experience with community engagement across a range of applied research fields, little systematic

information exists in the planning literature that provides clear direction to inform practicing planners on their community engagement technique options, such as surveys, focus-group meetings or workshops, for example. Drawing on experiences in the related field of health impact assessments (HIAs), *John Gaber and Tammy Overacker* in their chapter distil information from 95 international projects on community engagement activities with the goal of better understanding the practices and experiences of community health planners with community engagement processes. These experiences, they argue, can provide valuable insight to the plan evaluation process.

In the following chapter, *Vitor Oliveira* presents the Plan-Process-Results (PPR) methodology developed to evaluate planning and plan implementation, and demonstrates its application to the Plano Director Municipal (PDM), the master plan for Porto, Portugal. A rich data set for the application of the PPR methodology includes the plan itself, other regional and strategic plans that affect or are affected by it, interviews, official statistics and cartographic material, as well as public accounts such as newspaper articles. This data set allows for a rich analysis applying a wide range of place-specific evaluation criteria, ranging from internal consistency of the plans and their relevance in the broader context of planning goals, to public participation, commitment of adequate resources for plan implementation, and plan effectiveness. With this chapter, Oliveira showcases how the PPR process can directly shape the design of plans and of planning practices that are being prepared, and identifies areas for future research in planning and evaluation.

Plans affect future realizations of local conditions, and as such are also based on the anticipation of such conditions. However, a wider range of futures will likely prevail than what is typically assumed in the planning process. Careful integration of future scenarios can therefore broaden the perspectives of planners and researchers concerned with both the planning and evaluation processes. *Abdul Khakee and Laura Grassini* attend to the methodological and practical challenges of using future scenarios in that manner and illustrate the approach with an application to a case study in Izmir, Turkey. That case study shows how future scenarios can provide deeper and richer appreciation of present space and thereby improve planning practice.

Another set of constraints on and synergies for current planning actually involves inconsistencies less between future scenarios but rather with the broader landscape of already existing plans and frameworks. To the extent that other plans and policy frameworks are not considered, conflicts may emerge, or opportunities to generate co-benefits may be missed in the planning process. This is the case discussed by *Cecilia Wong*, *Brian Webb*, *Andreas Schulze-Bäing*, *Mark Baker and Stephen Hincks*. These authors use GIS mapping overlays to identify the patterns of spatial synergies and conflicts that arise from sectoral government policies and programmes. They illustrate their approach for the case of housing delivery in England and highlight that even relatively simple mapping overlays can greatly inform policy debates and encourage enhanced partnerships among government policy makers and

stakeholders. Such partnerships may result in enhanced coordination, management and delivery of complex spatial planning policies across different spatial levels.

Domenico Patassini, *Matteo Basso and Giorgio Borghelot* evaluate spatial changes of location patterns of economic activities generated by the development of large infrastructure systems, such as regional transport networks. Such infrastructures may serve as an important pull for economic activities, provide a source for agglomeration economies, economic multipliers and accelerators, and thus serve as a key factor of regional competiveness and have far-reaching social and environmental impacts. Their analysis showcases the large-scale and long-term impacts of the 'Mestre Through Highway' within the Venetian Metropolitan Area of Italy on spatial patterns of economic activity. The challenges associated with shaping the planning and implementation of the Mestre Through Highway demonstrates the limitations of good spatial governance when administrative procedures are characterized by inertia, when business interests motivate select communities and interest groups, and when adverse effects are diffuse and long-term.

Part III: Spatial Analysis for Integrated Projects

This section demonstrates how evaluation tools, such as cost-benefit analysis (CBA), can be made more 'spatial', and how efforts are under way to express synergies and benefits from projects, in a more distinct way. With this objective in mind, each of the four presentations explores how to adapt the strengths of CBA with its focus on single projects to more effectively assess integrated transport plans. All the chapters are written by scientists working in the Netherlands. Two chapters reflect on how CBA is used there and seek to improve the process. One chapter critically assesses the 'Sustainability Check' [in Dutch *Omgevingswijzer*] instrument and another develops a new tool: the Plan Review. These chapters suggest how CBA may be adapted as a learning tool, and how the results of spatial analysis may be merged with other evaluation tools to improve decision-making support. They also point out that planning evaluation needs to assume a stronger focus on its users.

Niels Heeres, *Taede Tillema and Jos Arts* develop their chapter in the context of current discussions in the Dutch Ministry of Infrastructure and Environment on how to improve the instruments that are used in the early stages of plan making. They show how these discussions lead to the development of new planning instruments that can assess the spatial effects of integrated infrastructure projects and can support a collaborative planning process with representatives of different government functions and different disciplinary backgrounds. Following a review of the planning instruments available, the authors critically assess the capability of the 'Sustainability Check' instrument with data derived from interviews with experts in the field. They find that, although, this instrument enables cooperation, learning and the finding of common ground for action, further refinement is needed to ensure that social values are embedded in the decision-making process.

Emile Dopheide's chapter aims to ensure that CBA is used effectively as a tool to exchange learning in the decision-making process rather than being a 'black box' where the end result is delivered by a consultant to the client. Accordingly, he focuses on the final users of CBA and what they understand about the content and scope of CBA. First he reviews the substantive and process bottlenecks in using CBA to assess the effects of infrastructure projects and then he argues that these bottlenecks should be made clear and transparent to the end user. He concludes that more research needs to be carried out to understand the relationship between CBA outcomes and the decision outcome and the extent to which the final users actually understand and can interpret the CBA results.

David Hamers, *Like Bijlsma and Anton van Hoorn* develop a new instrument – The Plan Review – to address some of the weaknesses of CBA. Their aim is to facilitate the consideration of multi-level policy goals in an increasingly dynamic planning practice where projects are often small-scale, and adaptive, and promoted by many different stakeholders. The Plan Review is a matrix that considers 16 different spatial conditions or spatial qualities (policy requirements) and enables the reviewers to reflect and consider how the project plan fits with higher-level objectives. The matrix structures a dialogue focusing on context sensitivity and the project plan's reasoning, to help the plan reviewers to compare alternatives, rank them and explore possible plan improvements.

Els Beukers clearly acknowledges some of the limitations of CBA and seeks to refine it as a tool to facilitate communication, learning and reflection. Her CBA-Dialogue tool is tested in two experiential case studies where it structures a two-way dialogue between the plan owners and the CBA evaluators. This works in her cases, marked by high levels of interpersonal skills and trust, to enable a valuable exchange of knowledge to help refine the integrated plan. She warns, though, that it is still difficult to see CBA as a standardized tool for integrated transport plan assessment, since the spatial context of each plan needs to be considered so that the spatial and synergistic effects of plan proposals can be carefully assessed.

Part IV: Evaluating Planning Intervention, Institutions and Spatial Change

This section reaffirms the importance of spatial awareness: evaluation in (and of) planning should include a clear understanding of the linkages between various spatial activities and land uses. One of these chapters' salient conclusions is the need for attention to institutional design – both of the concerned plans, projects and programs, and of the evaluation processes and contexts themselves. Different institutional arrangements are evaluated in a variety of contexts, from Swedish local planning through Budapest urban renewal and Italian land-use policy, to Scottish university communities. Evaluations apply diverse methods and innovative approaches, often integrating quantitative and qualitative measurement and analysis, to enhance contextual awareness in urban projects. These chapters demonstrate how evaluation instruments can be dynamic and provide timely evaluative information on institutions and spatial change.

Angela Hull's chapter applies institutional analysis to evaluate a project designed to encourage sustainability enhancing behaviour, based on research into individual and collective behaviour change. The case is a community project in a Scottish university to promote environmental projects such as bicycling, recycling, and communal gardening. The analysis found that bureaucratic obstacles prevented effective action, and concluded that the institutionalization of shared values is critical for achieving significant behaviour change.

Ann Åkerskog, *Sylvia Dovlén and Abdul Khakee*'s contribution is an evaluation of planning: how well are sustainability factors integrated into Swedish local planning. Their qualitative analysis covers two case studies. One assesses the introduction of an environmental perspective in sampled localities before and after implementation of the EU-SEA Directive; the other evaluates the integration of energy efficiency in a set of municipal structure plans. The study found that communities' pre-existing sustainability orientation explains much of the differences between municipal plans.

Tom Kauko offers a place-based evaluation of Hungarian urban revitalization. An innovative quantitative-qualitative methodology is applied to assess the impacts of selected urban renewal projects in Budapest in an overall framework of evaluating their sustainability contributions. Self-Organizing-Mapping measures projects' impacts on property price stability; field survey evaluates their physical and social impacts through observation, plan-document analysis and interviews. Institutional analysis of project planning and financing yields insights on the effectiveness of alternative ways to organize and implement urban renewal.

Catarina De Lucia, *Atif Kubursi and Dino Borri* raise the issue of vulnerability in public policy analysis with a striking application of place-based evaluation. This issue is important because adaptation to climate change demands consideration of possible catastrophic events: estimating the potential impacts (social and economic) of floods, landslides, earthquakes etc. This chapter presents a systematic method of vulnerability assessment, which is demonstrated by assessing the local impacts of landslides in Italy. The policy relevance of such analysis is illustrated in the chapter's conclusion tracing its implications for Italian planning, land-use and development control.

Key Conclusions

The central conclusions from the book are:

- Evaluation should be more clearly informed by local spatial characteristics. In particular, these include institutional capacities, local economic potential and benefits. The understanding is that evaluation work should be more area-based and should raise spatial awareness among the various public and private parties involved in land-use and infrastructure development.

- Evaluation tools should be developed and used to inform strategic planning. To be useful, they should be user friendly and function as an intermediary between public and private users. Evaluation instruments should be dynamic and provide consistent and timely information.
- Evaluation in (and of) planning should include a well-developed appreciation of the linkages between different spatial activities and/or land uses. This means expressing more indirect and longer-term impacts of planned interventions (such as strategic infrastructure projects and major facilities), and including co-costs and co-benefits, unobserved values, and transaction costs. The call here is for evaluators to think in terms of synergies, for example, between a road project and surrounding property.
- Attention to institutional design in evaluation activities is required. Current problems in the field of land-use and infrastructure development, such as the need to raise private funding and the need to better understand social impacts, make it necessary to articulate and evaluate the value of public spatial investment more explicitly. These evaluation demands imply the need to establish new organizational arrangements and rules.

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PART I:
Evaluating Value and Benefit in Land-Use and Infrastructure Development

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Chapter 2
Evaluation in Institutional Design for Infrastructure Planning and Delivery

Ernest Alexander

Introduction

Institutional Design

Why do the planning and delivery of major strategic infrastructure involve institutional design? Because institutional design is needed to address some critical issues: how to plan the infrastructure project under consideration, how to ensure effective implementation of the planned project, and how to organize efficient delivery and life-cycle operation of the proposed infrastructure system and service.

Enlisting, creating or transforming organizational structures and processes for planning, procuring, constructing and operating infrastructure systems – networks and facilities and their related services – is an integral part of deployment and planning for such projects, involving organization and reorganization and possible changes in legislation, regulations, standard operating procedures and so on. These issues raise the question of appropriate institutions and institutional contexts for infrastructure planning and delivery.

Conventional approaches to this question reduce it to the common dispute for or against privatization. A more sophisticated approach disaggregates the infrastructure planning and delivery process, to explore the consequences of private vs. public provision of its relevant constituent elements (Cannadi and Dollery, 2005). Here the main issues are:

Procurement: public, private or a combination – public-private partnerships (PPPs) in various forms (Whittington, 2012). These can involve alternative infrastructure procurement structures and processes from design-build to design-build-finance-operate-maintain.

Financing: public vs. private; here again PPPs are possible. Public or private financing raises the question of value capture potential and alternative infrastructures for value capture, e.g. special assessments, special districts, or PPPs based on land sequestration (Alexander, 2012).

All these are essentially institutional design issues that are developed in more detail below.

Evaluation

How does evaluation come into institutional design? Institutional design demands three steps:

1. Analyse the relevant case/issue: identify critical elements (actors and transactions) and their relationships, assess strengths, weaknesses, problems and so on. In infrastructure procurement, for example, this might involve evaluating local contractors' value of time and their attitudes to risk. For infrastructure financing, value capture potential is critical. This demands place-related evaluation: assessing and evaluating the impacts of the subject (or similar) public project and their spatial distribution.
2. Design feasible alternatives; these are the subject of the evaluations that are the topic of this chapter. Such design is essential to follow the transaction-cost theory maxim of 'remediability', which demands comparative evaluation rather than prescribing some ideal standard or norm (Williamson, 1995). Alternative designs for infrastructure procurement can be drawn from the repertoire of various forms of PPPs that have been developed and tried, while alternative strategies for funding infrastructure can combine financing as a procurement element with the institutional forms of value capture discussed below.
3. Evaluate alternative institutional designs that address the relevant issue, problem or case. The base-line for this evaluation is the existing institutional configuration and context. This gives meaning to the maxim of 'remediability': if there is no real feasible alternative institutional design that proves superior to the *status-quo* the case in question is not a problem and can be effectively handled by the existing institutions.

This introduction spells out the logic generating this chapter's topic: evaluation in institutional design for infrastructure planning and delivery. The final product here is a review and assessment of various evaluation processes and methods applied in appraising alternative institutional designs for infrastructure planning and delivery. But first there is a brief general introduction to institutional design, followed by discussions of infrastructure planning and procurement, and of infrastructure financing and value capture.

Institutional Design[1]

What is Institutional Design

To understand institutional design, we have to define institutions. Institutions are:

> the rules of the game in society … the humanly devised constraints that shape human interaction … complexes of norms and technologies that persist over time by serving collectively valued purposes … some have an organizational form, others exist as pervasive influences on behavior. (North, 1990, p. 3)

Institutional design, then, means designing institutions: devising and realizing rules, procedures and organizational structures to enable and constrain behaviour and action and conform them to held values, achieve desired objectives or execute given tasks (Alexander, 2006, p. 4). When infrastructure planning and delivery demand new organization or reorganization, legislation, regulation or new routines and procedures, institutional design will be needed.

Institutional Design: Where and Who?

We can distinguish between three 'levels' that are associated with different types of institutional design. The highest level applies to whole societies or addresses significant macro-societal processes and institutions. This is sometimes called 'constitution writing' (e.g. the US Constitution and the EU and its institutions) but it also includes major national reorganizations and innovative strategic political-administrative programs (from the Justinian legal code to Roosevelt's New Deal) that often occur after major societal discontinuities.

The next level of institutional design is of interest to us, because it involves planning and implementation structures and processes. This includes establishing and operating interorganizational networks, creating new organizations and transforming existing ones, and devising and applying incentives and constraints in the form of laws, regulations and resource deployment to develop and implement policies, programs, projects and plans. This is the level associated with infrastructure planning and delivery.

At the lowest level we find intra-organizational institutional design, addressing organizational sub-units and small semi-formal or informal social units and processes, such as committees, teams, task forces, work groups etc. This occurs in every field, from the global corporation's 'matrix' organization to the weekly poker club in Brady's Bar, and is intended to ensure effective and timely task performance.

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1 This section is condensed from Alexander (2012, pp. 164–167).

Institutional Design: Theory and Experience

Applying theoretical knowledge to institutional design is problematic, for several reasons. One is ignorance, another is the intrinsic nature of design, a third is the risk of the ecological fallacy: these make mechanical application of universal abstract knowledge problematic. Finally, there is the multi-party nature of institutional design itself: often the first challenge is to get all the involved actors to agree on their common purposes.

Nevertheless, there are some areas of knowledge that may help the practitioner. At the macro- and meso-levels institutional economics in general, and transaction cost theory in particular, can be useful tools for institutional analysis. At the meso-level, the Institutional Analysis and Design approach (Ostrom, 2005) and the concept of interorganizational coordination structures (Alexander, 1995) offer a repertoire of institutional design methods and solutions. At the intra-organizational micro-level, agency theory provides concepts and models that are essential for informed intra-organizational institutional design. At the same time, relevant case-studies can enable the practitioner to draw on the vast reservoir of institutional design experience (Alexander, 2006, pp. 12–24).

Infrastructure Planning and Delivery

Procurement

How to organize and structure project planning and procurement is one of the critical institutional design issues in infrastructure planning and delivery. The constituent elements/stages of infrastructure planning and delivery systems are: 1) (General) Planning; 2) Financing; 3) (Detailed) Design; 4) Construction; 5) Operation & Maintenance; and 6) Improvement. Conventionally a public agency is responsible for the whole process, though parts are often outsourced to other public organizations and/or bid out to private firms, e.g. a transportation planning consultant office might be commissioned to plan a highway, design is outsourced to an engineering firm, construction is bid out to contractors, and a transit operating corporation might be franchised for a mass transit system's O&M. In this approach such outsourcing is by conventional procurement practices and contracts.

Privatization of infrastructure planning and delivery joins the public and private sectors differently, forming public-private partnerships (PPPs) that combine these elements in a variety of possible ways. Thus privatizing 3) and 4) together produces the 'Design-Build' form of contract, 3) + 4) + 5) = 'Design-Build-Operate-Maintain', and 2) + 3) + 4) + 5) = 'Design-Build-Finance-Operate'. In initiating a strategic infrastructure project the adoption of an appropriate structure for the procurement and delivery process is an important institutional design challenge.