UTILIZING THE BACKCASTING APPROACH IN URBAN DEVELOPMENT – DISCUSSION OF THE APPLICATION IN INTERNATIONAL DEVELOPMENT PROJECTS

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1. INTRODUCTION

The challenges and demands for sustainable urban development are becoming more diverse and dynamic through a myriad of interconnected and growing pressures. Many developing cities are faced with both the need to overcome existing problems and also transform and deliver a step-change in their urban structure for a sustainable and inclusive future. In turn, the methodology for urban development must innovate and provide for effective solutions. The "Backcasting" approach is regarded as a valuable planning tool that enables both innovative and strategic planning, compared with the conventional "forecasting" approach. This paper discusses: i) the backcasting approach in the urban development context; ii) roles of external donors in vision development; and iii) practical lessons from recent studies.

2. CHARACTERISTICS OF THE BACKCASTING APPROACH

2.1 Defining the Backcasting Approach

Backcasting starts with defining a desirable future and then works backwards to identify policies and programs that will connect the future to the present. Whilst there are variations, the standard backcasting planning process includes: i) strategic problem orientation; ii) construction of sustainable future visions or scenarios; iii) backcasting: backwards-looking analysis; iv) elaboration, analysis and defining follow-up and (action) agenda; and v) embedding of results and generating follow-up and implementation (Quist and Vergragt, 2006).
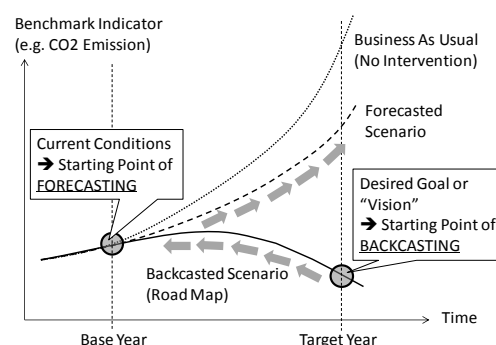

Fig. 1 Comparison of Forecasting and Backcasting

2.2 Comparison with the Conventional Approach

The backcasting approach differs from the conventional forecasting approach that extrapolates future scenarios based on the continuation of current socio-economic trends (Figure 1). The backcasting approach intends to assess feasibility and desirability of different policy goals, rather than the likelihood of the future which is a major concern in the forecasting approach. The backcasting rationale centers on the fact that the ability to predict the future is strongly constrained and the most likely future scenario may not be the most desirable for long-term societal problems (Robinson, 2003).

3. BACKCASTING IN TRANSPORT STRATEGY AND INFRASTRUCTURE PLANNING

3.1 Examples and Trends

The backcasting approach was developed through strong debates in the 1980s over the future of energy, in turn there have since been a number of backcasting studies centered on sustainability issues especially in European countries. In the context of urban development, the most notable early projects include OECD's project on Environmentally Sustainable Transport (EST) and the EU's project on Policy Scenarios for Sustainable Mobility (POSSUM). In comparison with European cases, the use of the backcasting approach in Japan is less well explored.

3.2 Resultant Opportunities from Utilizing the Backcasting Approach in International Development

Whilst not a new concept in many business fields, the use of the backcasting approach in international development projects has been under-utilized until recent years. An important example is "Breaking the Trend, Visioning and Backcasting for Transport in India & Delhi" financed by Asian Development Bank (ADB) which stressed that backcasting offers a means by which trend-breaking futures can be analyzed in countries like India where trend projections for transport are extremely challenging (Halcrow, 2008).

4. LESSONS FROM RECENT CASE STUDIES

4.1 Urban Development Visioning, Cebu, Philippines – Backcasting Approach and Methodology

Metro Cebu is the second largest metropolitan area of the Philippines and is considered to be the economic center of central Philippines. The Metro Cebu 2050 Sustainable Urban Development Vision (JICA, 2013), formulated a strategic multi-sector roadmap (transport, drainage, wastewater, solid waste management, energy and smart technologies) through an innovative backcasting and participative approach to set the 2050 Vision, alongside drafting appropriate development targets. It has been noted as one of the first JICA studies to deploy this approach. As an introduction to the vision

development process, Stage 1 of the backcasting process involved the extraction of the major development challenges and opportunities for Metro Cebu across all sectors to establish a strategic orientation of issues. Stage 2 focused specifically on the backcasting approach by presenting quantitative indicators for the 2050 scenario, accompanied by other sector statistics and comparisons with international precedent cities, particularly Yokohama City, Japan. Stage 3 set out the 2050 vision statement itself, developed directly with stakeholders alongside vision attributes, such as creative and competitive; inclusive and livable; and compact and walkable. Stage 4 then added depth to the vision by introducing four key strategy components (Competitiveness, Mobility, Livability and Metropolitan Management) together with specific targets and associated directions from each sector. For example, mass public transport was identified under the Mobility, with a named target mass public transport infrastructure kilometers and modal split referencing target policies and existing situations of precedent cities. Finally, Stage 5 identified potential projects and action plans from each sector.

4.2 Urban Development Visioning, Cebu, Philippines - Lessons for Relevant and Effective Planning
A number of pertinent lessons can be learnt from the successes of the Metro Cebu study including: i) the project achieved full stakeholder endorsement, ownership and agreement despite the relevant short study period. This was achieved through an active participatory approach of planning workshops and endorsement meetings including stakeholders from government, business, civil and academic sectors; ii) vision agreement was also assisted by the integrated multi-sector and Metro wide approach, so that the vision was balanced, comprehensive and not drawn by any specific sector or area; iii) an innovative and forward thinking approach was harnessed from the outset by exploring the long term visions and narratives behind successful cities such as Yokohama. In fact, the City of Yokohama was actively involved from project inception to project completion offering well received inputs showcasing its urban development lessons; and iv) other key lessons included the use of target policies referenced against various precedent cities to establish more specific development directions and also ensuring that the political context, including metropolitan management was given high recognition.

4.3 Lessons from Other Case Study Examples
The backcasting approach was also applied in the urban infrastructure development planning in four local cities under JICA's Inclusive City Development Project. Participatory sessions for planning were challenging since the local city administrations were lacking in planning capacity, control power and baseline data. To improve the visioning approach, a flexible process was employed requiring cities to revise their rolling action plans every three years (JICA, 2014).

5. CONCLUSIONS
The backcasting approach can be applied effectively to urban development planning in developing cities due to: i) the pace of economic growth has become such that forecasting by extrapolation is not appropriate; ii) requirements for urban development are becoming more diverse, and sustainable development cannot be achieved by fragmented sector planning; and iii) offering the possibility to reduce budget and timescales in the development planning process, whilst noting qualitative analysis is still important to provide rationale and targeting. Relevance, effectiveness and feasibility are important factors that will ensure the quality of backcasted plans. In international development projects, external experts can play a significant role in the backcasting process through assistance in a number of key fields shown in Table 1, including presenting model cases of future development in order to make discussion concrete and benchmarked and facilitating multi-sector workshops seeking agreement and endorsement of the visioning process.

Table 1 Backcasting Process and Expected Inputs from International Development External Experts

Components and Potential Benefits of Backcasting Approach	Required Inputs from External Experts
Vision Statement: Made relevant through benchmarking and must be developed by stakeholders themselves to ensure ownership.	Model cases of development, participatory facilitation, compliance with donor's policies
Strategy/Objectives: Effective and feasible road map from present conditions has to be drawn in order to realize the vision.	Logical road mapping, holistic solutions, quantitative rationale and targeting
Programs/Projects: Development resources should be allocated efficiently to feasible programs/projects that meet the vision.	Innovative technologies, resource optimization, demarcation with private sector, monitoring structure

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