

T01P06 / Designing Policy Mixes for Sustainable Socio-technical Transitions

Topic : T01 / Policy Process Theories

Chair : Araz Taeihagh (National University of Singapore)

Second Chair : Sreeja Nair (National University of Singapore)

GENERAL OBJECTIVES, RESEARCH QUESTIONS AND SCIENTIFIC RELEVANCE

The objective of this Panel titled “Designing policy mixes for sustainable socio-technical transitions” is to further our conceptual and theoretical understanding of policy transitions and policy mixes for sustainable transitions and to provide insights for policy practice by empirically grounding these concepts and frameworks.

Key questions that the panel papers and discussion is expected to address include the following:

- What are the characteristics of policy mixes designed to enable sustainable socio-technical transitions in different policy areas such as energy, water, agricultural production, environment, ICT etc. given the high levels of uncertainty in the future policy context stemming from climate change and rapid technological disruptions?
- What constitute good policy design principles (using conceptual frameworks and empirical evidence) to enable sustainable transitions and transformations?

Relevance

In terms of uncertainty in the policymaking context, there exists a range that moves from total ignorance of reality, to the deepest layer of uncertainty i.e., “unknown unknowns” (Walker et al., 2010). Effective policy mixes are expected to accommodate uncertainties in the future policy context by being flexible and adapt over time in expectation of a range of anticipated and unanticipated conditions (Swanson and Bhadwal, 2009; Taeihagh et al., 2014).

Apart from incremental policy change over time, when large changes are expected in the future policy context, the switch to transformative (completely new) policy options can be facilitated by incorporating these into the suite of policy strategies early on, which can also help “accommodate the long lead-times on associated decisions and actions” (Howden et al., 2010; Park et al., 2012). Planned transitions thus require responses that include both incremental and transformative strategies, though the composition of a policy mix of different alternatives in practice warrants further research (Smith et al., 2010; Park et al., 2012, Taeihagh et al. 2013). The policy literature is, however, inconclusive on whether policymakers prefer incremental changes under conditions of uncertainty or innovation when necessary through radical policy shifts through policy packaging. Crafting of conscious policy choices to enable transitions and transformations while considering the likely changes in the future policy context thus form the motivation for this panel.

CALL FOR PAPERS

Policymakers are continually designing policies to operate under future policy contexts about which they often have little or no information. For example, changes in the climate are impacting different spheres of societal development and, given the uncertainty and likelihood of non-linearity in future climatic changes, these impacts might be manifested to varying extents. Such environmental policy problems such as that posed by climate change challenges conventional decision-making and calls for innovative and sometimes transformative changes in policy design and implementation (Majone 2006; Taeihagh et al., 2009; Pelling, 2011; Smith et al., 2010; Howlett and Lejano 2013). Crafting of such conscious policy choices to enable necessary transitions and transformations while considering the likely changes in the future policy context form the motivation for this panel.

Policy formulation under uncertainty is challenging, given the interdependence and complexity of socio-technical systems (Taeihagh et al., 2009), identified as the interdependent complex of societal and technological development (Geels, 2004). Heazle et al. (2013) argue that incremental changes to current policies are more suitable under conditions of high complexity and uncertainty. In addition to incremental policy changes, transitions and transformations can be facilitated by incorporating relevant strategies into the suite of policy alternatives early on (Howden et al., 2010; Park et al., 2012). The policy literature is, however, inconclusive on whether policymakers prefer incremental changes under conditions of uncertainty or innovation when necessary through transformative and radical policy shifts.

Recognizing this research gap, this panel invites theoretical and empirical papers that will analyse factors

influencing socio-technical transitions and the policy mix of incremental and transformative choices in various sectors likely to face high levels of uncertainty in the future policy contexts. These papers can cover relevant sectors such as energy, water, transportation, agricultural production, urban development and ICT among others.

References

- Geels, F.W., 2004, 'From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory', *Research Policy*, 33 (6-7), pp. 897-920
- Heazle, M., P. Tangney, P. Burton, M. Howes, D. Grant-Smith, K. Reis, and K. Bosomworth. 2013. "Mainstreaming Climate Change Adaptation: An Incremental Approach to Disaster Risk Management in Australia". *Environmental Science and Policy*. 33: 162
- Howden SM, Crimp S, Nelson RN., 2010. Australian agriculture in a climate of change. In 'Managing Climate Change: Papers from GREENHOUSE 2009 Conference'. (Eds I Jubb, P Holper, W Cai) pp. 101–112. (CSIRO Publishing: Melbourne)
- Howlett, M., and Lejano, R. P. (2013). Tales from the crypt: The rise and fall (and rebirth?) of policy design. *Administration & Society*, 45(3), 357-381.
- Majone, G. (2006). Agenda setting. In Moran et al. (eds.), *The Oxford Handbook of Public Policy*. Oxford University Press. 228-250.
- Park SE, Marshall, N. A., Jakku, E., Dowd, A. M., Howden, S. M., Mendham, E., & Fleming, A., 2012. Informing adaptation responses to climate change through theories of transformation. *Global Environmental Change* 22:115–126.
- Pelling M., (2011), *Adaptation to climate change: from resilience to transformation*. Routledge publishers, United Kingdom.
- Smith M S, Horrocks L, Harvey A and Hamilton C, 2010. Rethinking adaptation for a 4° C world. *Philosophical Transactions of the Royal Society*, 2011.
- Swanson, D. and S. Bhadwal (Eds.), 2009. *Creating Adaptive Policies: A Guide for Policymaking in an Uncertain World*, Sage, New Delhi/IDRC, Ottawa.
- Taeihagh, A., Bañares-Alcántara, R., and Givoni, M., 2014, A virtual environment for formulation of policy packages, *Transportation Research Part A*, Volume 60, February 2014, Pages 53–68
<http://dx.doi.org/10.1016/j.tra.2013.10.017>
- Taeihagh, A., Bañares-Alcántara, R., and Millican, C., 2009, Development of a Novel Framework for the Design of Transport Policies to Achieve Environmental Targets, *Computers and Chemical Engineering*, 2009,
<http://dx.doi.org/10.1016/j.compchemeng.2009.01.010>
- Taeihagh, A., Givoni, M., and Bañares-Alcántara, R., 2013, Which policy first? A network-centric approach for the analysis and ranking of policy measures, *Environment and Planning B: Planning and Design* 40(4) 595 – 616,
<http://dx.doi.org/10.1068/b38058>

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Chair : Araz Taeihagh (National University of Singapore)

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Session 1 Theoretical Discussions

Wednesday, June 28th 14:00 to 16:00 (Li Ka Shing LKS 1 - 2)

Discussants

Kaveri Iychettira

Sreeja Nair (National University of Singapore)

The politics of policy mix evolution: Towards a conceptual framework of policy mix feedbacks in socio-technical transitions

Duncan Edmondson (Hertie School of Governance)

Florian Kern (University of Sussex)

Karoline Rogge (University of Sussex)

Preparing for socio-technical transitions: Opportunities and challenges for policy design

Sreeja Nair (National University of Singapore)

Araz Taeihagh (National University of Singapore)

Of Technocrats and Believers - Factors Driving Instrument Selection in Complex Transitional Settings

Lorenz Kammermann (Eawag & University of Bern)

Karin Ingold (University of Bern)

The evolution and effects of policy mixes for low-carbon energy transitions

Tobias Schmidt (ETH Zurich)

Sebastian Sewerin (LKY School of Public Policy, National University of Singapore)

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Session 2 Applied Cases

Wednesday, June 28th 16:15 to 18:15 (Li Ka Shing LKS 1 - 2)

Discussants

Duncan Edmondson (Hertie School of Governance)

Towards a comprehensive policy for electricity from renewable energy: A Structured Design Approach

Kaveri Iychettira

Designing policy mixes for complementariness: Lessons from building energy efficiency programmes in New York, Tokyo, Seoul and Sydney

Gregory Trencher (Tohoku University)

Shifting gears to post carbon living: tracking the socio-technical transitions in renewable energy policy in Australia

Yvonne Haigh (Murdoch University)

Connecting policy for a low carbon future

Alastair Stark (University of Queensland)