

Course title: Sustainable Urbanization				
Course code: PPS196	No. of credits: 2	L-T-P: 26-0-8	Learning hours: 30	
Pre-requisite course code and title (if any): None				
Department: Policy Studies				
Course coordinator: Prof Shaleen Singhal		Course instructor: Prof Shaleen Singhal		
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Course Type: Core		Course offered in: Semester 2		
Course Description				
<p>Urban centres have become the major hub for economic growth and proliferation. In 2008, more than 50% of the total world's population was living in urban areas and by 2050 this percentage is expected to reach 70%. Hence, urban areas are expected to accommodate this population growth in future. Cities require natural resources, energy, raw material, food and goods to sustain the daily life of their inhabitants and their economic activities. Due to rapid urbanization and population growth in cities in India, there exists a significant pressure on natural resources within city and its rural catchment. To progress on path of sustainability, cities are aiming to adopt policies and strategies that support in optimizing the use of resources, minimize climate change impact and facilitate development of a circular path that balances increasing consumption pattern with changes towards sustainable lifestyle. This calls for mainstreaming sustainable consumption and production (SCP) practices through predominant development sectors in cities. In context, this course examines the phenomenon of SCP relating to cities.</p>				
Course objectives				
<ul style="list-style-type: none"> ▪ To highlight the significance of sustainable consumption and production (SCP) and resource efficiency relating to cities in emerging economies such as India. ▪ To impart knowledge on strengths and weaknesses of existing city development policies and strategies and linkages to SCP with focus on key sectors (such as built environment, transport, basic services and industries). 				
Course content				
Module	Topic	L	T	P
1.	<p>Introduction to SCP and cities</p> <p>This module on 'Introduction to SCP and cities' provides the context to urbanisation theme in relation to the SDGs and in particular the SDG 11 (Sustainable Cities And Communities) and SDG 12 (Responsible Consumption)</p> <p>The subtopics of this module shall relate to:</p> <ul style="list-style-type: none"> ▪ Phenomenon of SCP in relation to urban centres; discourse relating to resource efficient, smart and productive, and climate compatible cities ▪ Governance and policy planning and the role of local institutions in realizing transitions towards sustainable living and behavioral change ▪ Sectoral challenges and strategies, examples. 	6	0	4
2.	<p>Planning and management for resource efficient and resilient cities</p> <p>This module on 'planning and management for resource efficient and resilient cities' highlights the challenges and planning and management strategies for sustainable cities</p> <p>The subtopics of this module shall relate to:</p> <ul style="list-style-type: none"> • Urban sustainable development and redevelopment; process 	3	0	0

	<p>of planning & management and role of key actors (as citizens, planners, politicians, officials, consultants, developers, contractors etc.) towards resource efficiency and decoupling.</p> <ul style="list-style-type: none"> • Strengths and weaknesses of existing city development and management policies • Exemplars for integrated planning for sustainable urban development 			
3.	<p>Sustainable construction and buildings This module on ‘Sustainable construction and buildings’ focuses on the particular sector of construction and buildings in context of sustainable cities.</p> <p>The subtopics shall relate to:</p> <ul style="list-style-type: none"> ▪ Overview of the building and construction sector in India: existing growth and future scenario ▪ Existing policies and regulations relating to energy and material consumption within building sector (as Sustainable Habitat Mission, Energy Conservation Building Code 2007, Construction and Demolition waste management rules etc.) ▪ Certification system for resource efficient buildings in India (as GRIHA and LEEDS) 	4	0	0
4.	<p>Sustainability in urban transport This module on ‘Sustainability in urban transport’ focuses on the particular sector of transport in cities</p> <p>The subtopics shall relate to:</p> <ul style="list-style-type: none"> ▪ Overview of the transport sector – scenarios and challenges ▪ Sustainable urban transport and policy linkages (as National Urban Transport Policy 2014, parking policy, congestion pricing etc.) ▪ Strategies and regulations for sustainability in transport (land use and transport planning; planning public transit integrated with non-motorised transport systems) 	4	0	0
5.	<p>Infrastructure and services This module on Infrastructure and services focuses on the particular sector of Infrastructure and services.</p> <p>The subtopics shall relate to:</p> <ul style="list-style-type: none"> ▪ Focus on Key services with potential of district systems and actions to contribute to SCP and resilience to climate change in cities. ▪ Municipal waste management - strengths and weaknesses of existing policies, regulations; national and global best practices ▪ Water supply and Sanitation: water demand management; implications of initiatives as National Urban Sanitation Policy, Swachh Bharat Mission etc. on SCP in cities; indigenous exemplars ▪ Energy: Energy scenario of cities in India, current and future 	6	0	4

	energy consumption and energy mix, appraisal of policy initiatives ▪ Benchmarking performance			
6.	Sustainable industrial development This module on ‘Sustainable industrial development’ focuses on the particular sector of Infrastructure and services. The subtopics shall relate to: ▪ Industrial ecology and development through symbiotic relationships ▪ Development policies and strategies and linkages to SCP through industrial establishment in and around cities	3	0	0
	Total	26	0	8

Evaluation criteria:

Course assessment will be conducted through:

Test I (35%): Presentation on sector identification, rationale, preliminary analysis of data and relevant case examples – structure (Module 1 and 2)

Test II (65%): Report/Research paper on sectoral analysis relating to an identified urban setting. (Module 3 to 6)

Learning outcomes:

On successful completion of this course, the students shall

- Be able to appreciate the significance of sustainable consumption and production and resource efficiency in context of complexities relating to urbanisation and its linkages to sustainable development in cities.
- Be able to examine city development sectoral policies and strategies and their linkages to SDGs such as the SDG 11 (Sustainable Cities And Communities) and SDG 12 (Responsible Consumption and Production)

Pedagogical approach:

The course will be delivered through a mix of classroom lectures, brainstorming tutorial and presentation sessions and study visit.

Materials:

Required text:

Suggested readings:

Module 1 and 2:

1. Fedrigo, D. and Hontelez, J., 2010. Sustainable consumption and production. Journal of Industrial Ecology, 14(1), pp.10-12. Available at: <https://pdfs.semanticscholar.org/8b0a/610799816ebe4373aad364c7e4ad5b355909.pdf>
2. Lehmann, H. and Rajan, S.C., 2015. Sustainable Lifestyles. Pathways and Choices for India and Germany. Available at: https://www.researchgate.net/profile/Sudhir_Rajan/publication/289522018_Sustainable_Lifestyles/inks/568e3f6108ae78cc0515575a.pdf
3. Low-Carbon Green Growth in Asia Policies and Practices: A Joint Study of the Asian Development Bank and the Asian Development Bank Institute. 2013. Available at: <http://www.adb.org/publications/low-carbon-green-growth-asia-policies-and-practices>
4. Rebitzer, G., Ekvall, T., Frischknecht, R., Hunkeler, D., Norris, G., Rydberg, T., Schmidt, W. –P.,

- Suh, S., Weidema, B.P., and Pennington D.W., 2004. Life cycle assessment: Part 1: Framework, goal and scope definition, inventory analysis, and applications, *Environment International*, 30 (5): 701-720. Available at: <http://www.sciencedirect.com/science/article/pii/S0160412003002459>
5. Singhal, S. Berry, J. and McGreal, S. 2010. Linking regeneration and business with competitiveness for low carbon cities: lessons for India. In *India Infrastructure Report 2010: Infrastructure*
 6. Smith, A. 2007. *Sustainable cities*. London: Franklin Watts.
 7. Tukker, A., Cohen, M.J., Hubacek, K. and Mont, O., 2010. Sustainable consumption and production. *Journal of Industrial Ecology*, 14(1), pp.1-3. Available at: https://s3.amazonaws.com/academia.edu.documents/34557519/JIE_SCP_Editorial.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1507887160&Signature=4QPrIQ2BqPrVvtEePsF%2FmCORdsU%3D&response-content-disposition=inline%3B%20filename%3D2010_Editorial_Sustainable_Consumption_a.pdf
 8. Vergragt, P.J., Dendler, L., de Jong, M. and Matus, K., 2016. Transitions to sustainable consumption and production in cities. *Journal of Cleaner Production*, 134, pp.1-12. Available at: <http://www.sciencedirect.com/science/article/pii/S0959652616305054>
 9. Akenji, L. and Bengtsson, M., 2014. Making Sustainable Consumption and Production the Core of the Sustainable Development Goals, *Sustainability*, 6 (2014): 513-529. Available at: <http://www.mdpi.com/2071-1050/6/2/513>
 10. Bhattacharya, S., Rathi, S., Patro, S.A. and Tapa, N., 2015. *Reconceptualising smart cities: a reference framework for India*. Bangalore: Center for Study of Science, Technology and Policy (STEP). Available at: http://niti.gov.in/writereaddata/files/document_publication/NITI%20Aayog%20Workshop%2020092015%20Presentation%20by%20CSTEP.pdf
 11. Chourabi, H., Nam, T., Walker, S., Gil-Garcia, J.R., Mellouli, S., Nahon, K., Pardo, T.A. and Scholl, H.J., 2012, January. Understanding smart cities: An integrative framework. In *System Science (HICSS), 2012 45th Hawaii International Conference on* (pp. 2289-2297). IEEE. Available at: <http://ieeexplore.ieee.org/abstract/document/6149291/?reload=true>

Module 5:

1. Chiu, S.F., Ward, J. V., and Massard, G., 2009. Introduction to the special issue on Advances in Life- Cycle Approaches to Business and Resource Management in the Asia-Pacific Region, *Journal of Cleaner Production*, 17(14): 1237-1240. Available at: <http://www.sciencedirect.com/science/article/pii/S0959652609001383>
2. *Green Public Procurement in Bhutan (GPP Bhutan)*, 2015. Executive Summaries of Year 1 Activity Reports. Available at: <http://gppbhutan.bt/project-publications>

Module 6:

1. Singhal, S. and Kapur, A. 2002. *Industrial Estate Planning and Management in India - an Integrated Approach towards Industrial Ecology*. *Journal of Environmental Management*, Elsevier.
2. UNEP. 2015. *District energy in cities: unlocking the potential of energy efficiency and renewable energy*. Available at: <http://districtenergyinitiative.org/report/DistrictEnergyReportBook.pdf>
3. Von Weizsäcker, E.U., de Lardereel, J, Hargroves, K., Hudson, C., Smith, M., Rodrigues, M., 2014. *Decoupling 2: technologies, opportunities and policy options. A Report of the Working Group on Decoupling to the International Resource Panel*.

Case Studies:

Websites:

Intended Nationally Determined Contributions to UNFCCC; Online at:
http://unfccc.int/focus/indc_portal/items/8766.php

SCP Clearinghouse

The Global SCP Clearinghouse is a unique one-stop hub dedicated to Sustainable Consumption and Production (SCP) and convened by the United Nations Environment Programme (UNEP) acting as the Secretariat of the 10 Year Framework of Programmes on SCP (10YFP on SCP);

Online at: <http://www.scpclearinghouse.org/>

SCP Policies and the 10 Year Framework Programme, UNEP; Online at:
<http://www.unep.org/resourceefficiency/Policy/SCPPolicies/tabid/55539/Default.aspx>

SWITCH-Asia projects funded by the European Union; Available at: <http://www.switch-asia.eu/projects/>

UNEP's Resource Efficiency Programme; Online at:

<http://www.unep.org/resourceefficiency/Home/Society/tabid/55529/Default.aspx>

UNIDO projects on cleaner production topics;

Available at: <http://www.unido.org/en/where-wework/asiaandthepacific/selected-projects.html>

Journals:

Other readings:

1. J.M., and Nathadwarawala, K.M., 2011. Sustainable Business Initiatives in the Context of Emerging Economies, In B. Unhelkar (Ed.), Handbook of Research on Green ICT: Technology, Business and Social Perspectives: 265-281. Available at: <http://www.igi-global.com/chapter/sustainable-businessinitiatives-context-emerging/48433>
2. Schandl, H. and West, J., 2010. Resource use and resource efficiency in the Asia-Pacific region. *Global Environmental Change*, 20(4), pp.636-647.
3. Shapiro, J.M., 2006. Smart cities: quality of life, productivity, and the growth effects of human capital. *The review of economics and statistics*, 88(2), pp.324-335. Available at: <http://www.mitpressjournals.org/doi/abs/10.1162/rest.88.2.324>
4. Sustainable Consumption and Production in the Proposed Sustainable Development Goals – A paper from the Inter-Agency Coordination Group (IACG) of the 10 Year Framework of Programmes on SCP (10YFP). June, 2014. Available at: www.unep.org/10yfp/Portals/50150/10YFP%20IACG.pdf
5. SWITCH-Asia Projects, Case studies. See: [http://www.switchasia.eu/publications/?tx_switchasia_publications\[category\]=3&cHash=187075de03e4a5e1f168fb8ab798b9fb](http://www.switchasia.eu/publications/?tx_switchasia_publications[category]=3&cHash=187075de03e4a5e1f168fb8ab798b9fb)
6. UNEP 2013. Capacity Building and Policy Needs Assessment for Sustainable Consumption and Production. Available at: http://www.switch-asia.eu/fileadmin/user_upload/RPSC/policy-assessment/Needs-Analysis-Final-report.pdf

7. UNEP, 2014. The Business Case for Eco-Innovation.
8. UNEP, 2015. Indicators for a Resource Efficient and Green Asia and the Pacific – Measuring progress of sustainable consumption and production, green economy and resource efficiency policies in the Asia-Pacific region. Schandl, H., West, J., Baynes, T., Hosking, K., Reinhardt, W., Geschke, A., and Lenzen, M. United Nations Environment Programme, Bangkok. Available at: http://www.switch-asia.eu/fileadmin/user_upload/RPSC/Publications/Indicator-for-a-E_Lowresolution_.pdf
9. UNEP, 2013. City-Level Decoupling: Urban resource flows and the governance of infrastructure transitions. Summary for Policy Makers. Swilling M., Robinson B., Marvin S. and Hodson M.
10. Wuppertal Institute for Climate, Environment and Energy, 2013. Lighting: Energy Efficient Lighting for Sustainable Development.
11. Zhao, W. and Schroeder, P., 2010. Sustainable consumption and production: Trends, challenges and options for the Asia-Pacific region, Natural Resources Forum, 34(1): 4-15. Available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1477-8947.2010.01275.x/pdf>

Additional information (if any): None

Student responsibilities: Attendance, feedback and discipline: As per University rules.

Course reviewers:

1. Mr Arab Hoballah, Team leader, SWITCH Asia SCP Facility, Bangkok, (Former Chief, Sustainable Lifestyles, Cities and Industry UNEP)
2. Prof. Shraavan Acharya, Centre for the Study of Regional Development, JNU