University of Hawai‘i at Manoa
Department of Urban and Regional Planning

PLAN 625: Climate Change, Energy and Food Security in the Asia-Pacific Region

Thursdays 6-8:30pm, Saunders 713

Instructor: Makena Coffman
Associate Professor
makena.coffman@hawaii.edu

Course Introduction: PLAN 625 is part of the Asia-Pacific Initiative (API), which coordinates through video-conference with universities throughout the Asia-Pacific region. This course will explore the issue of environmental sustainability in the Asia-Pacific region from a holistic perspective using climate change as a cross-cutting theme. Lectures are designed to provide a background in the environmental, social and economic effects of climate change and policy solutions including low-carbon development and renewable energy. Additional topics include the role of land-use planning, sustainable cities, environmental justice and policy coordination. This unique course combines a series of lectures over video-conference by academics and practitioners who have accumulated knowledge on the environmental issues on various sites in the Asia-Pacific and a series of presentations on chosen topics by the students.

In 2009, the German Advisory Council on Global Change stated that between now and 2050 not more than 750 billion tons of carbon dioxide from the combustion of fossil fuels may be emitted if dangerous climate change is to be avoided. At present, approximately 30 billion tons of carbon dioxide is being emitted worldwide annually. If emissions continue at this rate, the global budget will be exhausted by 2035. The Council recommended that emissions need to peak and decline rapidly from 2020 at the latest.¹

Even with the less than a 0.74°C rise in global surface temperatures in past century there is increasing evidence of the impact on climate change across the Asia Pacific region. A rise of over 2°C, above the level sufficient to cause dangerous climate change, could see much more significant impacts in the future.

On the energy front, a recent paper in Nature argued that crude oil production has not risen to match increasing demand from 2005 onwards. The authors stated that “…we are not running out of oil, but we are running out of oil that can be produced easily and cheaply.” In part this explains the spike in oil prices in July 2008 at US$147 per barrel, which brought on the financial meltdown and tipped the global economy into recession. Another study, by the UK Energy Research Centre in 2009 looked at 500 forecasts of future oil production and argued that there is a significant risk of a peak in oil production before 2020. After that date, oil production will be in terminal decline, and prices will move in the opposite direction.

The rise in oil prices in 2008 was directly linked to higher food prices that in turn resulted in food riots in 37 countries. It was a shocking wake-up call for the entire globe. Both rising oil prices and a changing climate could impact on our ability to feed the global population.

The three inter-connected issues - climate, energy and food - present immense and daunting challenges for the Asia Pacific region and the world as whole. They are further exacerbated by the fact that Asia Pacific is home to 65% of the global population. This population is growing rapidly and the region is the powerhouse for both global manufacturing and for consumption.

The question we now need to address in the region is whether the current development path is sustainable in the long term. It is the central concern for the students taking this course to consider: What is the optimal future direction of the Asia Pacific region in order to deal with the interconnected concerns for climate, energy and food security? A total transformation may be required in order to respond to these challenges, but the question remains as to how this transformation can be facilitated, what obstacles are we likely to face and how quickly we can move forward?

Collaborating Institutions: Asian Institute of Technology (Bangkok, Thailand), Keio University (Tokyo, Japan), University of the Ryukyus (Okinawa, Japan), United Nations University (Tokyo, Japan), University of Hawaii, and National University of Samoa.

Course Faculty:
Makena Coffman, University of Hawaii (makenaka@hawaii.edu)
Michio Umegaki, Keio University (umegaki@sfc.keio.ac.jp)
Abdul Salam, Asian Institute of Technology (salam@ait.ac.th)
Faainu Latu (f.latu@nus.edu.ws)
Kaori Kinjo, University of the Ryukyus (kaori@lab.u-ryukyu.ac.jp)
Brendan Barrett, United Nations University (barrett@unu.edu)

The local coordinator at each university has responsibility for supervision of their local students and for the evaluation of student assignments.

**Video conferencing and Online Learning (Moodle):** This course is offered via videoconference linking the classrooms real-time at each partner university. As a result, you will have direct access to experts from across the region. Be strategic in how you approach the videoconferencing and take advantage of this opportunity to raise questions and discuss topics with the lecturers and other students. Do not adopt a passive role, simply receiving information, but instead think critically and challenge what you are being taught. We appreciate that for many English is not your first language, but we encourage to engage with the lecturers, with your fellow students and you are required to write your ideas in English on the online forums.

It is also possible that you may not get all your questions answered during the lecture and so we encourage you to continue the discussions online after each class. All course materials are available via the course management system (Moodle). Students will be provided with a username and password as soon as the course starts and the Internet address to log on is: http://learn.unu.edu

Students will also have several assignments to complete that involve sharing information via Moodle. We encourage students go beyond seeing Moodle as simply an information archive, but to use it more as an opportunity to build new knowledge by asking questions and engaging in discussions with your fellow students on the course from diverse backgrounds.

The University of Hawaii provides technical support for the video conferencing. The course management system (Moodle) is managed by the United Nations University, including the enrolment of all students online. Should you encounter problems accessing or using Moodle, please contact Brendan Barrett (barrett@unu.edu) or your local coordinator.

**Student Learning Objectives:** The aim of the course is to provide students with
practical insights and up-to-date knowledge on the interconnected themes of climate, energy and food security, and to familiarise you with the extent of the challenges facing the Asia Pacific region as well as the global community and a variety of possible solutions.

The course will encourage students to critically discuss the science, politics and economics under-pinning climate change and to discuss aspects of mitigation and adaptation to climate change impacts.

The students will demonstrate advanced knowledge of (a) the human security discourse as it relates to climate, energy, food and development; (b) resource scarcity issues, particularly with reference to the emerging energy and food crisis; (c) global climate change and the multilateral regimes in place to respond to these challenges (d) extreme weather events, global and local meteorological changes.

The students will be able to: (a) address current developments and dynamics related to climate, energy and food security and monitor changes; (b) evaluate innovative approaches to the resolution and management of these issues; (c) make a critical judgment of the merits of particular arguments and a reasoned choice between alternative arguments; (e) work independently and collaboratively in planning and undertaking assignments.

The students will also build a comfort-level with video-conferencing and on-line resources as an educational and collaborative medium.

Course Requirements and Grading Policy: This is a seminar course and requires substantial class participation and preparation. Lecture readings will be provided via the UH online learning system Laulima and students are expected to prepare by completing readings prior to relevant lectures. There are several class assignments, including participating in an online discussion forum, “Moodle,” throughout the semester that will help students to better understand lectures and connect with the online course community. There is additionally a term paper and final class presentation.

Grading

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Moodle Assignments</td>
<td>25%</td>
</tr>
<tr>
<td>Oral Presentation</td>
<td>25%</td>
</tr>
<tr>
<td>Term Paper</td>
<td>40%</td>
</tr>
</tbody>
</table>

Term Paper: The term paper will be a “planning document” (widely interpreted) for
either climate change mitigation (i.e. greenhouse gas emissions reduction) or adaptation (i.e. dealing with the effects of accelerated climate change), drawing upon existing efforts and institutions in Hawaii or selected region. The paper should explore 1) trends, 2) successes & goals, 3) changes in policy and institutional developments, 4) gaps, and 5) barriers. The paper should focus on appropriate solutions and implementable mechanisms to achieve goals. The paper should review relevant government studies and planning documents that address climate change mitigation/adaptation (relevant to your topic) as well as academic literature. In sum, the paper should include a pertinent literature review, background on the planning environment, process, assessment of planning/policy possibilities and outcomes, recommendations and conclusions, and bibliography.

The required length is between 15-25 pages double-spaced (excluding graphs & references, i.e. text only). This paper is meant to give students both the opportunity to explore climate change from an actions and solution-oriented framework as well as advance analytical and writing skills. For questions on proper citation, please refer to *The Elements of Style* by William Strunk and E.B. White.

A topic proposal (1 page) will be due on October 24th. The final paper will be due in class on December 12th and will be returned with grades and comments on the 19th. Revised papers are due in class on January 16th, with the opportunity to raise grades by a full step (ex: B to A). Please submit topic proposal and comments back with final paper and any rewrite.

**Class Presentation:** Students will present their research and ideas in succinct 10-minute presentations. Presentations will be made during class on December 5, 12, and 19. An additional presentation session in early December will also be scheduled (TBD during the first class). Students will assess others presentations based substance and style (see criteria sheet below). These assessments will be given as feedback. After presentations are complete, there will be a majority voting process to select a presentation (or two) to represent UH and share with the API community (in January). The selected presentation(s) will receive an A+ for this portion of the grade.

**Assignments:**

**26/27 September: Carbon Footprint** – Calculate your carbon footprint and share it with the API community! Does the calculation well-reflect your lifestyle? Any surprises?

**Moodle Discussion Forums** – Participate in four guided discussions led by API coordinators. Discussion issues will speak to overarching themes of the course. Responses should be reasoned and researched (using class readings, amongst others, as supporting documents) with the purpose of engaging the online community.

**10/11 October: Related to Climate Justice**

**31/1 October: Related to Food Security**

**11/12 December: Related to Sustainability**

[Topics will be posted on these dates, discussion will occur within the following week.]

**November Exact TBA: No Impact Week (“Know Your” Impact Week)** – Track (and minimize) your environmental impact for a week. What’s low hanging fruit? What behaviors are hardest to change? Which can we keep up? Check out http://noimpactproject.org/
Presentation Criteria

Please reflect on your classmate’s presentations. Your responses will be summarized by the instructor and given to the individual as constructive feedback. Your responses should help you select the presentation you will vote for to represent UH to the API community.

1) Did the presented concept offer planning and policy solutions to climate change issues?

2) Is the idea supported by research and evidence? Could this be strengthened?

3) Did the presentation increase your knowledge of the topic?

4) Did the presentation increase your interest in the topic?

5) Was the presenter easy to understand?

6) Did the visuals enhance the presentation? If not, please provide comments on how to improve.

7) Will the presentation style translate well to the medium of video-conference?
## Tentative Class Schedule:

<table>
<thead>
<tr>
<th>Session</th>
<th>Date (East)</th>
<th>Topic</th>
<th>Lecturer</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>26-Sep</td>
<td>Introductions</td>
<td>All sites</td>
<td>Confirmed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Background and Course Outline</td>
<td>Makena Coffman (UH)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Environmental Discourses</td>
<td>Brendan Barrett (UNU)</td>
<td></td>
</tr>
<tr>
<td>Assignment</td>
<td></td>
<td></td>
<td>Students measure their carbon footprint</td>
<td></td>
</tr>
<tr>
<td>Session 2</td>
<td>3-Oct</td>
<td>Can we power down?</td>
<td>Brendan Barrett (UNU)</td>
<td>Confirmed</td>
</tr>
<tr>
<td>Session 3</td>
<td>10-Oct</td>
<td>Climate Justice</td>
<td>Maxine Burkett (UH)</td>
<td>Confirmed</td>
</tr>
<tr>
<td>Assignment</td>
<td></td>
<td></td>
<td>How does climate justice help us to frame the causes and effects of climate change?</td>
<td></td>
</tr>
<tr>
<td>Session 4</td>
<td>17-Oct</td>
<td>Climate Change and Global Sea Level Rise</td>
<td>Dolan Eversole (UH)</td>
<td>Confirmed</td>
</tr>
<tr>
<td>Session 5</td>
<td>24-Oct</td>
<td>Climate change from a small island perspective</td>
<td>Mr.Fata Sunny Seuseu (Principle Climate Change Officer)</td>
<td>Confirmed</td>
</tr>
<tr>
<td>Session 6</td>
<td>31-Oct</td>
<td>Climate Change and Coral Reefs</td>
<td>Takashi Nakamura (University of the Ryukyus)</td>
<td>Confirmed</td>
</tr>
<tr>
<td>Assignment</td>
<td></td>
<td></td>
<td>What is the food crisis? How do we understand food security? Why are one billion people still going hungry today?</td>
<td></td>
</tr>
<tr>
<td>Session 7</td>
<td>7-Nov</td>
<td>Long Term Emission Reduction Targets to 2050</td>
<td>Yasuko Kameyama, National Institute for Environmental Studies</td>
<td>Confirmed</td>
</tr>
<tr>
<td>Assignment</td>
<td></td>
<td></td>
<td>No Impact Week</td>
<td></td>
</tr>
<tr>
<td>Session 8</td>
<td>14-Nov</td>
<td>Climate change and agriculture</td>
<td>Michael Roberts (UH)</td>
<td>Confirmed</td>
</tr>
<tr>
<td>-----------</td>
<td>--------</td>
<td>-------------------------------</td>
<td>---------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Session 9</td>
<td>21-Nov</td>
<td>Green Buildings</td>
<td>Brahmanand Mohanty (AIT)</td>
<td>Confirmed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 10</td>
<td>5-Dec</td>
<td>Sustainable Cities</td>
<td>Dr. Shobakar Dhakal (AIT)</td>
<td>Confirmed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 11</td>
<td>12-Dec</td>
<td>Energy Shift Japan</td>
<td>Tetsunari Iida, Institute for Sustainable Energy Policies</td>
<td>Initial discussions have taken place, date to be confirmed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assignment</td>
<td></td>
<td></td>
<td>Imagine a sustainable society. What changes are needed to get there? Look at lifestyle issues. Consider energy. Take Japan as an example.</td>
<td></td>
</tr>
<tr>
<td>Session 12</td>
<td>19-Dec</td>
<td>Clean Energy Strategies and Small Island States - Experience in Hawaii and Okinawa</td>
<td>Makena Coffman (University of Hawaii) and Junichiro Tsutsumi (University of the Ryukyus)</td>
<td>Confirmed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 13</td>
<td>9-Jan</td>
<td>e-Compact city is a way to live within the limits of the earth</td>
<td>Yurika Ayukawa</td>
<td>Confirmed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 14</td>
<td>16-Jan</td>
<td>Student Presentations</td>
<td>&lt;Class Discussion&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 15</td>
<td>23-Jan</td>
<td>Student Presentations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
26/27 September 2013: Session 1: Introduction to the Course, Makena Coffman and Brendan Barrett

Homework: Get on Moodle and estimate your Carbon Footprint – share with the group. Any surprises?

3/4 October 2013: Session 2: Can We Power Down?, Brendan Barrett

Required Readings:


Recommended Readings:


10/11 October 2013: Session 3: Climate Justice, Maxine Burkett

Required Readings:


Recommended Readings:


17/18 October 2013: Session 4: Climate Change and Global Sea Level Rise, Dolan Eversole

Required Readings:


Recommended Readings:


24/25 October 2013: Session 5: Climate Change and from a Small Island Perspective, Fara Sunny Seuseu

Required Reading:


31/1 October/November 2013 – Session 6: Climate Change and Coral Reefs, Takeshi Nakamura

Required Readings:

Scientists identify 8 changes that precipitate collapse of coral reefs. Read online at: http://www.sciencedaily.com/releases/2011/09/110928152100.htm

Recommended Readings:


7/8 November 2013: Session 7: Long-Term Emission Reduction Targets to 2050, Yasuko Kameyama

Required Readings:


Recommended Readings:


14/15 November 2013: Session 8: Climate Change & Agriculture, Michael Roberts


Roberts, Michael J. and Wolfram Schlenker (2009 ). “World Supply and Demand of

21/22 November 2013 – Session 9: Climate Change and the Built Environment, Brahmanand Mohanty

Required Readings:


Recommended Readings:

Wen Hong et al. (2007). Building energy efficiency: why green buildings are key to Asia’s future, Edited by Margarethe P. Laurenzi, The Asia Business Council


5/6 December 2013 – Session 10: Sustainable Cities, Shobakar Dhakal

Required Readings:


12/13 December 2013 – Session 11: Energy Shift Japan, Tetsunari Iida

Required Readings:


Recommended Readings:

19/20 December 2013 – Session 12: Hawaii & Okinawa’s Energy Challenge, Makena Coffman and Junichiro Tsutsumi

Required Readings:


Recommended Readings:


9/10 January 2012 – Session 13: e-Compact City is the way to live within the limits of the Earth, Prof. Yurika Ayukawa

No assigned readings this week!
17/18 January 2012 – Session 14: Student Presentations

No assigned readings this week!

24/25 January 2011 – Session 15: Student Presentations

End of course!

End of the Course Evaluation:
Towards the end of the course, you will be asked to complete an evaluation of the course. Please note that you may not receive a course participation certificate if you do not complete this evaluation survey. The survey results also form the basis for on-going research on the effectiveness of the course.