Draft Syllabus for Spring 2015 (Expect updates)

General Course Information:
Course Title: "Disaster Risk Management and Sustainable Urban Resilience"
Tentative Class Time: Thur 4:10 to 6PM
Class Location: TBD

Instructor Information:
Klaus H. Jacob; Adjunct Professor, Earth Institute
Telephone Number: 845-365-8440
E-mail: khj1@columbia.edu
Office Hours: for 1 hour after class or by appointment via E-mail

Prerequisites:
None for CU Graduate students. Others by permission of Instructor.

Course Objectives:
The aim of this one-semester 3-point course is to provide students with insights and skills they need to manage 'natural' and man-made disasters during their professional careers. And manage these risks by trying to build sustainable resilience in communities and institutions at risk. Sustainable resilience is understood here as measures, both physical and social, that not only serve present but also future generations equitably, i.e. current resilience measures must not create undue liabilities for future generations.

The course provides a conceptual framework that should allow students to develop and include policies into their future professional activities with the aim to minimize the exposure of people or entire populations to disasters and foster the populations' sustained disaster resilience. Students upon completion of the course should:

- have some understanding of the power and size distribution of natural and technological processes that during extreme events can lead to disasters;
- understand that certain aspects of natural and technological hazards are predictable, while others are not;
- appreciate that the risks taken by society, whether willingly or unwillingly, can generally be quantified in advance, accepting some uncertainty;
- have gained a basic understanding how risks can be managed using certain tools before, during and after extreme events;
- understand that often well intended aid to communities, whether as societal, economic or engineered aid or relief projects, whether on a local, regional, national or international scale, can expose these communities to risks that were not intended or not carefully enough assessed in advance;
- gain some understanding of the primary institutions and organizations on national (US) and international scales, that explicitly or implicitly are involved in management of natural and man-made disasters;
- know how to deepen on their own their understanding of the complex interaction between nature, the built environment and vulnerable societies during disasters,

and improve their professional skills in risk management by introducing them to sources of information available on this subject in a wide variety of media;

• be able to cherish and apply the notion that disasters are manageable, and that as individuals and professionals we can make a difference, albeit mostly in incremental steps.

.

Method of Instruction. The FORMAT of the course is largely a series of instructor's lectures, a few guest lectures, student presentations, but also contains seminar-style discussions, the latter depending on the size of class. At the first 5 minutes of each session, disasters of the week (globally) and related political events may be discussed as events warrant. Please be prepared to bring relevant information to the class and present the information (and your own comments) to the class.

This course requires approximately a 4 to 5 hour effort per week during the semester, including assigned course tasks. It typically corresponds to about 1/5 of your total semester effort. This includes the weekly 2-hour class, assigned readings, preparation of a term-paper topic declaration (max. 2 pages), which provides a brief outline for the final paper; and the final term paper itself (max. 10 pages); plus a short presentation of your topic to the class (during reserved sessions towards the end of the course; see below important note under "Method of Evaluation"). The topic for the outline/oral presentation/final paper is chosen by each student according to his/her preferences (for declaration deadline see below), but needs to be discussed with, and approved by the instructor. I suggest that you have discussed your topic with the instructor in person, but definitely declared by E-mail, and approved by the instructor's return Email not later than for Lecture #4). This is VERY SOON into the course (4 weeks)! So start to work on choosing your topic, FIRST thing after Lecture #1 !! The choice of topic for your term paper is a tough decision to make so early, but necessary to allow you sinking your teeth into the chosen topic.. If you want, you can come with a tentative topic to the 1st lecture !

.

Student Tasks, Assignments, Deliverables and Grading:

The following items bear on this subject:

1. Class Participation and Reporting on Current Events. Students are expected to bring to class comments on and sources for current events that occurred during the prior week and are reasonably related to the course topic. Students should be prepared to present them during the first few minutes in each class. They may concern disasters globally, nationally or locally and any policy developments that relate to them; they may include short-term responses and long-term sustainability and resilience issues. Your performance in this and other class participation during the semester will contribute a **15%** weight to your overall course grade.

2) Term-Paper Outline (2pages). Students are expected to come up each with a topic of their own for their term paper; after the approval process with the instructor is completed (for timing see table near the end of the syllabus), they prepare a 2-page (approximately 600 words) paper summary that describes the title, objective, expected research approach, some expected key results (to be modified as subsequent research my require); and at least 5 key references of the

most pertinent sources that students expect to use. The grade for this effort will be weighted to contribute **15%** to the student's overall course grade.

3. Oral Presentation. Each student will make an oral presentation to the class about her/his chosen topic. It is up to the student whether she/he wishes to use audio-visual aids for the oral presentation. The purpose of this exercise is two-fold: i.) to get early feed-back from the class and instructor that can be still incorporated into the final term-paper (see item 4); and ii.) to present the essence of a research project and its key findings and recommendations in an assigned very short time (just a few minutes). This is a skill that needs to be honed for life. This effort will be weighted to contribute **30%** of the total course grade.

4. Final Term Paper. At the end of the course, each student will deliver her/his term paper on the chosen (and early-on approved) topic. The length of the paper will be limited to at most 10 pages (12-font / 1.5 line spacing for text, 11-font / single line spacing for figure and table captions and for references). The 10-page limit includes and figures, tables, footnotes and references. The length limitation will be strictly enforced, again largely to help students to learn how to focus on the essence of their research, results and recommendations, and summarize these efforts in clear and crisp writing together with clear organization and formatting. This final effort will contribute the remaining **40%** of the total course grade for each student.

The combination of the 4 deliverables will allow the students to show whether they have fully digested and understood the tools and methods for hazard and risk assessment and for disaster risk management as taught in this course (and are made available on its *CourseWorks* website); and to what degree the students are able to use skillfully the policy options for attaining sustainable urban resilience that were discussed during this course, but need to be fine-tuned to each case chosen by each student for his/her term paper topic. Note the table near the end of the syllabus for the dates when the deliverables are due, together with a summary that repeats for how each of the 4 deliverables contributes to the overall course grade. Each of the 4 items above will be graded on a point scale of 1 to 100 points. After weighting and combining them, the final point scale (100 points max.) will be translated into a letter grade that then will be entered in the student's record held by the University's Registrar.

Course ID Number (TBD): Disaster Risk Management and Sustainable Urban Resilience.

DETAILED COURSE DESCRIPTION: see:
https://courseworks.columbia.edu/…….. (TBD)
(Key Words: Disasters, Risk, Vulnerability, Resilience, Sustainability, Governance, Civilization, Urban Planning, Landuse, Infrastructure, Sustainable Development). 3-Point Course, 15 Sessions, Spring 2015

Thu 4:10-6PM

LOCATION: TBD
Office Hours: for 1 hr. after class or by appointment via E-mail

COURSE BACKGROUND-INFORMATION & KEY ISSUES:
"Natural and other disasters exert a high toll on the lives, livelihoods and economic development of many countries - especially of poorer ones, and on the poorest sectors of populations within otherwise quite developed countries. Annual economic losses associated with natural disasters alone averaged $ 75.5 billion in the 1960s, $ 138.4 billion in the 1970s, $ 213.9 billion in the 1980s and $ 659.9 billion in the 1990s, and continue to rise rapidly [into the trillions] in the 2000s. While the majority of these asset losses are concentrated in the developed world, they fail to adequately capture the impact of the disaster on the poor who often bear the greatest cost in terms of lives, livelihoods, and of rebuilding their shattered communities and infrastructure. Today, 85 percent of the people exposed to earthquakes, tropical cyclones, floods and droughts live in countries having either medium or low human development" (Quote from UNDP, 2004, but still valid, or even more so since the Indian Ocean Tsunami, Fukushima, Katrina, Sandy and other events).

Disasters, whether of natural or man-made origin, reflect and amplify preexisting social stresses. Successes or failures to manage the risks from disasters and reducing their impacts depend on how well the local context for the physical and social conditions are understood and accounted for. Natural and technological disasters, as opposed to civil strife, war, or public health pandemics occur when natural or technological processes impose overwhelming forces on a vulnerable society during extreme events.

NATURAL hazards are normal, albeit extreme events of the Earth's dynamics. Causes for natural disasters can include rapid- and slow-onset events or processes. They include draughts, floods, storms, heat waves, cold spells, landslides, earthquakes, tsunamis, volcanic eruptions and other natural processes. Hazards associated with climate change are partly natural and partly man-made. Because the underlying process is gradual and global, yet can be locally diverse or sudden, they require special efforts by the scientific community to convey the associated risks.

EXTREME natural and man-made events become disasters only when they affect exposed vulnerable societies. Vulnerability, or lack of resilience, can be caused by many social factors, but includes high concentration of populations or assets in harms way. Vulnerability differs fundamentally between more developed countries (MDCs) and less developed countries (LDCs), and on a smaller scale, between affluent and deprived sectors within diverse communities. In LDCs, vulnerability is associated with poverty, inequity, and lack of access to coping resources and information, or with greed that may place people or entire populations into harm's predictable way. Public and private institutions often lack the political capacity, the will, or the resources to build sufficient disaster resilience by persistent assessment, planning and sustained risk-mitigating actions.

SUSTAINABLE URBAN RESILIENCE: To build disaster-resilient urban institutions and communities requires a comprehensive understanding of their social and physical vulnerabilities before remedies to build resilience can be attempted. Often the seemingly easiest measures to build resilience are protective rather than adaptive, but many of them tend to make communities in the long term even more vulnerable (e.g. building dams, dikes and levees that may be overtopped by a combination of future severe storms and rising sea level fuelled by global climate change). The course will emphasize the importance of social resilience rather than relying primarily on physical resilience whether protective or adaptive in nature.

In this Course we pose the following questions: Are disasters the result of an unresolved dichotomy between long-term persistence of natural and cultural processes, vs. the short-term horizon of political perceptions and shortsighted development decisions? Are disasters scientifically "predictable"? How do urbanization and industrialization increase human vulnerability to natural and technological hazards or even create new hazards? How do the effects of disasters differ in less vs. more developed countries and cities? How can the risks be assessed and managed? How does disaster risk management relate to sustainable development?

We assess science-, technical, policy- and humanitarian needs and opportunities for pre-event mitigation and preparedness and post-event relief and recovery. We explore the role of global economic development to the rapidly increasing risk exposure. Some of this development is unsustainable. Some development is promoted via loans to developing countries for large infrastructure projects. Some loans are made after major disasters to restore or develop needed infrastructure. Many of these projects are not properly assessed for the existing hazards to which they are exposed, or for the new risks they generate. How can external disaster relief best serve indigenous needs to sustain livelihoods, and help to build the locally needed resilience and coping capacity? Under what conditions can disaster mitigation become a local and global cultural value with equitable effects? Can disasters be managed without first solving all other societal ills of the affected region? Can science and engineering make a unique contribution to reduce risk exposure and directly build local capacity and disaster resilience, without having to submit to sometimes oppressive or uncivil political norms?

Students are challenged to find their own answers to some of these questions using their own research and reasoning but assisted and guided by a formal framework of tools and concepts provided by this course and enriched by guest lectures.

TEXT BOOKS AND CLASS MATERIAL:

There is only one required course book (Wisner et al., see below). This book is available by ordering it from used-book stores over the Internet (check out http://books.google.com). Either buy new or used editions, or lend from libraries, but read! I recommend you consider buying used copies over the net or from other

sources quite cheaply. I am not obsessed with you using the latest edition of the textbooks, even if they are listed as such in the references below.
This and any other below listed book recommended for this course should be intensively studied in conjunction with individual lectures as noted below. Additional reading and supporting materials, and all full PowerPoint Lectures will be posted on the CourseWorks (CW) website at latest 2 days before the day of each lecture.

THE ONLY REQUIRED COURSE TEXT BOOK IS:
Wisner, B., P. Blaikie, T. Cannon & I. Davis: "At Risk: Natural Hazards, People's Vulnerability, and Disasters. Routledge; 2004 (2nd Edition). ISBN 0-415-25216-4 (pbk); $71.95. (as of 2012). (Note: from Amazon.com used copies were available at $35.95 and up, as of Oct 2012). Older editions of the book go under a DIFFERENT author sequence. Stay with the above! A limited page by page preview can be done (copyrighted) from:
http://books.google.com/books?id=qMmvGH1Ce64C&printsec=frontcover#v=onepage&q&f=false

Additional, Recommended Books/Reports You should read for this course (needs update):
1) **Abbott,** Patrick L.: "Natural Disasters". 7th Edition. McGraw-Hill, (if new, around $130 !!. Cheaper used copies, of this or earlier editions can be obtained from your favorite used-book source (or Amazon.com); an 8th edition may be out by now.
2) **Birkmann,** J. (Editor) Measuring vulnerability to natural hazards: towards disaster-resilient societies. Tokyo, New York: United Nations University Press, c.2006, 524 p., [24] p. of plates. Alternatively:
(a) Click on this course's Library Reserve Link and choose E-book reserve where a copy of this book can be browsed, albeit only page by page. Printouts of more than one page are a bit cumbersome, and even browsing the book is wieldy.
(b) See PDF file Research Brief written by J. Birkmann, United Nations University 2005. Go to download-website(s):
http://www.ehs.unu.edu/article/read/unu-press-publications
http://www.ehs.unu.edu/index.php/article:175
go to bottom of site and click on "Download the full version of the Research Brief" to download full .pdf file from: http://www.ehs.unu.edu/file/get/3913
3) **Perrow,** Charles: "Normal Accidents. Living with High-Risk Technologies". Basic Books (US), 1999. pp. 386.
4) **SIRR** Report NYC (June 2013).
5) **ClimAID** Report http://www.nyserda.ny.gov/climaid
download by Chapter !
6) **HUD/ RBD** Competition Reports and Material: Rebuild by Design:
http://www.rebuildbydesign.org/
7) **Bosher,** Lee (Editor): "Hazards and the Built Environment – Attaining Built-In Resilience". 382 pages. Routledge, London & New York. 2008. ISBN 978-0-415-42730-2 (Paperback).
8) **Klinenberg**, Eric: Heat Wave: A Social Autopsy of Disaster in Chicago. University

of Chicago Press, 2003.
9) Thompson-**Fullilove**, Mindy: Root Shock. How Tearing up city neighborhoods hurts America, and what we can do about it. One World Ballantine Books, New York. 2004.
10**) Jacobs**, Jane: The Death and Life of Great American Cities. Random House, New York, 1961 (and later editions).

Here is the list of books that will be likely to be reserved for this course

Author	Title	Link/call number
Abbott, Patrick L.	Natural disasters	GB5014 .A24 2004
Birkmann, Jörn.	Measuring vulnerability	E-Reserves
Birkmann, Jörn.	Measuring vulnerability	GB5014 .M4 2006.
Bosher, Lee	Hazards & Built Env.	TH441 .B67 2008
Perrow, Charles	Normal accidents	T54 .P47 1984
Wisner, Benjamin	At risk	GB5014 .A82 2004

INDIVIDUAL SESSION OUTLINES:

Thu 1/22; Session 1: Course Overview, Vision, Course Tasks, Resources, Format, Student Topic & Team Options. Basic Definitions: Peril, Hazard, Risk, Vulnerability, Resilience, Sustainability. The Role of Cities.
REQUIRED READING: (You are strongly advised to read this prior to the 1. Lecture):
• Wisner et al: Part 1: Framework and Theory; pp. 1-124.
HIGHLY RECOMMENDED READING:
• Abbott: Natural Disasters, Chapter 1 and Chapter 16.
• Material in CourseWorks Lecture-1 Folder

Thu 1/29; Session 2: Natural Disasters 1 and Key Vulnerabilities (Geophysical Hazards: mostly Earthquakes including Tsunamis, Volcanoes, Landslides)
REQUIRED READING:
• Wisner et al.: Part 2, Chapter 8 on Earthquakes & Volcanoes.
RECOMMENDED READING
• Abbott: Chapters 2 through 8; Earth's Energy Flow, Plate Tectonics, Earthquakes, Volcanoes;
• Material in CourseWorks Lecture-2 folder

Thu 2/05; Session 3: Natural Disasters 2 and Key Vulnerabilities (Hydrological and Weather Related Hazards: mostly Floods, Droughts, Wild Fires, Tornados, Tropical Storms, Winter Storms).
REQUIRED READING:
• Wisner et al: Part 2, Chapters 6 and 7, Floods and Coastal Storms;
RECOMMENDED READING:
• Chapter 3 of
http://siteresources.worldbank.org/INTDISMGMT/Resources/0821363328.pdf?resourceurlname=0821363328.pdf WB: Natural Disasters Hotspots, Case Studies: Ch. 3

– Storms in Coastal Areas.
• Abbott: Chapters 11,13, 14: Severe Weather, Hurricanes, Floods
• Material in CW Lecture-3 Folder.

Thu 2/12: Session 4: Natural Disasters 3 Climate Change (trends; mitigation vs. adaptation), Sea Level Rise, Coastal Risks; Uncertainties; IPCC, NPCC; Flexible Planning & Adaptation; Time Horizons.
REQUIRED READING:
• Wisner et al.: Part 2; Chapter 4, pp. 126-166 (Droughts, Famines).
• Attached 2009 Synthesis Report for Copenhagen Climate Summit, also downloadable from: http://www.pik-potsdam.de/news/press-releases/files/synthesis-report-web.pdf
RECOMMENDED: Chapter 1 of http://siteresources.worldbank.org/INTDISMGMT/Resources/0821363328.pdf?resourceurlname=0821363328.pdf
• Abbott: Chapters on Draughts, Wildfires, Climate Change. (Section in Chapters 9, 10, 13).
• Material in Session 4 folder of the CW class folder.

IMPORTANT NOTE: At latest by today you should have discussed with instructor in person, and submitted to him by E-mail, and have approved by same via return E-mail, your choice of topic of your term paper, whose formal 2-page declaration/outline is due a week from today.

Thu 2/19: Session 5: Disaster Risk Management (DRM) 1: Risk Equation and Implications (Landuse & Zoning vs. Codes & Engineering), Basic Options (Protection, Adaptation, Relocation); Intergenerational Justice; Time Horizons and Sustainable Resilience.
REQUIRED READING: TBD
• See files in CW for this session 5.

IMPORTANT NOTE: Today, at the start of Session 5, is the deadline for handing in your 2-page OUTLINE of your declared and approved Term Paper Topic (2-pages max.: title and statement of topic, brief outline, 1 Figure optional, and at least 5 key references).

Thu 2/26: Session 6: DRM 2: The Legal + Regulatory Framework, Role of Governments (Local, State, Federal). UN, IGOs & NGOs. Development Banks, Insurance/Reinsurance, Home Rule. Policies & Politics -- National & International. Global Trends.
REQUIRED READING: TBD
RECOMMENDED READING:
See files in CW for this session 6.

Thu 3/05: Session 7: DRM 3: Urban Forms, Stages of Development, Infrastructure, Urban Vulnerability & Resilience. The Role of Urban Planning and Design.
REQUIRED READING: TBD
RECOMMENDED READING: see files in CW for this session 7

Thu 3/12: Session 8: Societal Factors of Vulnerability & Resilience (with planned Guest Lecture GL-1)
REQUIRED READING: TBA on CourseWorks;
RECOMMENDED READING: see files in CW for this session.

Thu 3/19: Session 9: Post-Event Rebuilding Programs; e.g. post-Katrina & Sandy, SIRR, RBD. (combined with planned GL-2)
REQUIRED READING: SIRR Report for NYC, HUD/RBD reports as detailed on CourseWorks.
RECOMMENDED READING: see files in CW for this session 9.

Thu 3/26: Session 10: International, City Based Resilience Efforts: C40/60, RF: 100 Resilient Cities (combined with planned GL-3)
REQUIRED READING: TBA on CourseWorks
RECOMMENDED READING: see files in CW for this session 10.
IMPORTANT NOTE: Today, 9AM (!) is closure time for choosing the date for your individual or team presentation of your course topic. If you have not declared your presentation date, you will be assigned to a date (Session 12 through 14) by the instructor.

Thu 4/02: Session 11: Private Sector Dynamics: Insurance, Real Estate, Developers (combined with planned GL-4).
REQUIRED READING: TBD
RECOMMENDED READING:
see files in CW for this session and browse URLs in S11_URLs.doc.

Thu 4/09: Session 12: Student/Team Topic Presentations/Discussions 1
Check out posted presentations in Course Works.

Thu 4/16: Session 13: Student/Team Topic Presentations/Discussions 2
Check out posted presentations in Course Works.

Thu 4/23: Session 14: Student/Team Topic Presentations/Discussion 3;
(if not needed, then we will have a Guest Lecture GL-5 on Topic TBD)
Check out posted presentations in Course Works.

Thu 4/30: (Last) Session 15: Course Recap and Final Course Discussion. How do you use this Course?
REQUIRED READING: TBD
OPTIONAL READING: Revisit from Session 1: IFCR World Disaster Report 2010 or download from:
http://www.ifrc.org/Global/Publications/disasters/WDR/WDR2010-full.pdf plus: files in CW for this session 15
IMPORTANT NOTE: same day (4/30) is Term Paper Due Date. Deliver your hardcopy paper in person to instructor in classroom at the beginning of class and

have uploaded a PDF-file copy of it electronically on the CourseWork. Prior to class. No exceptions, no excuses "the printer broke down" etc. no late submissions, whether hard- or soft copy or otherwise!!. The instructor will travel after this date. If you cannot make it to class that day, allow a friend to deliver it in person; or hand in your paper at the prior class, one week EARLIER: Session 14, Thu 4.23; In this case, plan ahead!

REFERENCES (Incomplete, expect update):

Some are required reading, some are optional, as indicated for individual Sessions on Courseworks. If they are not downloadable files, check out books from combined CU/Barnard Libraries; this list is in alphabetic order, not sequenced by other priorities:

Abbott, Patrick L.: "Natural Disasters". 7th or later Edition. McGraw-Hill

Birkmann, J. (Edit.) Measuring vulnerability to natural hazards: towards disaster resilient societies. Tokyo, New York: United Nations University Press, Dec. 2006, 524 p. [24 p. of plates]. (available on Course's E-Reserve !)

Bosher, Lee (Editor): "Hazards and the Built Environment – Attaining Built-In Resilience". 382 pages. Routledge, London & New York. 2008. ISBN 978-0-415-42730-2 (Paperback).

Burby, Raymond J., Cooperating with Nature. Joseph Henry Press, Washington, D.C.; 1998; pp.356.

Burton, Ian; Kates, Robert W., and White, Gilbert P., The Environment as Hazard. 2nd revised Ed. New York: The Guilford Press: 1993. 290 pp.

Coch, Nicholas K., Geohazards - Natural and Human. Prentice Hall, Englewood Cliffs, NJ.: 1995 pp. 481.

Cardona, O.D. 2005: Indicators of Disaster Risk and Risk Management: Program for Latin America and the Caribbean. Summary Report. Washington, DC: Inter-American Development Bank, 43 pp. http://idea.manizales.unal.edu.co/ProyectosEspeciales/adminIDEA/CentroDocumentacion/DocDigitales/documentos/SummaryreportIDB2ndEdition.pdf

Dilley, M., Chen, R.S., Deichmann, U., Lerner-Lam, A.L. and Arnold, M. with Agwe, J. Buys, P., Kjekstad, O., Lyon, B. and Yetman, G. (2005): Natural Disaster Hotspots: A Global Risk Analysis. Washington, D.C: International Bank for Reconstruction and Development/The World Bank and Columbia University. http://www.ldeo.columbia.edu/chrr/research/hotspots

FEMA, Multihazard - Identification and Risk Assessment. The Cornerstone of the National Mitigation Strategy. FEMA, Washington DC. 1997. pp. 369 plus Appendices.

Godschalk, David R., Timothy Beatley, Philip Berke, David J. Brower, and Edward J. Kaiser, Charles. C. Bohl, and R. Mathew Goebel. Natural Hazard Mitigation - Recasting Disaster Policy and Mitigation. Washington DC: Island Press. 1999. 575 pp.

Hochrainer, S. (2006). Macroeconomic Risk Management Against Natural Disasters: Analysis focused on governments in developing countries (Paperback)

approx. $ 79.- , 201 pages, duv Publishers (December 1, 2006), ISBN-10: 3835005944; ISBN-13: 978-3835005945.

Instituto de Estudios Ambientales (IDEA), National University of Colombia-Manizales, 2005: Indicators of Disaster Risk & Risk Management: Program for Latin America & the Caribbean. Main Technical Report. Washington, DC: Inter-American Development Bank, 216pp.
http://idea.manizales.unal.edu.co/ProyectosEspeciales/adminIDEA/CentroDocumentacion/DocDigitales/documentos/MaintechnicalreportIDEA1.pdf

Kunreuther, Howard; Roth, Richards, Paying the Price. Joseph Henry Press, Washington, D.C. 1998. 300pp.

Mileti, Dennis S.: "Disasters by Design - A Reassessment of Natural Hazards in the United States". Washington DC, Joseph Henry Press; 1999. pp. 351.

Perrow, Charles: "Normal Accidents. Living with High-Risk Technologies". Basic Books (US), 1999. pp. 386.

Smith, Keith: "Environmental Hazards: Assessing Risk and Reducing Disaster" 3rd edition, New York. Routledge; 2002;.

Wisner, B., P. Blaikie, T. Cannon & I. Davis: "At Risk: Natural Hazards, People's Vulnerability, and Disasters. Routledge; 2004 (2nd Edition). ISBN 0-415-25216-4 (pbk);

United Nations Development Programme (UNDP). 2004: Reducing Disaster Risk: A Challenge for Development. New York: United Nation Development Programme, Bureau for Crisis Prevention and Recovery.
http://www.undp.org/bcpr/disred/documents/publications/rdr/english/rdr_english.pdf

BASIC WEB RESOURCES (expect updates).

Some of Which Provide Links To Other Helpful Sites and References
http://en.wikipedia.org/wiki/Social_vulnerability (a reasonably well put together overview with links and references)
http://www.disasterscharter.org/web/charter/home maps/charts of current & recent events
http://hisz.rsoe.hu/alertmap/index.php?lang=eng displays current events globally
http://www.cbsnews.com/digitaldan/disaster/disasters.shtml (A CBS News Service; a comprehensive educational and news site; definitely worth exploring)
http://www.Colorado.EDU/hazards (very good general research source, searchable) i.e.:
http://www.colorado.edu/hazards/resources
http://www.reliefweb.int/w/rwb.nsf (by UN OCHA, searchable by country, Latest Emergencies, humanitarian relief actions in progress)
http://www.ifrc.org (Red Cross / Red Crescent); e.g. download:
http://www.ifrc.org/Global/Publications/disasters/WDR/WDR2010-full.pdf World Disaster Report 2010 - Focus on urban risk. Definitely check this out !!
http://www.paho.org/selection.asp?SEL=TP&LNG=ENG&CD=ADISASTER (PAHO)
http://www.usgs.gov/hazards US Geological Survey. All natural hazards site, real

time & generic
http://sciencepolicy.colorado.edu/socasp/toc_img.html (Societal Aspects of Weather)
http://www.cred.be/ (Epidemiology of Disasters, Current Events, Data Bases)
http://www.emdat.be/database (International Disaster Data Base; excellent resource for your research)
http://www.fema.gov (US Federal Emergency Management Agency)

Additional Web Sites:
http://www.iiasa.ac.at/Research/CAT/research.html
http://www.iiasa.ac.at/Research/CAT/links.html#hazards
http://www.iiasa.ac.at/Research/CAT/links.html
http://www.gfdrr.org/gfdrr/
http://www.gfdrr.org/gfdrr/node/3
http://www.gfdrr.org/gfdrr/NHUD-home#NHUD
http://siteresources.worldbank.org/INTUWM/Resources/340232-1205330656272/CitiesandClimateChange.pdf
http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTDISMGMT/0,,menuPK:341021~pagePK:149018~piPK:149093~theSitePK:341015,00.html
http://www.cred.be
http://www.em-dat.net
http://www.usaid.gov/index.html
http://www.usaid.gov/our_work/humanitarian_assistance/disaster_assistance
http://www.who.int
http://www.who.int/hac/en
http://www.oneworld.org/
http://www.unisdr.org
http://www.reliefweb.int/rw/dbc.nsf
http://www.undp.org
http://www.undp.org/bcpr
http://www.un.org/popin
http://www.unfpa.org
http://www.unfpa.org/public/home/sitemap/swp2010#reports
http://www.unfpa.org/swp/swpmain.htm
http://www.unep.org
http://www.unep.org/conflictsanddisasters/
http://www.unep.ch
http://www.grid.unep.ch/
http://www.grid.unep.ch/activities/index.php
http://www.gosic.org
http://www.state.gov/www/issues/relief/gdin.html (accessible, dated, not updated)
http://www.ldeo.columbia.edu/chrr a CU-EI center for hazard and risk research
http://www.ldeo.columbia.edu/chrr/research/hotspots Global Hotspots Project
http://opim.wharton.upenn.edu/risk/index.html

==========

ACADEMIC INTEGRITY STATEMENT (mandatory):
Columbia University does not tolerate cheating and / or plagiarism in any form. Those students who violate the Code of Academic & Professional Conduct will be subject to the Dean's Disciplinary Procedures. The Code of Academic & Professional Conduct can be viewed online at: http://sipa.columbia.edu/resources_services/student_affairs/academic_policies/deans_discipline_policy.html . Please familiarize yourself with the proper methods of citation and attribution. The School provides some useful resources online; we strongly encourage you to familiarize yourself with these various styles before conducting your research: http://sipa.columbia.edu/resources_services/student_affairs/academic_policies/code_of_conduct.html. Violations of the Code of Academic & Professional Conduct should be reported to the Associate Dean for Student Affairs.

==========

Important Dates and Method of Evaluation:

Item	Due Date	Grade Share
General Class Participation	Entire Course	15%
Topic Outline (max 2 page)*	Thu Feb 19*	15%*
Oral Topic Presentations	April 9, 16, 23	30%
Final 10-page term paper	Thu 4/30	40%

* Note: You must have your topic discussed/approved via Email exchange with the instructor a week earlier, by the day of Session 4 (Thu, Feb 12).

==========