With a population of approaching soon 10 million and a population density of more than 3000 inhabitants per square kilometer, Lima together with the Seaport of Callao constitutes an exemplary megacity. It is one of the five largest cities of the Americas, the second driest and among the 30 most populated agglomerations in the world. While Lima's central area located on a flat plain in the Peruvian desert coast was built over centuries and today is fairly stable, the city continues to rapidly grow on its edges along the three river valleys Chillón, Rímac and Lurín. Given that there is currently no official urban development plan and Lima sprawls uncontrolled and informally across its city districts and borders, the studio aims to develop urban visions as well as design and transformation strategies, contributing to the challenge of maintaining and making the megacity livable and sustainable.

The studio and our workshop in Lima will be conducted together with the University Ricardo Palma’s Faculty of Architecture and Urbanism (URP FAU), which is establishing a postgraduate master and PhD program as well as a competence center on the future urban development of Lima. In addition, we plan to collaborate closely with the Municipalidad Metropolitana de Lima, who recently launched the Plan Regional Lima Somos Todos 2025 as a tool to coordinate the city’s future growth together with the 42 individual district municipalities.

The overall goal of the studio is to create an urban image on the contemporary urban condition and future development of the megacity Lima. It intends to be a base and a kickoff for future studios at NTNU and URP. The participating students from both universities also have the option of doing a diploma master thesis on Lima, by further elaborating their studio project or by proposing a new one. The diploma work can also be connected to or conducted within URP’s master program or an internship in Lima. The results of our joined endeavors seek to find answers to the challenges of Lima as well as other megacities in Latin America and other regions of the world.
BACKGROUND

Central Lima is characterized by a variety of high and low standard districts located around its historic center, the Cercado, which is build on a strict quadrate block plan, dating back to the colonial plan Lima Cuadrada from 1535 by Francisco Pizzarro, Spanish conquistador and the city’s founder. After the War of the Pacific between 1879 and 1883, due to modernization and immigrations of foreigners, the city expanded from around 100,000 inhabitants to more than 600,000 in the 1940s. Following the example of Cerda’s Barcelona and Hausmann’s Paris plan, the urban grid was extended along big avenues, connecting the city with formerly neighboring towns and seaside resorts on the coast: Callao, Bellavista and La Punta in the north, Magdalena del Mar in the center as well as Miraflores, Barranco and Chorrillos in the south. During this period, Lima developed into an open and modern city, built within the triangle Lima-Callao- Chorrillos with new residential settlements as well as a state-of-the-art transportation, water and energy supply systems.
Since the mid twentieth century, Lima experiences an even more rapid growth with the migration of rural people from the Andean regions and other peripheral areas of Peru, who come to Lima in search for better living, education and work opportunities. Many of them also migrated as refugees, escaping terrorism during the 1980s and early 1990s. The migrants first settled in the central city (in the north of the Rimac River, in the east along the Central Highway, and in the south), and then boosted the expansion of Lima through large-scale land invasions, fostering urban sprawl and informal developments in the outskirts.

Today, the most populated areas of Lima lie in these outskirts along the river valleys in the northern, eastern and southern ends of the city, in the so called Cono Norte, Cono Este and Cono Sur. In Peru, these informal settlements or slum developments are known locally as pueblos jóvenes (“young villages”). They resemble the favelas of Brazil and other Latin American cities, and, in the early stages of occupation, generally lack basic infrastructure such as appropriate supplies of water, electricity and sanitation. The urban development in the Cono areas is marked by three parallel growth phases. First, the immigrants invade and occupy the land with simple sheds made out of woven straw panels. Second, some of these informal settlements become consolidated with solid building structures. And third, the settlements become legal and registered neighborhoods with proper infrastructures. Parallel to the evolution of the pueblos jóvenes, real estate developers increasingly build commercial housing developments (“urbanizaciones”) and shopping centers in the Conos, following the US American suburbia model by catering for the emerging middle and lower middle class.

While originally the settlements in the Conos were separated from the city, they increasingly grow together with the central districts. The Cono areas emerged mainly without urban management or state support. Progressive consolidation, legalization and commercialization strengthen the new middle class, but there is also a need to recognize and protect the origins of the collectively self-built pueblos jóvenes as well as to understand their appropriate traditional approach of settling in a desert region.
The studio and integrated project course will profoundly explore the urban conditions of Lima, the deficits, strengths and potentials of both the urban historic structure in the central city as well as the uncontrolled informal and private development in the Cono areas. Based on this investigation, we will develop adequate urban visions as well as strategic design, actions and project plans for the sustainable development of the megacity. Thereby, we will consider following key thematic priorities of the Plan Regional Lima Somo Todos: urban growth; mobility; basic services and decent living for all; public and recreational spaces; culture, values and beliefs; economic development; urban poverty and inequalities.

For example, deficits of the central city are a lack of green and recreational area, traffic congestion, air pollution, social polarization and gentrification. Hence, potential urban transformation and revaluation topics are (i) the revitalization of the landscape and open spaces (e.g. renaturalization of the Rímac river and Costa Verde), (ii) the planned extension of the metro system from two to seven lines and its urban consequences, (iii) the detection of potential transformation areas (e.g. brownfields, industrial zones, port or station areas that can be reactivated), and (iv) the redensification and modernization of existing residential districts (e.g. building rules to be legalized by the district municipalities).

Deficits of the pueblos jóvenes are among others a lack of basic infrastructures such as proper supply of water, electricity, sanitation, waste disposal, roads and transportation means, health, education as well as poverty and crime. A danger of the “urbanizaciones”, though properly built and equipped, is their isolation from the surrounding urban context. They form artificial and self-enclaved islands, which paradoxically rather reinforce than eliminate the separation from the city, supporting the global trend towards gatedness.

Main urban development topics in the Cono areas will include (i) the steering of uncontrolled private (“gated”) and informal (“pueblos jóvenes”) development with minimal means and do-it-yourself (DIY) resources, (ii) the improvement of basic infrastructures and mobility, (iii) the establishment of better interrelationships between isolated areas and with the central city, (iv) the promotion of new businesses and economies, (iv) the provision of communal and commercial services such as administrative functions, stores, medicare, schools, kindergardens, sports and cultural facilities – in short: everything one needs for a condign living and working.
A common characteristic of megacities and an overall theme for both the central and decentral areas of Lima is the existence of various urban contrasts and spaces of conflicts such as the polarization between rich and poor areas, different cultures and ethnic groups, the availability and non-availability of resources, traditional and modern values, open and closed structures, dense and loose constructions, formal and informal development. How can we help to turn these antipodes and segregation into a peaceful coexistence or fruitful urban cohesion? What sort of urban imageries, qualities and breeding grounds can be created where existing and new spaces can flourish, and even cross-fertilize each other? The strengthening of the connection between the central districts and the Cono areas as well as between the urban and rural culture, will thereby play a central importance in the studio work.

**KEYWORDS**

megacities; urban growth; urban sprawl; urbanization; formal / informal, controlled / uncontrolled, top-down / bottom-up, state / private, global / local urbanism; power and urban management; tradition / modernization; cultural heritage; collective imaginaries; revaluation; (re-)densification; slums (pueblos jóvenes); developing countries; migration; spaces of conflicts; gated communities; gentrification; social polarization / cohesion; wealth / poverty; traffic congestion / mobility; noise, air and waste pollution / management; water shortage / recovery; climate change; sustainability.
METHOD & STRUCTURE

The studio and integrated project course are structured in four times four week long phases. Particularly in the first eight weeks we will closely collaborate with professors and students from University Ricardo Palma.

Phase 1: Exploration, imagination, and appropriation (2 x 2 weeks, Trondheim and Lima)
First, we will produce a comprehensive inventory of the urban condition of Lima. Thereby, we will use analytical tools such as cartography, plans, writings, documentations, data and statistics, as well as subjective tools such as city walks and drifting, photography, imagination, mental maps, sketches, collages, and lyrics. During our workshop in Lima, we will get inputs from local experts and actors. Our common inventory will include following subjects:
- Location & History: e.g. formal and informal urban growth versus human and geographical constraints (context, genius loci, urban and suburban environment, topography, climate, past and future urban development)
- Mobility: e.g. organized, connected, clean versus chaos, congestion, noise, pollution (public and private transportation, digital means)
- Infrastructure: e.g. main supply and disposal for all versus lack (water, energy and waste system)
- Landscape & Water: e.g. renaturalization and recovery versus desertification and devastation (agricultural land, deserts, parks, promenades, sports and recreational areas, waste lands, shores, ocean, rivers, water basins, etc.)
- Public spaces: e.g. reactivation and protection versus decay and shrinkage (open space network: squares, meeting places, pedestrian avenues …)
- Spatial structures: e.g. redensification and transformation versus sprawl, open versus closed (urban morphologies and typologies, architecture and other built structures)
- Uses & Lifestyles: e.g. formal / state / urban / global versus informal / private / rural / local (Distribution of major functions: downtown, residential neighborhoods, industrial areas, special areas, main public amenities and communal services)
- Culture & Society: e.g. diversity and social cohesion versus polarization (Cultural expressions, identities, traces, collective memories, social and ethnic groups, demographics)
- Economy: e.g. traditional versus new, economic growth versus human development (Industries, businesses, new economies, production landscapes)

Result: urban inventory report

Phase 2: Interpretation, visioning, and conceptualizing (2 x 2 weeks, Lima)
By interpreting our inventory report, we will detect and visualize the urban qualities that should be preserved and strengthened in a treasure map as well as the deficiencies and conflicts that should be resolved in a deficit map of Lima. The goal is to find out what the big urban challenges, future urban potentials and major transformation areas of Lima are.

The design process will start with a visioning workshop with experts, in which we will discuss our findings, develop ideas and themes for the sustainable urban development, and merge them into an urban image and future action plan of Lima. The ideas will then be further developed into urban design concepts and strategies: on the city scale with proposals for both the central districts and a chosen Cono area, as well as for connections among them; second, on a project or intervention scale to visualize the broader proposals in more detail.

Result: treasure and deficit maps, urban image and action plan, characteristic examples

Phase 3: Designing and proposing (2 x 2 weeks)
Constant refinement and interpretation of our previous findings, will inform the design process. We will elaborate our visions, concepts and strategies on both the city and project scale and develop them into sustainable urban guidelines and proposals. The proposals on both scales will be refined in iterative exploration, design, and visualization loops.

Result: refined urban image and action plan, urban design guidelines for selected projects or sites

Phase 4: Documentation, exhibition and final presentation (2 x 2 weeks)
Throughout the semester you will write a script about your research and design work, helping to guide and document the progress of your work.

In the final phase, we will then document all the work produced during the semester in a common book publication and prepare the final exhibition and presentation.

Results: book publication and exhibition
Lectures and readings
The three phases will be enriched through a lecture series, which will give you a broader perspective on contemporary urbanism and architecture, on Peru, Lima and megacities in general. It will include introductions to the studio topics and tasks, inputs from our local partners, actors and stakeholders, as well as presentations and readings on related urban design and architectural issues.

LEARNING OBJECTIVES
The learning goal is to gain advanced skills and experience in urbanism, urban design and architecture, concept development, visionary and strategic thinking, and presentation techniques, which will enable students to tackle complex urban challenges and to synthesize their knowledge into a design project. The studio and seminar seek to provide a comprehensive package linking design, research, theory and practice. For more details: www.ntnu.edu/studies/courses/AAR4605 and www.ntnu.edu/studies/courses/AAR4905.

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COURSE CREDITS
Studio AAR4605 Urban Design / Byforming (15 ECTS)
Seminar AAR4905 Urban Design Theory / Byformingsteori (7,5 ECTS)

COURSE DURATION
28.01.-01./08.06.2013

COURSE HOURS
Mondays, Tuesdays, and Thursdays, 10 am to 6 pm, compulsory attendance
Wednesdays optional
EXPERTS IN TEAMWORK (EiT)
07.-25.01.2013 Intensive villages for NTNU master students required and exchange students recommended.

EXCURSION LIMA & WORKSHOP WITH URP FAU
Planed week 7 to 12, 11.02.-21.03.2013
Studio space: URP Escuela de Postgrado, Centro Cultural Ccori Wasi, Av. Arequipa N° 5198, Miraflores
Next to exploring Lima, we are planning optional field trips to Caral, Chan Chan, Cusco, and Machu Picchu to learn from ancient cultures and civilizations as well as their highly sophisticated self-sustaining cities.

COSTS & FUNDING
Flight ticket: ~ 10,000 NOK
Funding: we are applying for funding to reduce your travel costs of around 25% to 50%. However, we have the sponsoring not yet confirmed. NTNU registered master students can get support from Homans legat and the Norwegian state in anyway.

FOR MORE INFORMATION
Please contact the instructors.
REFERENCES


The case of Lima, Peru, DESCO (Riofrío, Gustavo), 2003

Time Builds! (The Experimental Hosing Project (PREVI) Lima: Gensis and outcome), EquipoaArquitectura, Publisher: Editorial Gustavo Gili; 1ST edition 2008
http://isites.harvard.edu/fs/docs/icb.topic892112.files/Previ/AD.pdf

Villa El Salvador,
http://en.wikipedia.org/wiki/Villa_El_Salvador,
http://www.amigosdevilla.it/historia.htm,
http://www.amigosdevilla.it/paseando/01.htm


SELECTED LITERATURE ON URBANISM


Kees Christiaanse et al. (eds.), Situation – KCAP Architects and Planners, NAi Publisher: 2005.


Höger, Kerstin, Studio Books on Clusters & Valleys, Waterfronts et al. (available at our institute) www.kerstinhoeger.com/HOEGER/indexpub.htm


SPECIAL LITERATURE ON LIMA & PERU


CARAL ~ 2700 - 2000 BC, oldest city in the Western world
CHAN CHAN - 850-1470, Chimu, oldest city out of adobe brick.
MACHU PICCHU - 1400 - 1572, Inca
LIMA CUADRADO, 1535 Francisco Pizarro, Spanish conquistador and the city's founder
LIMA COLONIAL, 1885 M. Englander, ~ 100,000 inhabitants
LIMA REPUBLICANA, Lima, Callao & Balnearios 1945, ~ 600,000 inhabitants
BARRIOS ALTOS, historical & low-middle class (informal)
MIRAFLORES, upscale & touristic
LA TERCERA LIMA (THE THIRD LIMA), 8 to 10 mio. inhabitants in 2012
INVASION, Villa El Salvador 1971
SELF-ORGANIZATION “pueblos jóvenes”, Villa El Salvador 1972
LEGALIZATION, Villa El Salvador, first town meeting 1984
DEVELOPED CITY DISTRICT, Villa El Salvador with all you need
PREVI 1968-76: modern low-cost housing experiment, Peter Land with Atelier 5, Aldo van Eyck, Charles Correa, Christopher Alexander, Fumihiko Maki, German Samper et al.
PREVI 1978
German Samper (Columbia),
Aldo van Eyck (NL),
Candillis/ Josic/ Woods (FR)
Kitutaki/ Maki/ Kurokawa (JP)

PREVI 2003
urban renovation,
modifications and addition of
floors by home owners
INFORMAL - FORMAL
PRIVATE - PUBLIC
FLUID - STATIC
(SELF-)ORGANIZED - CHAOTIC
BOTTOM-UP - TOP-DOWN
POOR - WEALTHY
OPEN - CLOSED
RURAL - URBAN
LOCAL - GLOBAL
TEMPORARY - PERMANENT
SPECIFIC - GENERIC
PRE-COLUMBIAN - COLUMBIAN
INTEGRATED – SEGREGATED

URBAN CONTRASTS: CO-EXISTENCE OR COHESION?
URBAN IMAGE & ACTION PLAN

THE NAKED CITY
ILLUSTRATION DE L'HYPOTHÈSE DES PLAQUES TOURNANTES EN PSYCHOGEOGRAPHIQUE
... LEARNING FROM LIMA

URBAN GROWTH IS A PRESSING CHALLENGE OF OUR PLANET!