

JOHN LIN

JINTAI VILLAGE PROTOTYPE



DESIGN FOLIO
FACULTY OF
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Cast concrete models of houses





Project Details

Designer

John Lin

Co-Designer (Community Center)

Joshua Bolchover

Landscape Design

Dorothy Tang

Title

Jintai Village Prototype

Function

22 village houses and community center

Location

Jintai Village, Sichuan Province, China

Client

Jintai Village Government

Practical Completion

September 2017

Funding body

Nan Fung Group

Budget

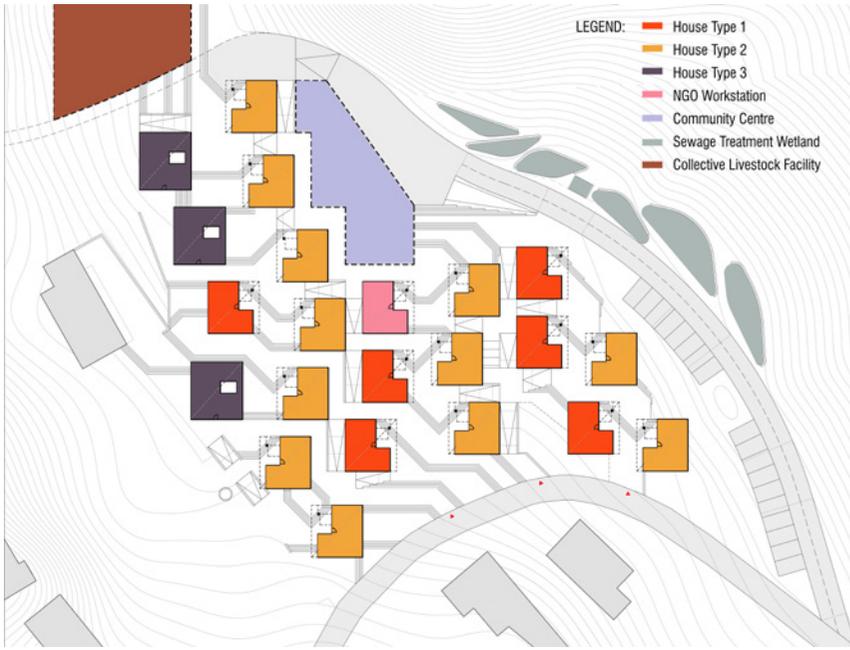
600,000 USD (4,800,000 RMB)

Area/Size

4,000 m²



Site formation of Jintai Village

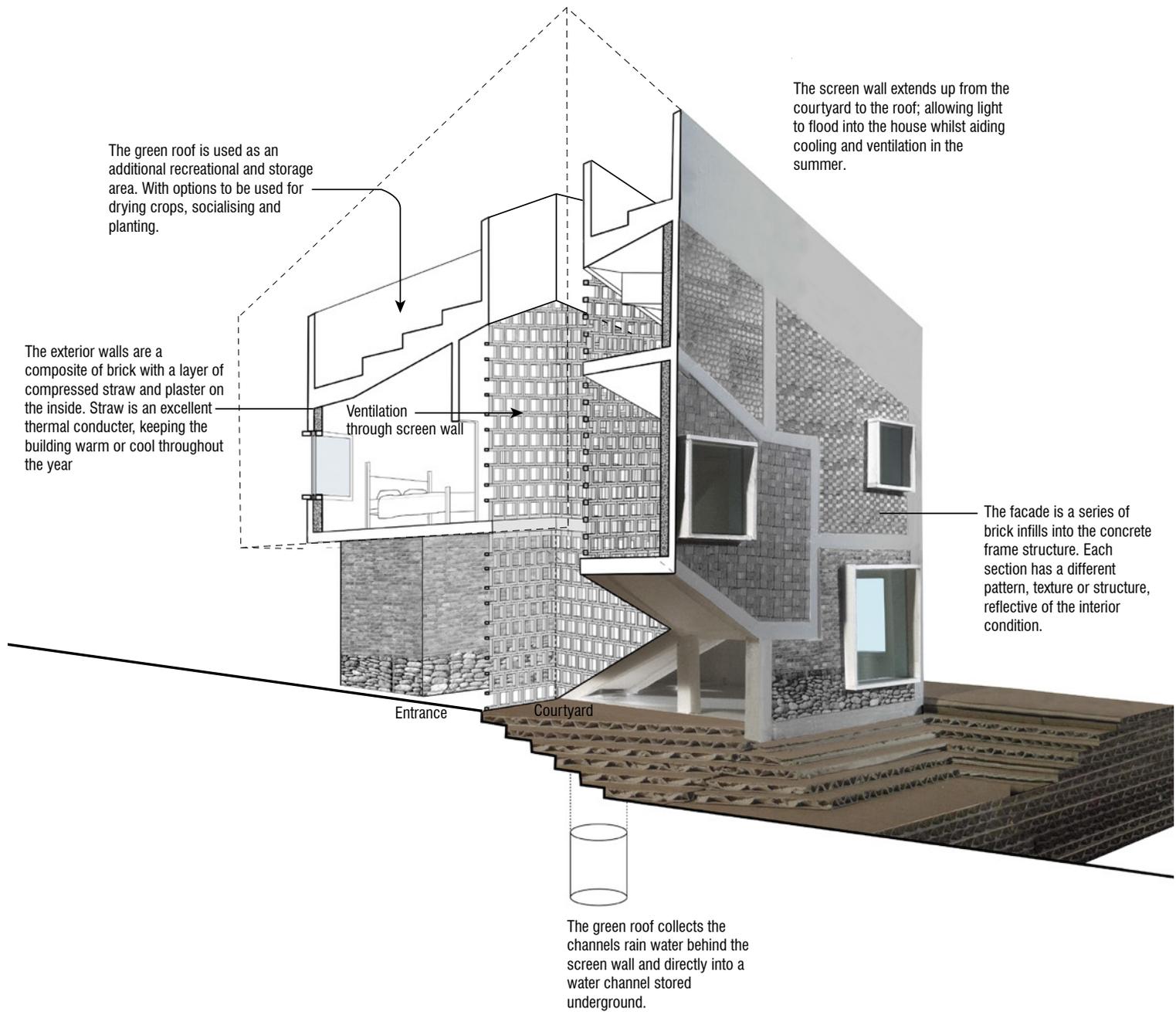


¹ Site plan

² Jintai village and surrounding landscape

Summary of the Work and its Significance, Originality, and Rigor

In 2008 the great Sichuan earthquake struck China resulting in damage to over 30 million houses. 46 million people were affected. The total reconstruction effort was immense and involved rebuilding 47,789 villages. The Jintai Village Prototype was unique among all these villages. From October 19th -20th, 2018, as part of the ten-year anniversary of the earthquake, over 100 provincial leaders and other government officials participated in the The Sichuan Provincial Rural Culture Conference - an official tour of key reconstruction projects in which the design and planning of Jintai was highlighted.



The research, design and process of rebuilding this village went beyond reconstruction of generic village houses to address the rural to urban transformation of housing in China by combining rural elements (e.g., a rooftop farm), and sustainability features in a dense layout reminiscent of urban environments. Having won many architectural awards and been widely visited, published and discussed by the general public in China and the world, the project has had wide impact beyond the issue of earthquake reconstruction. It has influenced government planning and policy at the provincial and county levels, changed the overall public's perception of rural housing and improved the living standards of the village inhabitants. The design has become a prime example of

efficient, sustainable and economical housing suitable for rural areas throughout China.

A total of twenty-two houses were rebuilt including a community center. The design strategy provides four different types of houses, differing in their roof sections. These demonstrate new use of local materials, a green stepped-roof, biogas technologies, and accommodation for pigs and chickens. A vertical courtyard increases light and ventilation and channels rainwater for collection. The design also invests in reed bed waste-water treatment and collective animal rearing. By relating various programs of the village to an ecological cycle, environment responsiveness is heightened, transforming the village into a model for nearby areas.



As design-related research involving a consultative process with multiple feedback loops, it is also changing design approaches in China. The use of various scale models enable active participation in the design process including creating a platform for exchange and negotiation between government and villagers - unlike the usual top-down and government led processes.

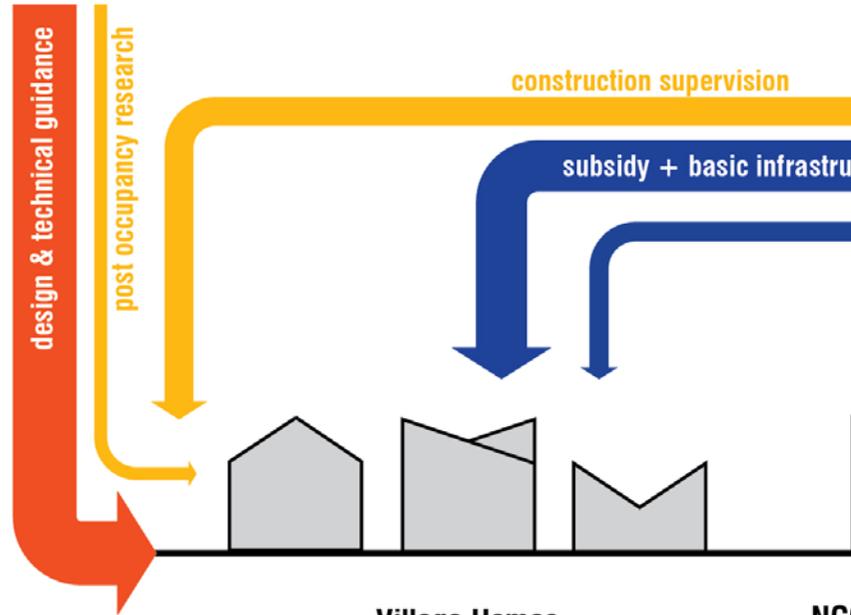
Presentation to the villagers

TOP-DOWN ENABLERS

DESIGN TEAM

PROJECT COMPONENTS

BOTTOM-UP ACTORS



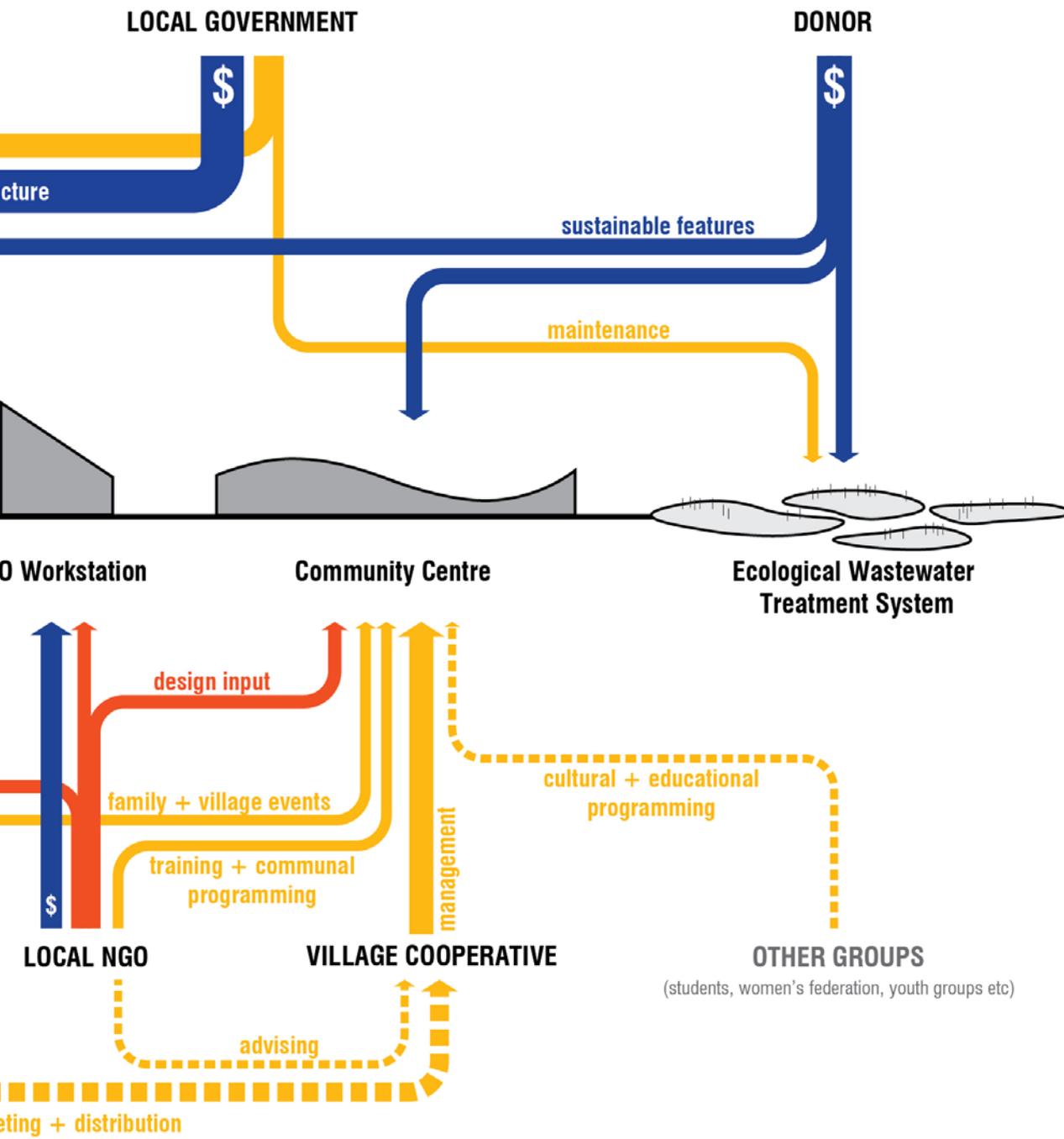
Village Homes

NGO



VILLAGERS

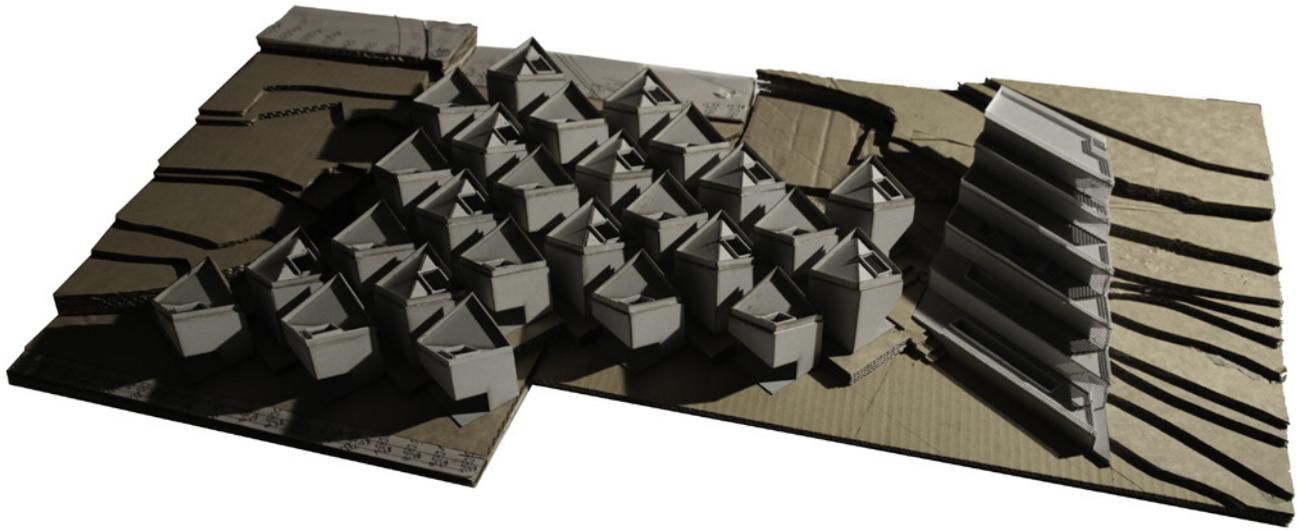
-  Funding Source
-  Design + Technical Expertise
-  Maintenance + Operations



Participation in the design process:
Diagram of actors involved on different
levels and project stages

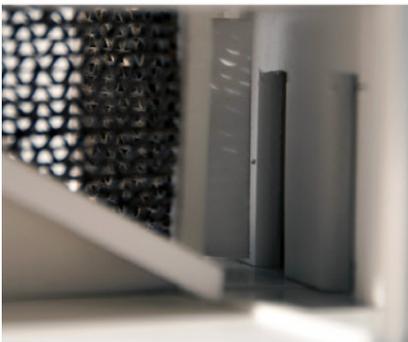
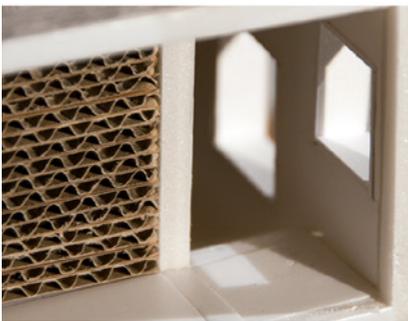
Originality

This design-research addressed the following questions: how can we design a dense and modern village settlement in a precarious earthquake/landslide disaster location in a way that (a) re-establishes and enhances the community functions of village space; (b) adds food production space to the village to increase income-earning potential and subsistence agriculture potential; (c) conserves energy and water through sustainable water treatment; (d) maximizes natural light and air in a dense layout; (e) provides a model for rural settlement sustainable reconstruction and village rationalisation that will influence local, regional and national decision-makers. This problem involved researching

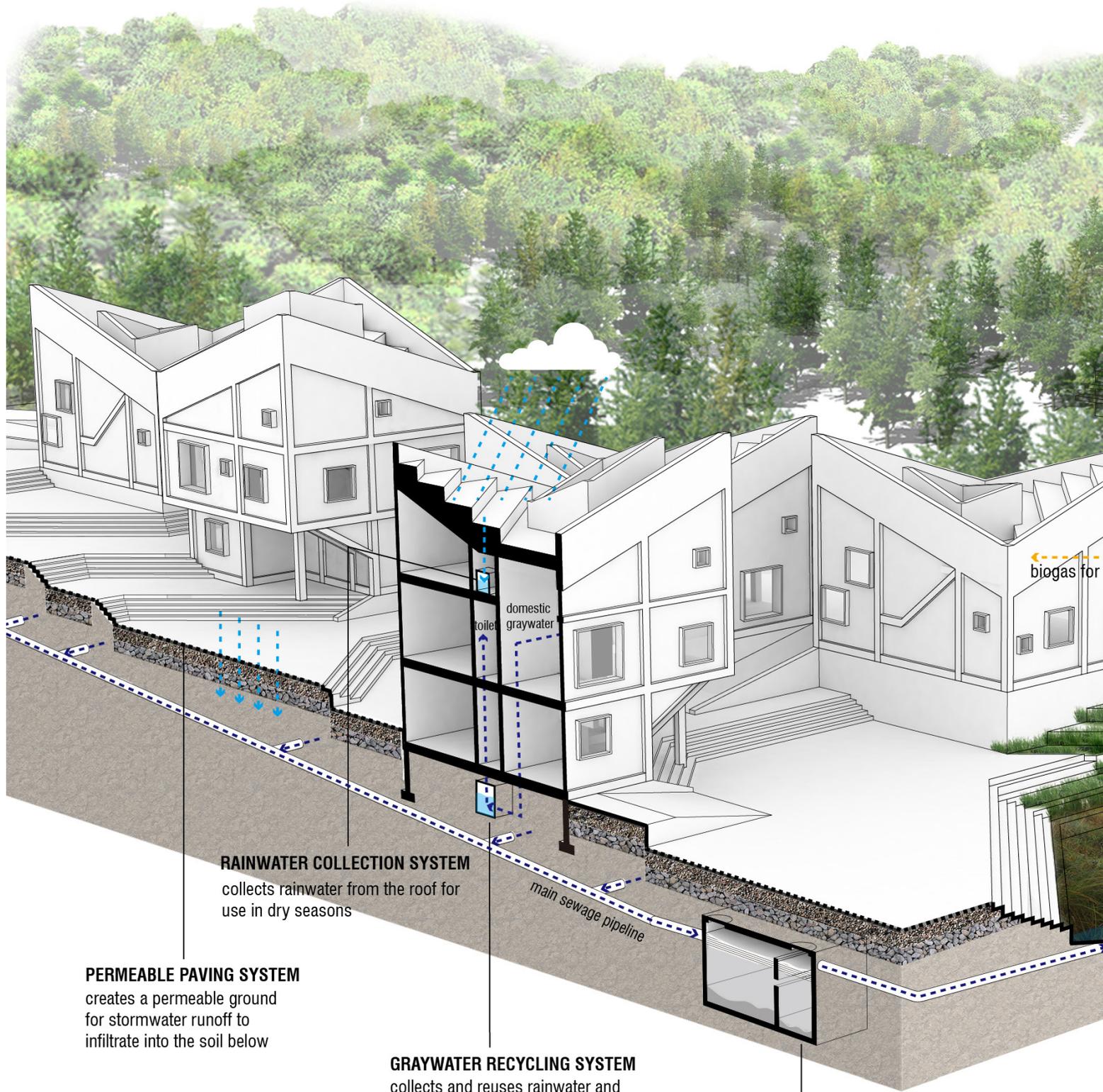


i) appropriate and local materials; ii) environmentally friendly water systems; iii) architectural structure and layouts to create roof-top agricultural production and production spaces, iv) planning of community spaces based upon current and future needs, v) a collaboration process to integrate community opinions with government interests throughout the design process, vi) a post occupancy evaluation in order to inform future village designs.

The originality of the design derives from the integration of a rooftop household farm, grey water recycling and natural wetland cleansing systems with improved light and airflow in a compact plan where houses are only 3 meters apart.



Study model to test the different brick infills into the concrete frame structure

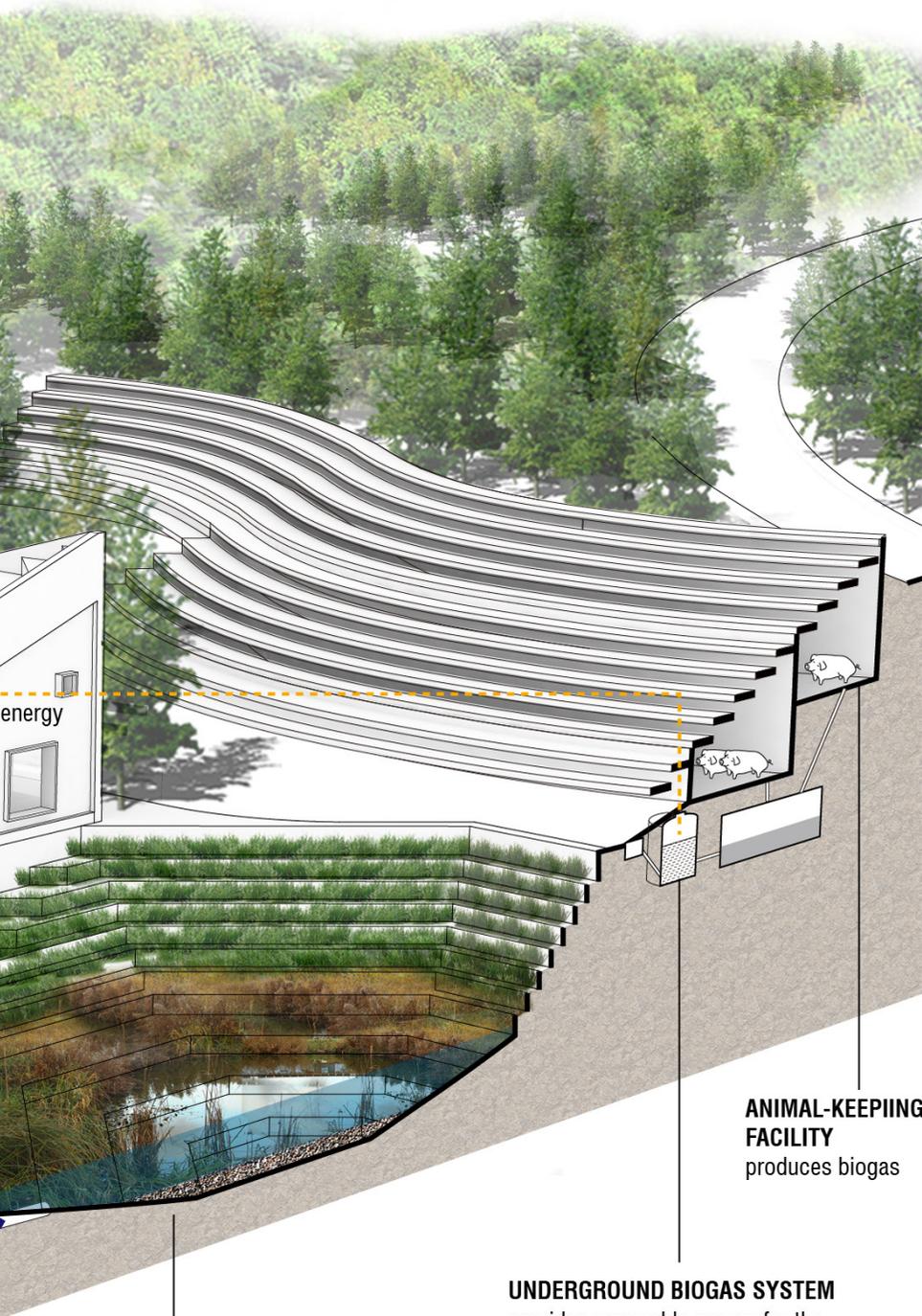


RAINWATER COLLECTION SYSTEM
collects rainwater from the roof for use in dry seasons

PERMEABLE PAVING SYSTEM
creates a permeable ground for stormwater runoff to infiltrate into the soil below

GRAYWATER RECYCLING SYSTEM
collects and reuses rainwater and domestic graywater for planting, daily washing and toilet-flushing

COLLECTIVE SEPTIC TANK
collects domestic blackwater for primary sewage treatment



ANIMAL-KEEPING FACILITY
produces biogas

UNDERGROUND BIOGAS SYSTEM
provides renewable energy for the community

CONSTRUCTED WETLAND
filtrates and purifies sewage using local water plants before discharging the effluent to the river nearby

Ecodiagram: A model for sustainable reconstruction

Rigor

The underpinning research includes 4 different phases of design-research – each conducted through a specific methodology. The first phase includes documentation of existing village houses and living conditions in order to derive a modern rural house program. The methodology employed axonometric projection drawing vis-à-vis the approach of Made in Tokyo, the landmark ethnographic research done by Atelier Bow-Wow. The second phase includes methodologies for stakeholder participation and design engagement. The methodology utilized large scale and editable models as the basis of design adjustment. Parallel sessions provided input from government and villagers alike. This process eventually established



¹ Villagers on their rooftop farms during construction
² Portrait of a family in front of their new house

4 basic prototypes which addressed the different spatial and economic requirements of villagers. The third phase included assessment of appropriate sustainability features and materials. In-house greywater recycling systems and a large reed bed cleansing system were custom designed for this village. This phase of landscape design also involved a process of house location and planning that was derived through physical models and on-site consultations. The final phase is a post-occupancy survey. This documentation has two major components: first, conducted through interviews with villagers and second, as a visual and architectural survey. The visual documentation of the house records ongoing transformations to the original house typologies which have been implemented by the villagers themselves.

This will help inform future development and design-research of rural house prototypes in China.



Reunion of villagers under the communal roof



The roofscape blending with the landscape beyond



The ground level of the village remains open and shared

Dissemination and Evidence of Peer Review

Related publications by the designer:

2018 Bolchover,
Joshua & Lin, John. “Rural
Urbanization” in *Shaping
Cities In An Urban Age*
edited by R. Burdett & P.
Rode with the London
School of Economics,
Phaidon Press, London, pp.
102-111.

2016 Lin, John.
“Designing for an Uncertain
Future” in *Designing the
Rural: A Global Countryside
in Flux*, Architectural Design
Series, guest edited by
J. Bolchover, J. Lin and
C. Lange, (Rural Urban
Framework), Wiley London,
pp. 72-77.

2016 Bolchover, Joshua & Lin, John. "Strategies for Rural-Urban Architecture" in *Resources Urbaines Latentes* edited by R. D'Arienzo, C. Younes, A. Lapenna, M. Rollet, Metis Presses, Italy, pp. 377-389.

2018 Lin, John. "Jintai Village" in the exhibition *Future of the Chinese Countryside* at the Chinese Pavillion curated by Li Xiangning in 16th International Architecture Exhibition: Freespace, curated by Y. Farrell and S. McNamara, La Biennale di Venezia, May 26 - November 25 2018.

2013 Lin, John. "The Instant Village" in *Rural Urban Framework: Transforming the Chinese Countryside* authored by J. Bolchover and J. Lin, Birkhauser, Basel.

Books, journals, and references to the project written by others:

2016 Joshua Bolchover and John Lin. "Shelter: Rural Urban Framework" in Lotus International, vol. 160, September 2016, pp.100-103

2016 Joshua Bolchover, John Lin. "Rural Urban Framework - Development" in *Recoded City* edited by Lucy Bullivant, Thomas Ermacora; Routledge, Canada, 2016, pp.238-241.

Awards:

2018 DESIGNS OF THE
YEAR_The DESIGN MUSEUM

2016 Winner, *RIBA
International Emerging Architect
Award*, RIBA (Royal Institute of
British Architects), International

2015 Winner, *Curry Stone
Design Prize*, Curry Stone
Foundation, International

2014 Winner, *Ralph Erskine
100 Years Anniversary Award*,
Swedish Association of
Architects, International

Exhibitions:

2015 “Rural Urban
Framework: Transforming
the Chinese Countryside”,
with Joshua Bolchover,
The State of the Art of
Architecture, The Chicago
Architecture Biennial 2015,
curated by Sarah Herda,
Joseph Grima, October 3,
2015 - January 3, 2016

2016 “Rural Urban
Framework” in
Constallation.s, Arc en
Rêve, Centre d’architecture,
Bordeaux, June 2 – October
2, 2016

Lectures:

2016 “Rural Urban Framework: Transforming the Chinese Countryside”, Public Lecture, Royal Danish Academy of Fine Arts, School of Architecture, Copenhagen, June 22, 2016

2016 “Rural Urban Framework: Transforming the Chinese Countryside”, Public Lecture, Columbia University, New York, January 25, 2016

2016 “Rural Urban Framework: Transforming the Chinese countryside” University of Miami, Miami, January 22, 2016

2015 “Rural Urban Framework” main speaker at

EngageDhaka 2015: Place Presence, Dhaka, January 16, 2015

2016 “Rural Urban Framework” invited speaker at What can Design do to improve Slums?, Curry stone Design Forum, Sir J.J. College of Architecture, Mumbai, March 16, 2016

2016 “Rural Urban Framework: Transforming the Chinese countryside” Public Lecture at Shenzhen University, August 15, 2016

2015 “Rural Urban Framework: Transforming the Chinese countryside” Keynote Lecture at ASA International Architects Forum, Bangkok, May 1-4, 2015

2015 “Rural Urban Framework: Transforming the Chinese countryside” Public Lecture at The Graduate Institute of Building and Planning, National Taiwan University, December 21, 2015

2014 “Rural Urban Framework: Transforming the Chinese countryside” Public Lecture at The School of Design, Shih Chien University, December 12, 2014

2014 “Rural Urban Framework” Public Lecture and workshop leader, EPFL, Switzerland (Ecole Polytechnique Federale de Lausanne), December 12-17, 2014

2014 “Experiential Learning in Architecture”, Keynote Speaker at Experiential Learning Symposium, The University of Hong Kong, Hong Kong, March 25, 2014

2014 “Rural Urban Framework”, Invited Speaker at Young Architects Festival, The Indian Institute of Architects, Kochi, India, February 21-22, 2014

2013 “Making Architecture in a Place Without Architecture”, Invited Speaker at Green Design for the Future Forum, Tsinghua University, Beijing, China, December 16, 2013

2013 “Rural Urban
Framework”, Invited Speaker
at Asia Pacific Housing Forum,
Manila, October 2, 2013

2013 “Rural Urban
Framework”, Invited Public
Lecture at The Royal Institute
of British Architects, London,
February 5, 2013

2013 “Making Architecture
in a Place Without Architecture”,
Invited Public Lecture at The
Chinese University of Hong
Kong, Hong Kong, March 4,
2013

Publications in
mainstream media:

Since 2017, the coverage of the Jintai Village Reconstruction Project in the mainstream media has been extensive, including newspaper, TV and online publication. The total number of viewers in online publication (within the top twenty sources) is more than 1,250,000.

1. The Bund 原创
2018年4月23日
https://mp.weixin.qq.com/s/4HJ6_pTqqngKYb5jPrOQ8A
(Viewers: 33,710)
2. Chengdu Economic Daily 成都商报: 原创: 成都商报 2018年4月12日
https://mp.weixin.qq.com/s/z42KEXi_KemUhTkbCmiRxA
(Viewers: 53,197)

3. Min Su Ke 民宿客
<https://mp.weixin.qq.com/s/pQOohDiMBzXqY92HVfqag>.
(Viewers: 100,000+)
4. Xinhua 新华社
2018年5月7日
<http://xhpfmapi.zhongguowangshi.com/vh500/?from=timeline&isappinstalled=0#share/3477067?channel=weixin>
(Viewers: 516 108
(12/11/2018))
5. National Business Daily 每日财经新闻
2018年5月4日
<http://epaper.mrjwxw.com/shtml/mrjwxw/20180514/145038.shtml?from=timeline&isappinstalled=0>
6. 环球观筑
2018年4月10日
<https://mp.weixin.qq.com/s/>

VGbu4KDczyR_omG0Jc8mWg
(Viewers: 100 000+)

7. 艺非凡 2018年5月5日

https://mp.weixin.qq.com/s/a_kvYJgzpvTb-aMWjHUOWg

(Viewers: 95,389)

8. 一席 2018年5月12日

<https://mp.weixin.qq.com/s/yycmVtHBRai5YMOJkeFuKA> (Viewers: 65,142)

9. Chinanews

12nd May, 2018

<http://www.chinanews.com/ga/2018/05-12/8512117.shtml>

10. Sichuan News, Sichuan TV,
13th April, 2018

https://www.iqiyi.com/v_19rrc5wfp.html

share/3477067?channel=weixin

(Viewers: 516 108 (12/11/2018))

5. National Business Daily 每
日财经新闻2018年5月4日

<http://epaper.mrjxw.com/shtml/mrjxw/20180514/145038>.

shtml?from=timeline&isappinstalled=0

6. 环球观筑

2018年4月10日

https://mp.weixin.qq.com/s/VGbu4KDczyR_omG0Jc8mWg (Viewers: 100 000+)

7. 艺非凡 2018年5月5日

https://mp.weixin.qq.com/s/a_kvYJgzpvTb-aM-WjHUOWg (Viewers: 95,389)

8. 一席 2018年5月12日

<https://mp.weixin.qq.com/s/yycmVtHBRai5YMOJkeFuKA> (Viewers: 65,142)

9. Chinanews

12nd May, 2018

<http://www.chinanews.com/ga/2018/05-12/8512117.shtml>

10. Sichuan News, Sichuan
TV, 13th April, 2018

https://www.iqiyi.com/v_19rrc5wfp.html

Bibliography

Kaijima, M., Kuroda, J., &
Tsukamoto, Y. (2007). 東京製造
Made in Tokyo (2nd ed.). Taipei:
Atelier.







Plants starting to grow on the rooftop farms



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Milkxhake

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