

proposed international Hakka RecoCity, Biosphere & Trail

- historic preservation, regional planning,
- ecological design/retrofit, economic revitalization,
- international partnership & demonstration project

presentation at **TSUNG TSIN Association of Ontario**

March 19, 2010 © Jorg Ostrowski

Jorg/Helen Ostrowski, Minoru Ueda, Xiaoyan, Li & Ling Qiu



ASH-Autonomous & Sustainable Housing Inc.
ACE-Alternative & Conservation Energies Inc.
Calgary Alberta Canada

PURPOSE of work: • 工作目的

1/2

- 01) keep **families** together • 保持家庭完整
- 02) allow people to **stay** in their village
• 让人们留在自己的村庄
- 03) generate new jobs & **income**
• 创造新的就业机会和收入
- 04) sustain economic **diversification**
• 可持续的經濟多樣化
- 05) **benefit from foreign exchange** • 受益于外汇收入
- 06) increase **comfort** • 增加舒适性

PURPOSE of work: • 工作目的

2/2

- 07) avoid **ruins** & museums
• 避免土楼成为遗址及博物馆
- 08) preserve **culture** & **architecture**
• 保留文化和建築
- 09) revitalize the **region** • 刺激區域复兴
- 10) repopulate **villages** • 再次使村莊充满活力
- 11) **be an example to the world** • 成为世界的榜样
- 12) give **children** their future • 給孩子們美好的未來
- 13) reverse **urban migration** • 阻止人口往都市遷移

Hakka Trail: encompassing 3 provinces: 包括3個省份

- Guangdong, Fujian & Jiangxi • 廣東, 福建, 江西等省



A) HAKKA TRAIL: Regional Plan

• 客家联心轨道: 区域計劃 1/2



Hakka Trail: linking villages & special places

• 客家聯心軌道：鏈接村莊和特別地方



Hakka Trail: linking villages & special places

• 客家联心轨道：链接村庄和特殊的地方



Hakka Trail: for local people & EcoTourists

• 客家联心轨道: 为了当地的村民和生态游客



Hakka Trail: expand mini-hydro power 1/2

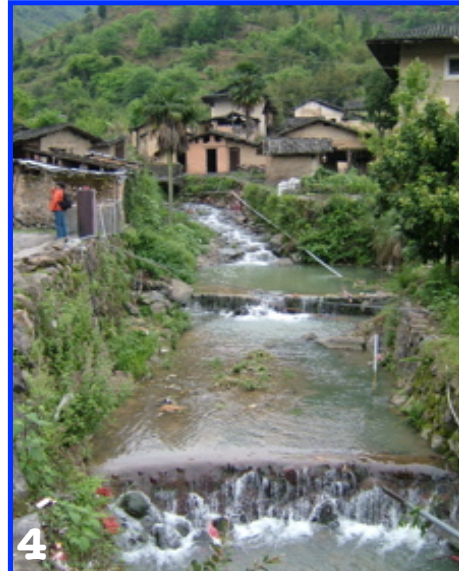
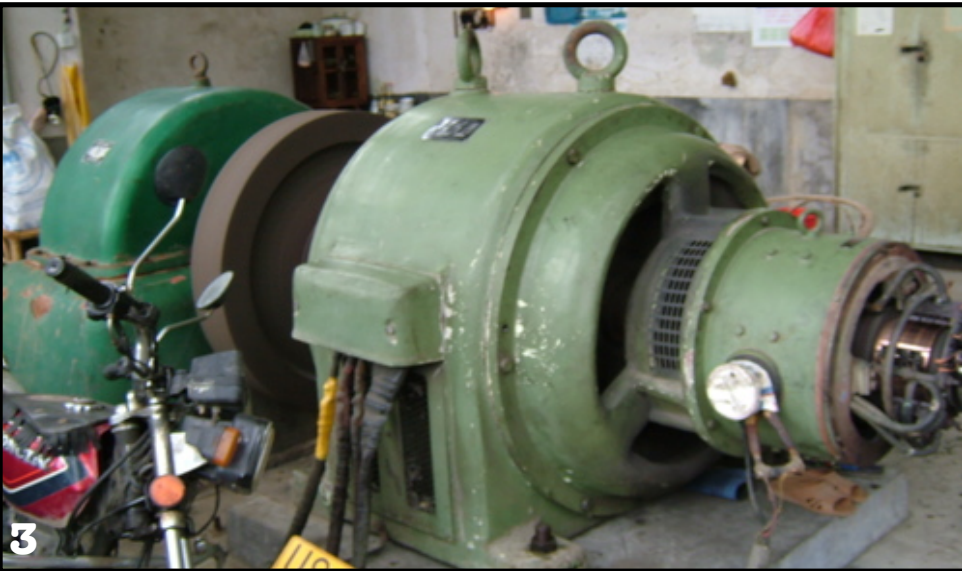
• 客家联心轨道：擴展小型水力发电的使用

- harness free water power
- 观赏性高可就地使用的水利设备



Hakka Trail: expand mini-hydro power 2/2

• 客家联心轨道：擴展小型水力发电的使用



Hakka Trail: responsible transportation

- 客家联心轨道: 肩负使命的运输工具



Hakka Trail: start local recycling centres

• 客家联心轨道: 开始在当地建设回收中心



Hakka Trail: locally owned cottage industries

• 客家联心轨道：发展当地的小商业



Hakka Trail: share healthy home-grown food

• 客家联心轨道:分享健康的自耕农作物



Hakka Trail: plant cash crops (export)

- 客家联心轨道: 种植现收庄稼(可做出口)



Hakka Trail: educational opportunities for all

• 客家聯心軌道:為所有的人提供教育機會



B) RecoCity (Building RecoFit)

- 土楼之生态概念提升



Building RecoFit: *repair* structure

• 土楼的更新：修缮结构



Building RecoFit: fix wall & renew finish

• 土楼的更新：修补牆壁



Building RecoFit: composting/low flush toilets

• 土樓的更新：可分解低抽水馬桶



Building RecoFit: composting toilets for earth

- 土楼的更新: 為地球而使用的可分解厕所



Building RecoFit: rain water collection & use

- 土楼的更新：雨水收集和使用



Building RecoFit: refresh the Gates

• 土楼的升级：刷新大門



Building RecoFit: optimize the courtyard

• 土楼的升级：发挥庭院的观赏效用



Building RecoFit: winter blanket over courtyard

• 土楼的升级：冬天在庭院使用集热片



- indoor winter temperatures are 5°C (too cold)
- 由于室内温度5°C (太冷)
- radiant barriers would help to keep the heat in
- 所以集热片将帮助把热量留在室内

Building RecoFit: solar hot water collectors

• 土楼的升级：太阳能热水器



Building RecoFit: build & use solar ovens

• 土楼的升级：建设和使用太阳能烤箱

1



Building RecoFit: solar dryers to export fruit

• 土楼的升级：太陽能烘焙機（做成的干果可出口）



Building RecoFit: biodiesel for free heat

• 土楼的升级：使用生物燃油取暖



Building RecoFit: promote Hakka architecture

- 提高土楼知名度：推广客家建筑



Building RecoFit: on-site mini stores

• 土楼空间的升级:小商店



- healthy organic food
- 可提供健康的有机食物
- support local businesses
- 可起到支持当地商业的机会

Building RecoFit: celebrate more Hakka art

- 更新土楼的作用：慶祝更多的客家艺术



Building RecoFit: integrated aquaculture

- 土楼周围环境的作用：集成水产养殖



Building RecoFit: children deserve our future

- 提升土楼最终目的：孩子值得拥有美好的未来**

1 Fuxing Lou, 769 AD



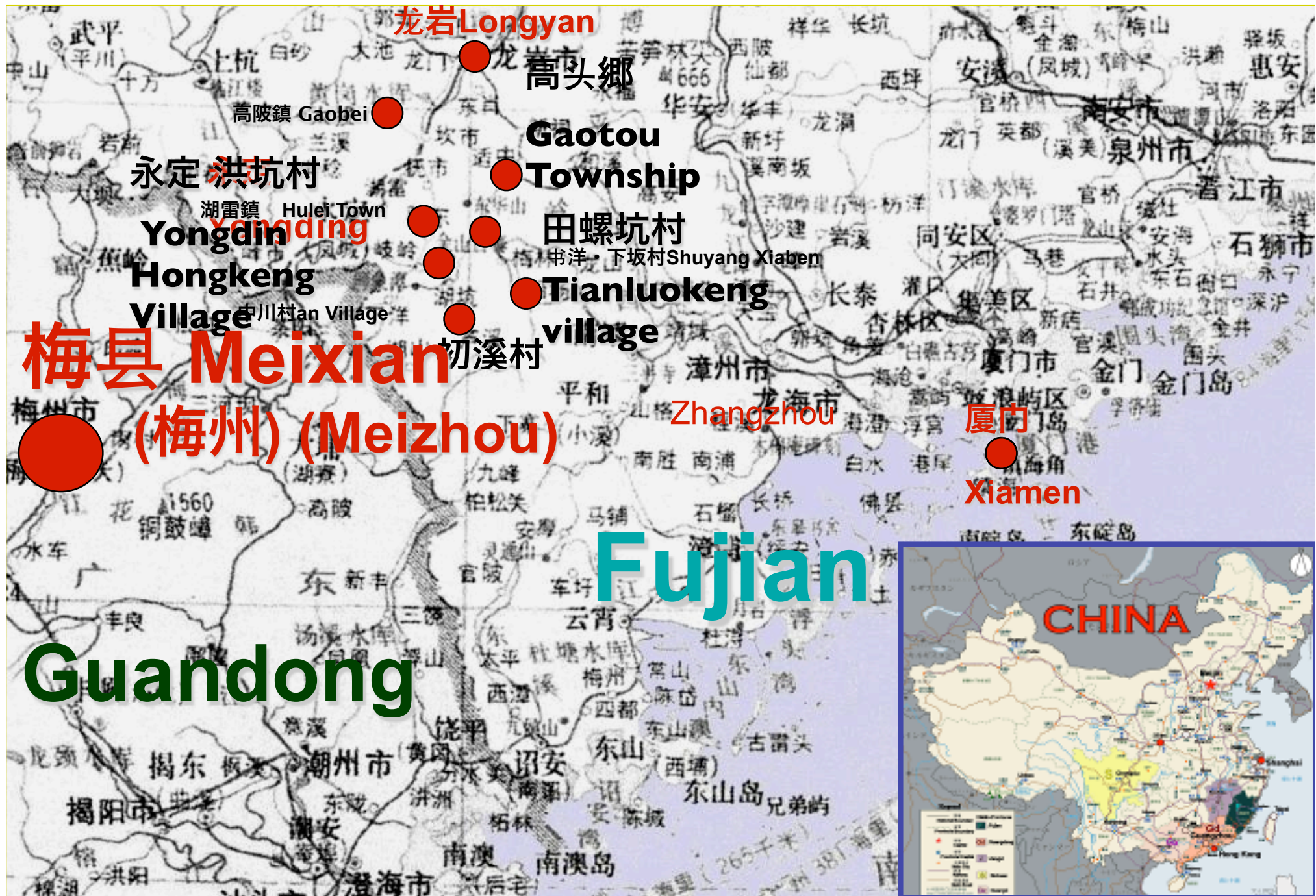
Conclusions 結論:

- 1) build on the **past** 3) upgrade 1 **building**
2) plan a hiking **trail** 4) support **EcoTourism**
as International Centres of Sustainable Development

• 基于过去结合新的客家联心轨道计划以及修缮土楼建筑，我们将能创造一个新的未来，使客家村落成為國際可持續發展事例 的中心。



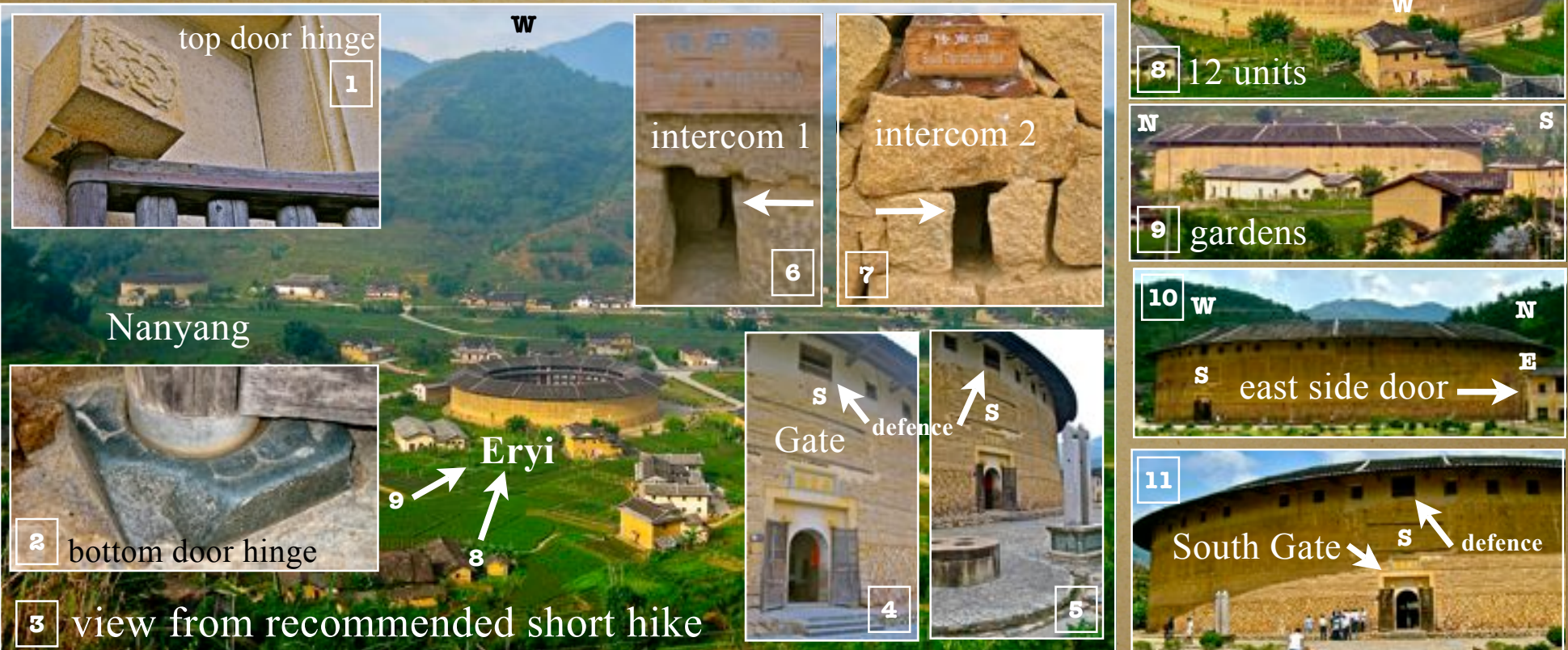
Location Map of Hakka Tulous 2011



Hakka Trail: architectural heritage: • 建築遺產
• main region of focus • 主要的重點領域



Hakka Heritage 1: to all interested in **Hakka** history, culture & architecture 1/2
Eryi Lou, Dadi Village, Xiandu Town, Hu'an County, Fujian jdo © Feb. 24/11



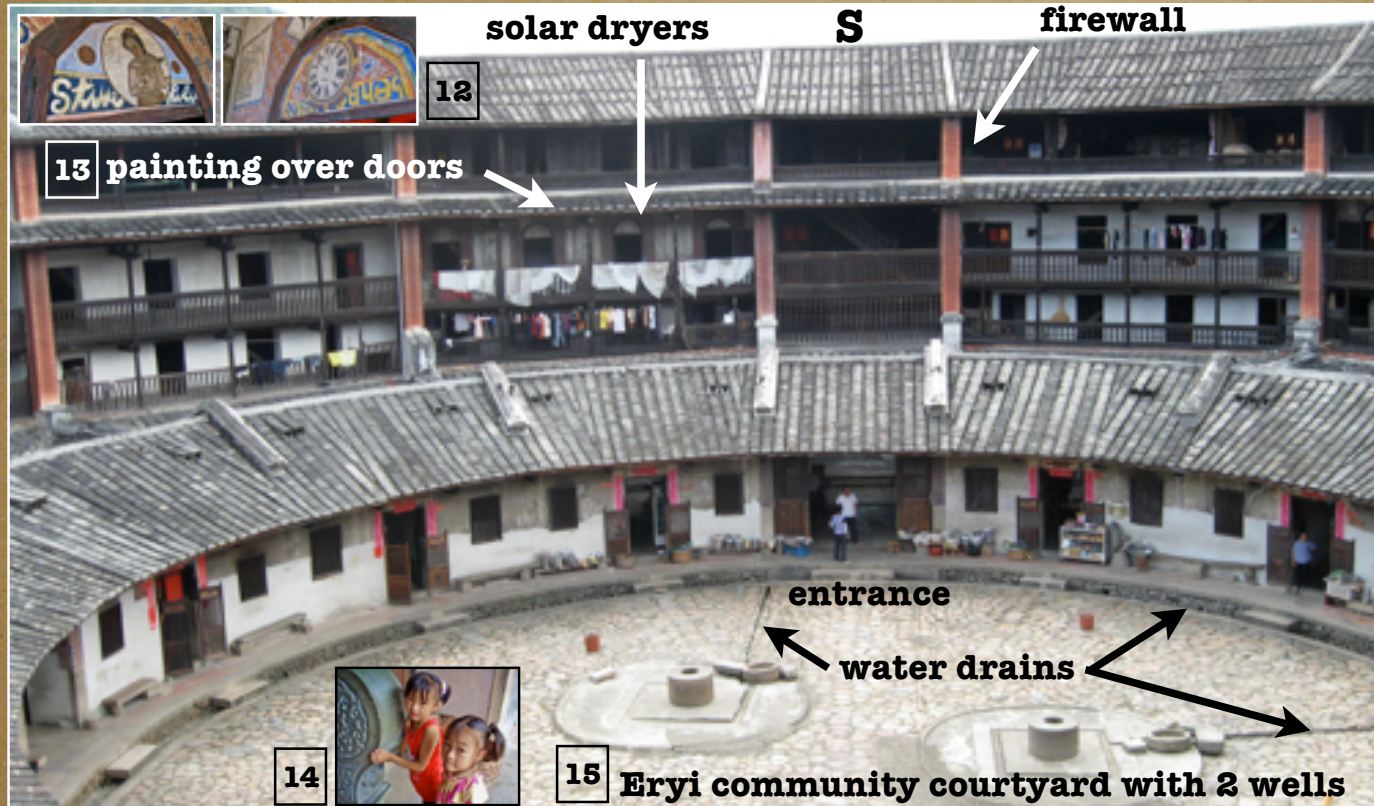
FACTS: Eryi Tulou: international Hakka BioSphere & Trail, sustainable historical villages in south China Jorg Ostrowski © Feb. 24, 2011

- ~ 70/142 km from Zhangzhou/Xiamen⁷, "King of Round Tulou"^{1,2,7}, "No. 1 (Tulou¹) Round Building in China"^{6,10}, "Round Building Treasure"¹⁰, "National Treasure"⁶
- built by Jiang clan, 1740-1770 AD^{1,5} (Qing dynasty^{1,2,7,10}), good Feng Shui¹⁰ in peaceful valley, facing south (without river), hills behind. Nanyang nearby
- **Specs:** 9,300m², 73.4m id ø^{2,5,6}, outer/inner rings - 4/1 stories^{1,2}, 3m H stone foundation, 13m H 2.53-1.8m W (1-3 floors) rammed earth wall^{1,2,5}
- **Plan:** defence: thick walls, 1 gate, 4th floor windows, rock-throwing opening above gate (FF 4, 5, 11), fire extinguisher, metal cover over doors
 residential: 12 stacked townhouses @ private courtyard, stairs, shared fire walls. 213 rooms¹, wood/earth floors, Ancestral (+other) Hall(s) (F19) on 4th floor¹⁰
- no usual interior corridor overlooking courtyard, but 1-1.5 m W^{1,2,5,10} hidden passage/escape corridor (FF 17, 18) on 4th floor for daylight & rifle holes

CONCLUSIONS: based on site visit, interviews, survey sheets, sleep over, hillside hikes & further research

- **Grand:** unusual in: huge size, simplicity, excellent condition & lived-in authenticity (Note, Shenyuan lou, Gaobei Cluster, has 70m od ø⁴),
- **Design:** different to most tulous, thick defensive walls, 1 gate, escape corridor; open community courtyard with 2 wells; private units & courtyards, private stairs, rooms/balconies overlooking courtyards; firewalls between units extending over the roof (FF 8, 15), in harmony with nature^{2,7,10}
- **Acoustics:** several openings in exterior walls² (FF 6, 7) & outstanding courtyard acoustics
- **Art:** 226 murals (593m²) (F 19)^{1,2}, 228 paintings (99m²)^{1,2} over doors (F 19), yet no usual mural around Gate, decorated beans & rafters (F 20)

- **Sustainability:** local food, rammed earth & wood, south orientation 2/2
- **other:** solar clothes/vegetable dryers, daylight, sheltered & safe playground



References: this postcard will reside at <http://www.HakkaHeritage.com>, Note: site sign same as # 1.

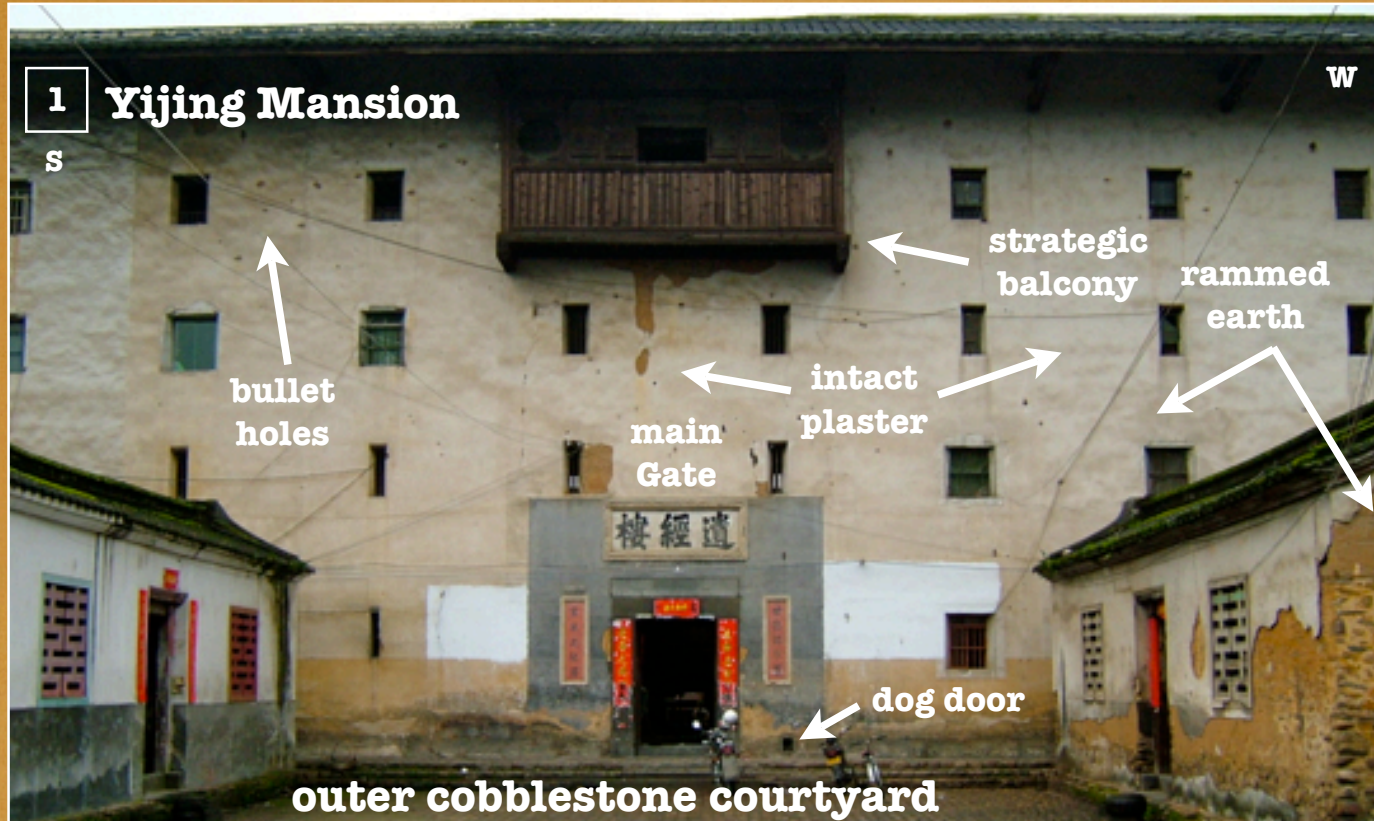
- 1) *Brief Introduction to Eryi Lou*, <http://www.chinavtour.com/china/news/view/965>
- 2) Wang Fu Ping, *A History of Tulou Buildings*, Haifeng, 2008, pp. 116-121
- 3) Ye Enzhong, ed., He Baoguo, *Fujian's Earthen Buildings*, 2010, pp. 196-207
- 4) *Fujian Tulou*, http://en.wikipedia.org/wiki/Fujian_Tulou#Eryilou
- 5) He Baoguo, *Home Is Where the Heart Is - A Guide to the Earthen Buildings*, Haichao, 2008, pp. 87-95
- 6) *Plans 2008 - China Fujian Hakka Tulou, - General*, <http://ihavetravellust.blogspot.com/2008/07/plans-2008-china-fujian-hakka-tulou.html>
- 7) *Dadi Tulou Cluster*, http://www.whatsonxiamen.com/travel_msg.php?titleid=1204
- 8) *Visiting Hua'an Dadi Tulou Cluster*, http://www.appletravel.cn/holidays/travel_info.php?id=37
- 9) *Eryilou*, <http://www.discoverfujian.com/TulouHighlights-1.asp?id=189>
- 10) *Eryi Lou*, <http://www.3dtourchina.com/dest/scenic/3489-209>

Notes/Site/Info/Recommendations: authentic, living, grand, rare, ingenious, defensive Hakka Tulou “treasure” 1, 2, 6

- 1) **Note:** research indicates much confusion about area & diameter. If the area = 9,300 m², then the outside ϕ = 108.8m (this needs to be verified)
- 2) **Site:** hike up closest mountain side to see tulou from above & truly appreciate context, Feng Shui & orientation. Bring binoculars.
- 3) **Information:** ¥ 30/15 A/S fee ¹⁰ Few visitors. No crass tourist traps at the site, although ugly shopping plaza nearby.
- 4) **Recommendation:** Site should be included in UNESCO World Heritage Site. Stay overnight to better experience & understand people, culture & architecture

• ACE+ASH-Incs. Calgary Alberta Canada: sustainable design/consulting, <http://www.SustainableChina.net>, <jdo@ecobuildings.net>

Hakka Heritage 2: to all interested in Hakka history, culture & architecture 1/2
Yijing Manor, Shangyang Village, Gaopi Town, Yongding, Fujian jdo © Feb. 27/11



FACTS on Yijing: Hakka BioSphere+Trail, sustainable historical villages in south China Jorg Ostrowski © Feb. 27, 2011

- ~ 150 km NW of Xiamen, "The Yijing building includes a garden, a fish pond, ... a place for grinding rice,...everything needed for life" ¹, "It comprises 3, 5-story square buildings, in the front, center and back, and 2 4-story square buildings on the left and right. It is either one huge earthen building or a spectacular group of earthen buildings" ^{1,2}; built by Chen clan, 1806-1876 AD ¹ (Qing dynasty) for 700 residents ³; facing NE ³; military siege in 1930s left bullet holes in wall (FF 1, 8) ¹; 5 Phoenix style Mansion: outer courtyard with schools (FF 1-3), inner courtyard with Ancestral Hall & breezeways (FF 4, 13, 14)
- **Specs:** land area ^{1,2}: 10,336m²; Length: 136m east-west; Width: 76m (north-south); Height: 6 stories (FF 1, 9, 13, 14); 17m high rammed earth wall ^{1,2}, 1.1m thick ³ (F11); few wood wall partitions; 400 rooms, 24 halls ^{1,2}; 2-story schools on 2 sides of outer courtyard with narrow walled yard ¹; 3 light wells

CONCLUSIONS: based on-site, neighbourhood tours, overnight stay, interviews, plan analysis & book/internet research

- **Unique aspects of complex:** size, height, graduated massing, single/family arrangements/stairs; interior rammed room firewalls; self-sufficiency; slatted wood corridors overlooking inner courtyard on 3 sides; **details** such as clothes hangers below windows, brick floors (fire barrier) (F 11); fire extinguisher; greywater system & 2 drinking water (wells) still working (F 15); whitewash veneer still intact (rare); **Art:** few paintings/rafter carvings left (FF 5, 12)
- **ACE+ASH-Incs.** Calgary Alberta Canada: sustainable design/consulting, <http://www.SustainableChina.net>, <jdo@ecobuildings.net>

- **Sustainability:** garden, pond, rammed earth, wood, self-sufficiency 2/2
- **other:** few residents left, school, plants make courtyard beautiful



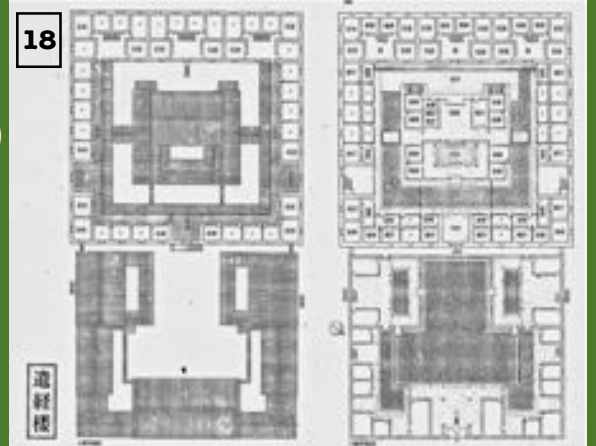
References: this postcard will reside at <http://www.HakkaHeritage.com>,

- 1) He Baoguo, *Home Is Where the Heart Is - A Guide to the Earthen Buildings*, Haichao, 2008, pp 19-21
- 2) Ye Enzhong, ed., He Baoguo, *Fujian's Earthen Buildings*, Beijing, 2009, pp 98-103
- 3) Kentaro Okada, "Hakka Enro" *Ryokojin Ultra Guide*, Ryokojin, Tokyo, June 2004, pp 56-57 (in Japanese)
- 4) Wang Fu Ping, *A History of Tulou Buildings*, Haifeng, 2008, p 14

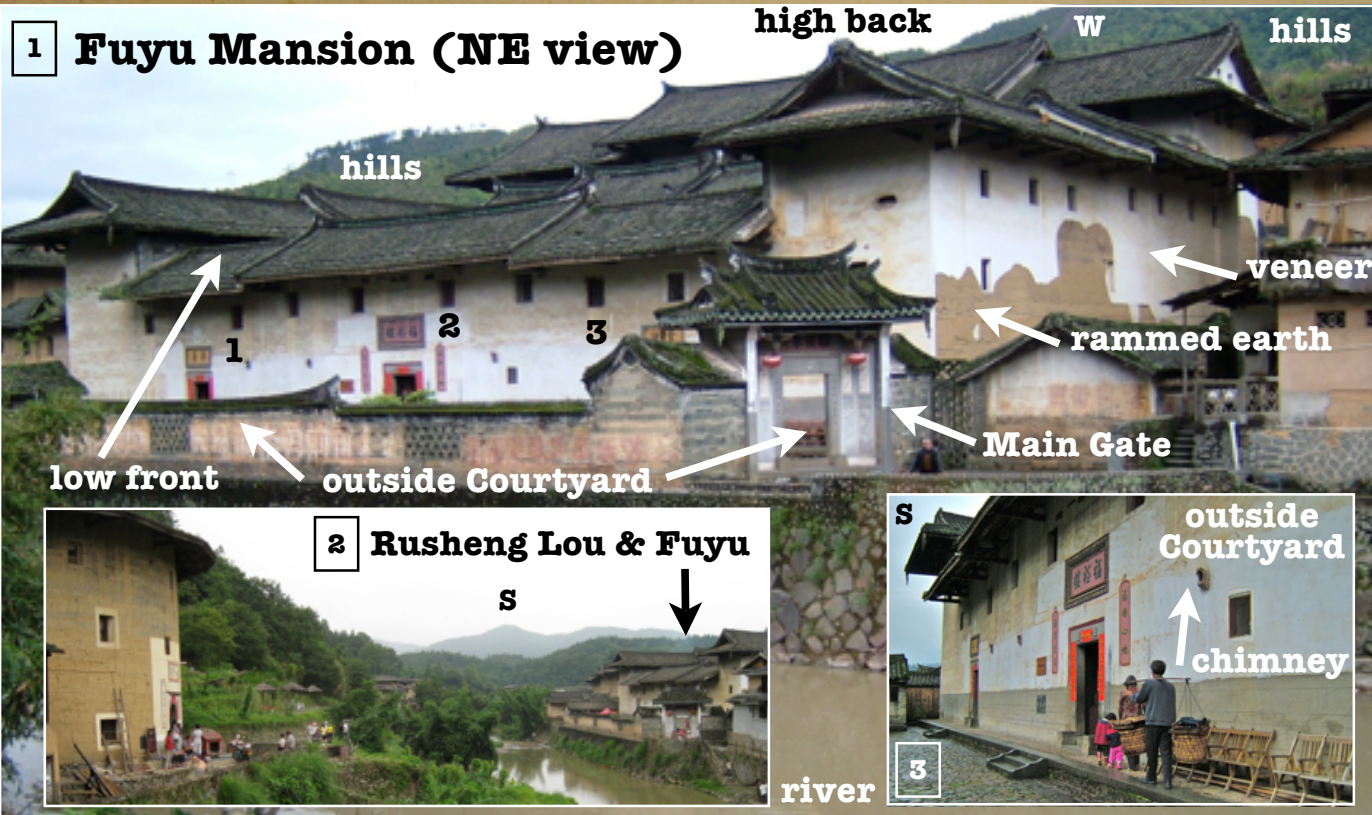
Notes/Site/Info/Recommendations: "one of the biggest [Hakka] buildings" ³

- 1) **Note:** 136m x 76m = 10,336 m² (including 2 courtyards). This is 1 building, not 3 ^{1,2} (see page 1)
- 2) **Site:** walk around area to see similar structures. View Yijing from nearby Xibei Tian Hougong Temple.
- 3) **Information:** Stay overnight to experience & understand people, life, culture & architecture. We did.
- 4) **Recommendation:** should be part of UNESCO World Heritage Site. Bring binoculars.

• ACE+ASH-Incs. Calgary Canada, <http://www.SustainableChina.net>, <jdo@ecobuildings.net>



Hakka Heritage 3: to all interested in **Hakka** history, culture & architecture 1/2
Fuyu Manor, Hongkeng Village, Hukeng Town, Yongding, Fujian jdo © Feb. 28/11



FACTS on Fuyu: Hakka BioSphere+Trail, sustainable historical villages in south China Jorg Ostrowski © Feb. 28, 2011

- ~ 150 km NW of Xiamen: built by 3 Lin brothers, in 1880 (Qing Dynasty), long before Zhencheng Lou was built. One was a government official.
- **Specs:** 7,000m² 5-Phoenix mansion (royal) style tulou ¹, row housing with 3 similar & parallel family units, @ has gate to outer courtyard (FF 1, 3, 4) & doors to neighbours; Length: ?m east-west, Width: ?m (north-south) ⁴; Height: 1-6 stories (FF 1, 3-6), 16m high rammed earth wall ¹, ? m thick ⁴; 166 rooms, 22 halls, 28 stairs, 6 courtyards, 2 side doors, 2 wells, 6 bathrooms ⁵; 1-story former school at S end of outer courtyard. Vendors walk through this courtyard at 5:00 AM. It is also used for school parties, restaurant, mock weddings and drying clothes. Massing and privacy is gradual from front to back. Ancestral hall on west side (F 14).

CONCLUSIONS: based on on-site/neighbourhood tours, overnight stays, interviews/talks with owners/operators, plan reviews & book/internet research

- **Unique:** in size, height, graduated massing, both single+family suite arrangements; end building has lounge+balcony overlooking courtyard for 5 rooms at stairs, while wings on other 3 sides have wood corridors overlooking inner courtyard leading to single rooms; self-sufficiency. It lives like a mini-city.
- **Art & Details:** numerous paintings, rafter carvings & colourful roof detailing left (FF 9, 10); Details include: brick floors & walls (fire barriers); greywater system (+access ports) & 2 wells still working; much whitewash veneer still intact (rare) (F 1-6). It is like a living & breathing historical archive.
- **ACE+ASH-Incs.** Calgary Alberta Canada: sustainable design/consulting, <http://www.HakkaHeritage.com>, <jdo@HakkaHeritage.com>

- **Sustainable** gardens/healthy food, rammed earth/wood, self-sufficiency 2/2
- good land use, high density & courtyards for more rooms & good ventilation

8 inner Courtyard

9 detail

11 inside courtyard

detail

10

first courtyard

12

middle courtyard

13

14 Ancestral Hall

14

References: this PostCard/PlaceMat will reside at <http://www.HakkaHeritage.com>,

- 1) site sign
- 2)
- 3) Ye Enzhong, ed., He Baoguo, *Fujian's Earthen Buildings*, Beijing, 2009, pp 12-15
- 4) Kentaro Okada, "Hakka Enro" *Ryokojin Ultra Guide*, Ryokojin, Tokyo, June 2004, pp ?? (in Japanese)
- 5) Wang Fu Ping, *A History of Tulou Buildings*, Haifeng, 2008, p 14

Notes/Site/Info/Recommendations: based on 3 visits, discussions & presentations

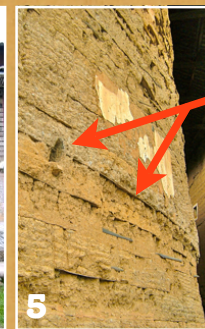
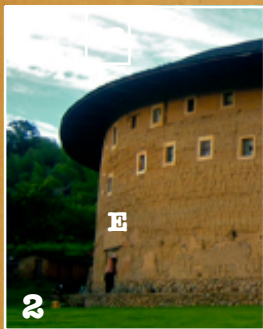
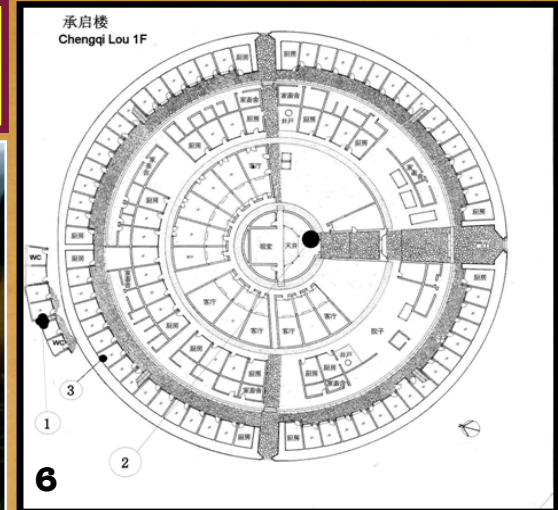
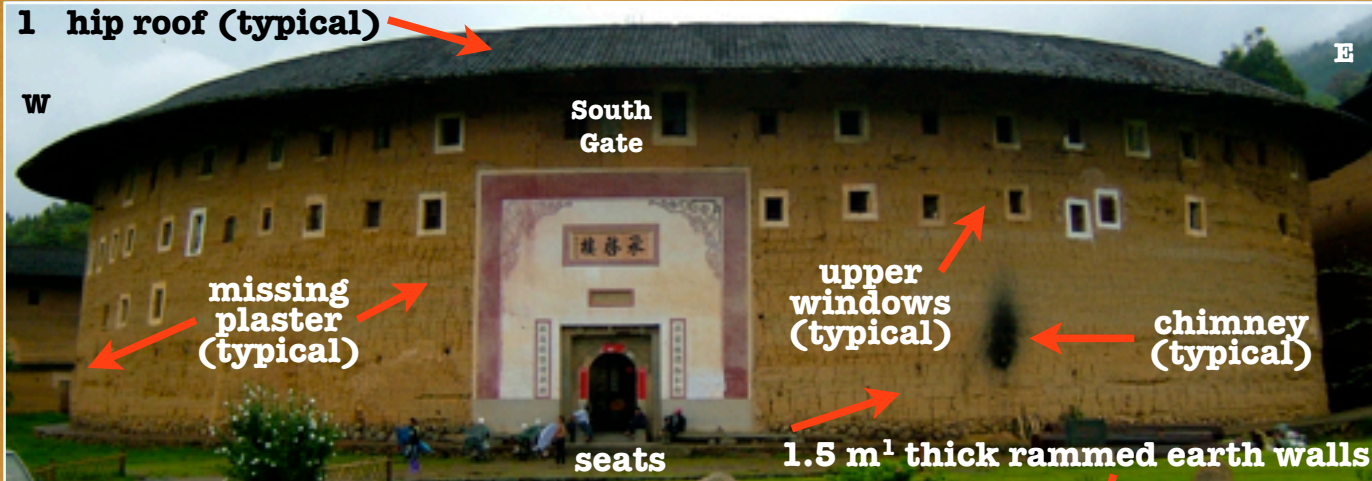
- 1) **Note:** Fuyu is best tulou in Honkeng, at right price. Almost no useful information on Fuyu in travel books or internet.
- 2) **Site:** walk around area. There are ~ 30 buildings. Stay overnight to experience & understand people, life, culture & architecture.
- 3) **Information:** No car access. Owner: Lin Qingsheng, operator: Stephen <fuyulou@hotmail.com>, ¥80-100/room. No AC.
- 4) **Recommendation:** Stay for week. Hike in surrounding hills overlooking valley. Bring binoculars.

- ACE+ASH-Incs. Calgary Canada, <http://www.HakkaHeritage.com>, <jorg@HakkaHeritage.com>



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Hakka Heritage 4: to all interested in Hakka history, culture & architecture 1/2
Chengqi Lou, Gaobei Village, Gaotou Town, Yongding, Fujian jdo © March 2/11

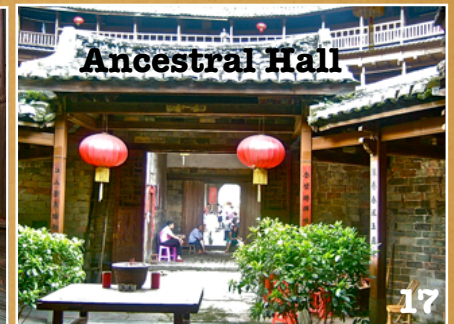
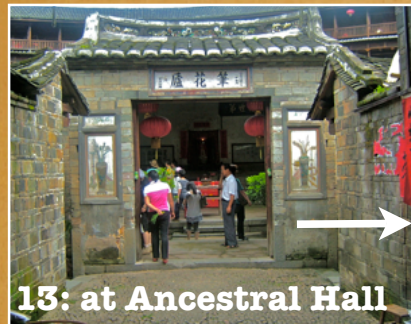
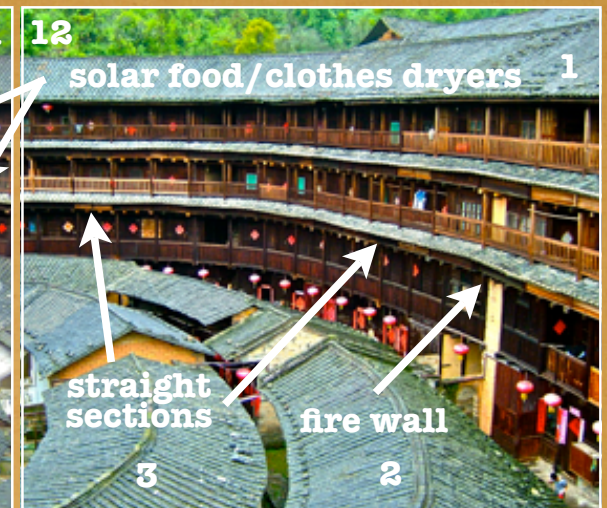
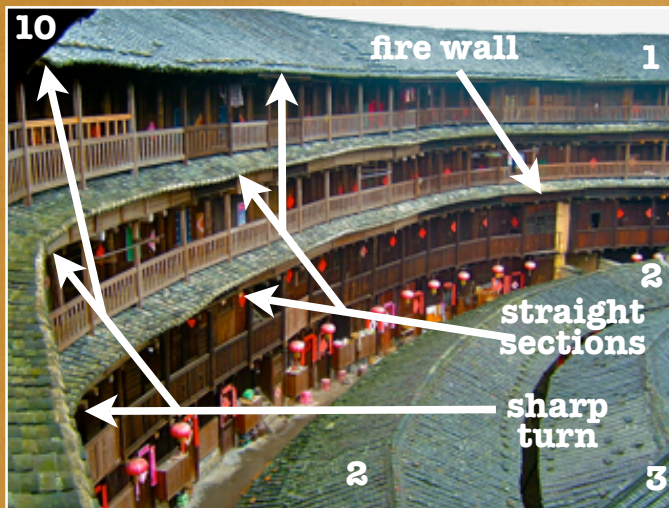


FACTS on Chengqi Lou: sustainable Hakka BioSphere+Trail, Jorg Ostrowski © March 2, 2011

- ~ 5 km to Hongkeng, UNESCO World Heritage Site, built by Jiang clan 1628-1709^{1,3}, Ming dynasty. Area: 5,376 m² 1,2, 400 rooms^{1,5}
- **Specs:** 3 concentric rings around an ancestral hall (FF 9-13, 17). Main building is 73 m 1,5 (62.5 2) ø, 4 stories (16m high). 72 rooms/floor. Kitchens/dining on ground floor, storage on 2nd, bedrooms on 3rd & 4th. Wooden corridors overlook courtyard on 2nd -4th & lead to 4 stairs at 4 cardinal points 2. South Gate, east & west side doors control defence, security & fire escape (FF 1-3, 6). 2nd ring has 80 rooms on 2 stories. 3rd ring is a 1-story 32-room school¹ or library². Capacity: > 600 people 1,5
- **Conclusions:** based on several visits, talking to elders, plan/aerial review, research & monitoring
 - 1) if Chengqi at 73 m ø can house 600 people, then Eryi lou at 108.8 m ø could house many more (see 2/2)
 - 2) although always drawn & quoted as "circular", Chengqi is actually oblong (see F 9, photo from Zhenfu, 2009)
 - 3) Chengqi is 1 of the largest/most famous tulous in the world, a good high profile building to monitor T&H
 - 4) monitoring will determine if tulous are "cooler in summer, warmer in winter" as everyone claims (see 2/2)
- ACE+ASH-Incs., <http://www.HakkaHeritage.com> <jorg@HakkaHeritage.com>



Chengqi: +Feng Shui/light/sun/ventilation, 452 ppa, local materials/industry, self-sufficient EcoCity 2/2



References: this PostCard/PlaceMat will reside at <http://www.HakkaHeritage.com>,

- 1) Wang Fu Ping, *A History of Tulou Buildings*, Haifeng, 2008, pp 48-55
- 2) *Fujian Tulou*, http://en.wikipedia.org/wiki/Fujian_Tulou
- 3) Ye Enzhong, ed., He Baoguo, *Fujian's Earthen Buildings*, Beijing, 2009, pp 78-83
- 4) Kentaro Okada, "Hakka Enro" *Ryokojin Ultra Guide*, Ryokojin, Tokyo, June 2004 (in Japanese)
- 5) He Baoguo, *Home Is Where the Heart Is - A Guide to the Earthen Buildings*, Haichao, 2008, pp 87-95
- 6) <http://www.ydtu.com/EarthBuilding/Chengqi-Lou.aspx>
- 7) <http://www.taiwan-guide.org/david/fujian/west.html#yongding>

Notes/Quote/Site/Info/Recommendations: Chengqi lou was featured as Chinese stamp in 1986 ¹

- 1) **Note:** Chengqi Lou is not "... the largest of the earth buildings" ^{1,2}. Eyri lou is 108.8m od. Shenyuan lou is 70m ø ²
 - 2) **Quote:** "King of Tulou (Round Earth Building)" ¹, "... excellent examples of ecologically sustainable building design" ⁷
 - 3) **Site:** Walk area & hills (~ 30 buildings) with binoculars for a week to experience & understand people, life, culture & architecture.
 - 4) **Information:** Minoru Ueda is monitoring temperature & humidity for 2 years <mu@ecobuildings.net>
 - 5) **Recommendation:** Modern architectural developments should be banned for many reasons. Stay in tulou, not hotel.
- ACE+ASH-Incs. Calgary Canada, sustainable design/consulting, <http://www.EcoBuildings.net>



Hakka Heritage 5: to all interested in Hakka history, culture & architecture 1/2
Tianloukeng, Shangban Village, Shuyang Town, Nanjing, Fujian jdo © March 3/11

1 Tianloukeng (Snail Pit) Cluster set into the landscape

- 1 square, 3 round & 1 oval tulous



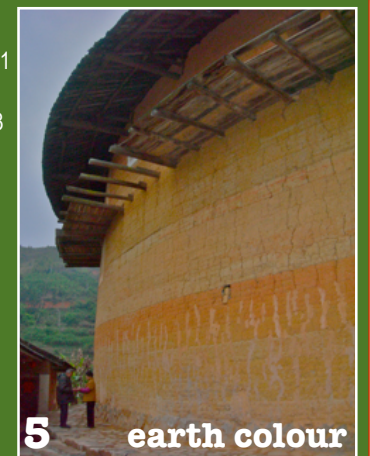
FACTS on Tianloukeng: sustainable Hakka BioSphere+Trail, J. Ostrowski/M. Ueda © March 3, 2011

- ~ 60/200 km from Nanjing/Xiamen⁶, UNESCO World Heritage Site³, built by Huang clan during Qing dynasty, 1662-1722¹
- **Specs:** the focus of this site is a hillside cluster of 3 different shaped tulous, not any 1 of the following 5 buildings:
 - 1) Buyun tulou (square): 1st built in 1796, 26 rooms@3 stories¹ = 78, 4 staircases, burned down by bandits in 1936 & rebuilt in 1953^{2, 4, 8}
 - 2) Zhenchang (round): 3rd built in 1930, 26 rooms@3 stories^{1, 8} = 78 in total (Note: all oriented SW)
 - 3) Ruiyun (round): 3rd built in 1936^{1, 2}, 26 rooms@3 stories^{4, 8} = 78 in total
 - 4) Hechang (round): 4th built in 1953¹ (also burned by bandits in 1936⁴)
 - 5) Wenchang (oval): last built in 1966, biggest, 32 rooms@3 floors^{1, 2, 4, 8} = 96 in total, 2,210 m²¹

- **Conclusions:** based on 1 visit, talking to locals, taking notes & further research Lat: 24.5872170, Long: 117.0552810

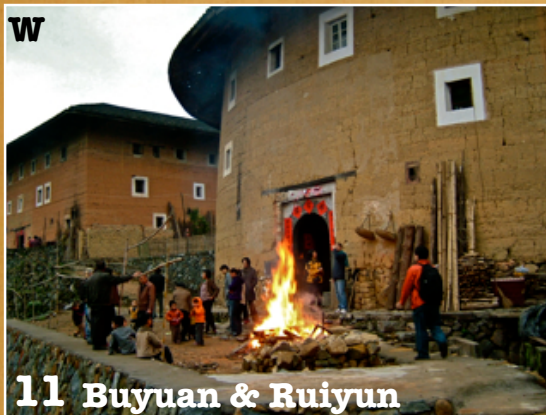
- 1) little useful information is available in books/internet^{1-2, 3-8}
- 2) its location on a hillside is unique, terraced housing
- 3) no building plans used⁴
- 4) tulous are not invincible & fire can destroy them⁴
- 5) finish is very poor (1966 Wenchang completely gone)
- 6) unusual outside upper wall structure is curious (F 5)

- ACE+ASH-Incs., <http://www.HakkaHeritage.com>, <jorg@HakkaHeritage.com>



5 earth colour

Tianloukeng: +Feng Shui/light/solar/ventilation, local materials/industry, self-sufficient EcoCity 2/2



References: this PostCard/PlaceMat will reside at <http://www.HakkaHeritage.com>.

- 1) Wang Fu Ping, *A History of Tulou Buildings*, Haifeng, 2008, pp 24, 104-9
- 2) *Tianluokeng Tulou Cluster*, http://en.wikipedia.org/wiki/Tianluokeng_Tulou_cluster
- 3) UNESCO, http://whc.unesco.org/download.cfm?id_document=101073
- 4) He Baoguo, *Home Is Where the Heart Is*, Haichao, 2008, pp 32-35
- 5) <http://www.topchinatravel.com/china-attractions/hakka-tulou-in-nanjing.htm>
- 6) http://www.appletravel.cn/holidays/travel_info.php?id=10
- 7) <http://www.whatsonxiamen.com/travel-msg-1137.html>
- 8) <http://www.jl-limo.com/travelinfo.asp?id=157>

Notes/Quote/Site/Info/Recomendations: tight display of Hakka Tulou archetype5

- 1) **Quotes:** "Chinese architecture and earthworking ... originated from ancient clan society, sites like Banpo in Xi'an" ⁵
"this particular cluster has been overwhelmed by...tourism...selling souvenirs and other trinkets."⁷
- 2) **Site:** ¥100/50 including Yuchang lou. This site is very remote.
- 4) **Information:** talk to locals about their buildings as the best source of information & post on internet
- 5) **Recommendation:** Modern architectural developments should be banned for many reasons. Stay in tulou, not hotel.

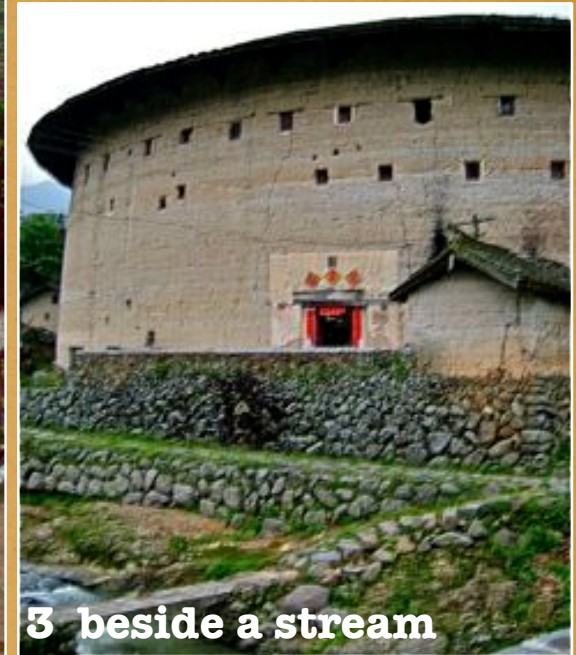
• ACE+ASH-Incs. Calgary Canada, sustainable design/consulting, <http://www.EcoBuildings.net>



Hakka Heritage 6: to all interested in **Hakka** history, culture & architecture 1/2
Yuchang, Xiaban village, Shuyang district, Nanjing Fujian jdo © March 4/11



1 Yuchang Tulou



3 beside a stream

FACTS on Yuchang: sustainable **Hakka BioSphere+Trail**, J. Ostrowski/M. Ueda © March 4, 2011

- ~ 4 km from Tianluokeng ², Hekeng Cluster, a UNESCO World Heritage site includes 6 round tulous: **Yuchang**, Yuxing, Chungui, Yongqing, Xiaochun, Dongsheng & 7 square ones: Yangzhao, Yonggui, Chaoshui, Yongrong, Yonsheng, Nanxun, Shengqing ⁵. Yuchang was built by Liu, Luo, Zhang, Tag & Fan clans, 1308-1338 ^{2,3} (Yuan dynasty). It is the oldest tulou in Nanjing County ¹.
- **Specs:** 5 stories@54 rooms ^{2,3} = 270, 2 rings: outer ring is 36m id (courtyard od?), 1-story inner ring was dismantled in 2003 ¹. structural posts are off centre by <15° ^{2,3} (F 6), yet structure has withstood 673 years of live and dead loads, including snow, wind & earthquakes. It is 21.6 m high (Hegui lou is 21.5m ⁴). 5 stairs, ⊥ not // to circle, do not contribute to lateral bracing, but serve @ of 5 vertical family units ^{2,3}. Only Liu clan lived here in 2009 ³. Each kitchen has a private well ^{1,2}, unique amongst tulous (FF 8, 9).
- **Conclusions:** based on 1 visit, talking to locals, taking notes & further research Lat: 24° 39' 05", Long: 117° 03' 05"
 - 1) Canadian inspectors would have condemned this structure as unsafe for each of its 673 years. They would all be wrong.
 - 2) combined structure of circular earth wall + wood gallery provide lateral stability. Stairs could have been used as diaphragms.
 - 3) vernacular architecture (*Architecture without Architects*) has triumphed once again to teach the proud & educated.
- ACE+ASH-Incs., <http://www.HakkaHeritage.com>, <jorg@HakkaHeritage.com>



4

• **Idiosyncrasies:** 673 years old, crooked structure, 1 well/kitchen, 5 clans/stairs/flats, 21.6 m height 2/2



References: this PostCard/PlaceMat will reside at <http://www.HakkaHeritage.com>,

- 1) *Fujian Tulou*, http://en.wikipedia.org/wiki/Fujian_Tulou 5) UNESCO, http://whc.unesco.org/download.cfm?id_document=101073
- 2) He Baoguo, *Home Is Where the Heart Is - A Guide to the Earthen Buildings*, Haichao, 2008, pp 35-59
- 3) Ye Enzhong, ed., He Baoguo, *Fujian's Earthen Buildings*, Beijing, 2009, pp 140-143
- 4) *Mystical Hakka Tulou*, http://en.fjta.com/FJTIS/FL/Top10FamousTour/Top10FamousTourShow.aspx?ID=7&mt_id=8

Notes/Quotes/Site/Info/Recomendations: “the tilted building”⁴ & one of the tallest

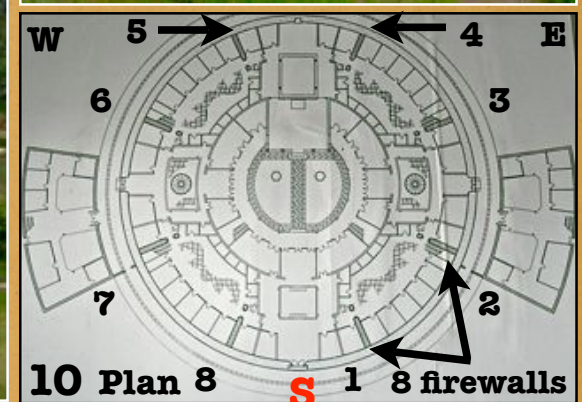
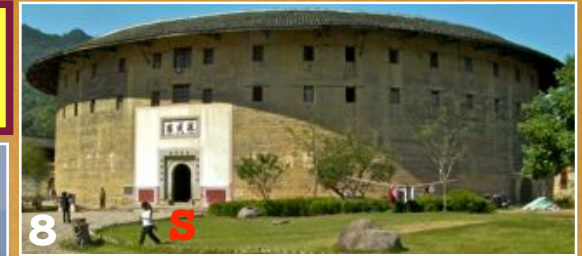
- 1) **Note:** it is unique as a structural anomaly, and in its age, height, many wells & multi-clan cooperative misadventure
- 2) **Quotes:** “dilapidated (postcard), “Zigzag”¹, “tottering”³, “tilted”³, building
- 3) **Site:** it is adjacent to the Qujiangxi River. There are another 12 tulous in the area⁵
- 4) **Information:** included in ¥100/¥50 Tianluokeng ticket. Stay overnight to appreciate people & culture, life & architecture.
- 5) **Recommendation:** Avoid another “Disneyland” as some tourists now complain. Keep irrelevant trinkets away.

• ACE+ASH-Incs. Calgary Canada, <http://www.SustainableChina.net>, <jdo@ecobuildings.net>

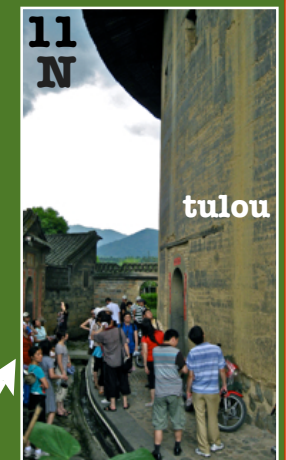


Hakka Heritage 7: to all interested in Hakka culture, history & architecture 1/2
Zhencheng, Honkeng village, Honkeng Town, Yongding, Fujian, jdo © March 6/11

1 Zhencheng Tulou



- FACTS on Zhencheng lou:** sustainable Hakka BioSphere+Trail, J. Ostrowski/M. Ueda © March 6, 2011
- ~ 150 km NW of Xiamen, Zhencheng is chief tulou in Honkeng Cluster, a UNESCO World Heritage site, built by Lin clan 1907-1912²
 - **Specs:** 2 rings: outer ring: 4 stories @ 46 rooms = 184^{1,3,7} in 8 units @ with own stairs/dining/kitchen/courtyard (F 13), based on Bagua^{1,7} concept (8 Trigrams^{2,3}) of Feng Shui^{1,3}. @ room is 10-13 m²⁴. Inner ring: 2-story brick 32 rooms^{2,3}. 1st floor has 8 more rooms + 2 halls (F 9)⁷. The 2 story Ancestral Hall is also used for theatre, music, opera, weddings, funerals & festivals. Western architecture of Greek columns & wrought iron railing on 2nd floor attest to the importance of education (FF 12, 14). On 3rd & 4th floors, the gallery railing overlooking the courtyard has a built-in bench. Outer rammed earth wall is 16 m high^{2,3}. Area = 5,000m²^{3,7}. Total rooms = 222⁷.
 - **Conclusions:** based on 1 stay, 4 visits, discussions with Mr. Lin, taking notes, further research Lat: 24° 40' 38", Long: 116° 58' 21"⁵
 - 1) **fire strategy:** 8 firewalls, brick floors, 2 wells (E: wisdom, W: beauty), 1 stair/2 units, fire doors, good except no roof parapets
 - 2) **homework/school:** tobacco cutting workshop on west side (F 10) & 12 room private school on east side (F 10)
 - 3) **details:** deep meaning/rich tradition on 20 couplets², earth cemented rock foundation (F 6), operating greywater system
 - ACE+ASH-Incs., <http://www.HakkaHeritage.com>, <jorg@HakkaHeritage.com>



- **Sustainability:** sheltered micro-climate, south orientation, revitalized future 2/2
- solar clothes dryers, optimal daylight, micro-industry, safe play area, mini EcoCity



13 private/public courtyard

12 Zhencheng Tulou central courtyard



multi-purpose Ancestral Hall



14



15



16



17

east well

References: this PostCard/PlaceMat will reside at <http://www.HakkaHeritage.com>,

- 1) *Fujian Tulou*, http://en.wikipedia.org/wiki/Fujian_Tulou
- 2) He Baoguo, *Home Is Where the Heart Is*, Haichao, 2008, pp 9-13
- 3) Ye Enzhong, ed., He Baoguo, *Fujian's Earthen Buildings*, Beijing, 2009, pp 39-41
- 4) *Journeys in Time, Secrets of Fujian Tulous Part 1*, <http://english.cntv.cn/program/journeysintime/20100526/103270.shtml>
- 5) UNESCO, http://whc.unesco.org/download.cfm?id_document=101073
- 6) <http://bbs.ctw.cn/simple/?t82452.html>
- 7) site sign

Notes/Quotes/Site/Info/Recommendations: "Prince of Tulous" ⁴

- 1) **Note:** it is the first tourist site in Hongkeng village ⁴
- 2) **Quotes:** "Prince of Tulous" ⁴, "... excellent examples of ecologically sustainable building design" ⁶, "Bagua Lou" ⁷
- 3) **Site:** 7 additional UNESCO tulous and 5 other tulous ⁵
- 4) **Information:** ¥50/¥25 for all of Hongkeng village ⁶. Stay overnight in Fuyu to appreciate people & culture, life & architecture.
- 5) **Recommendation:** CCTV video series ⁴ is highly recommended. Hike surrounding hills for better view & appreciation.

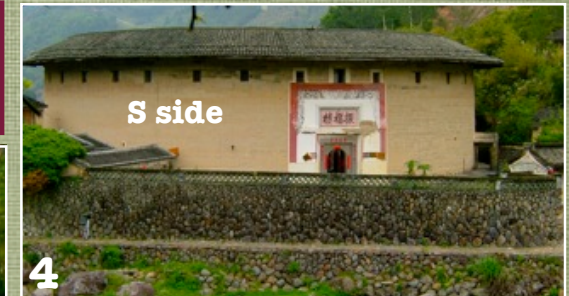
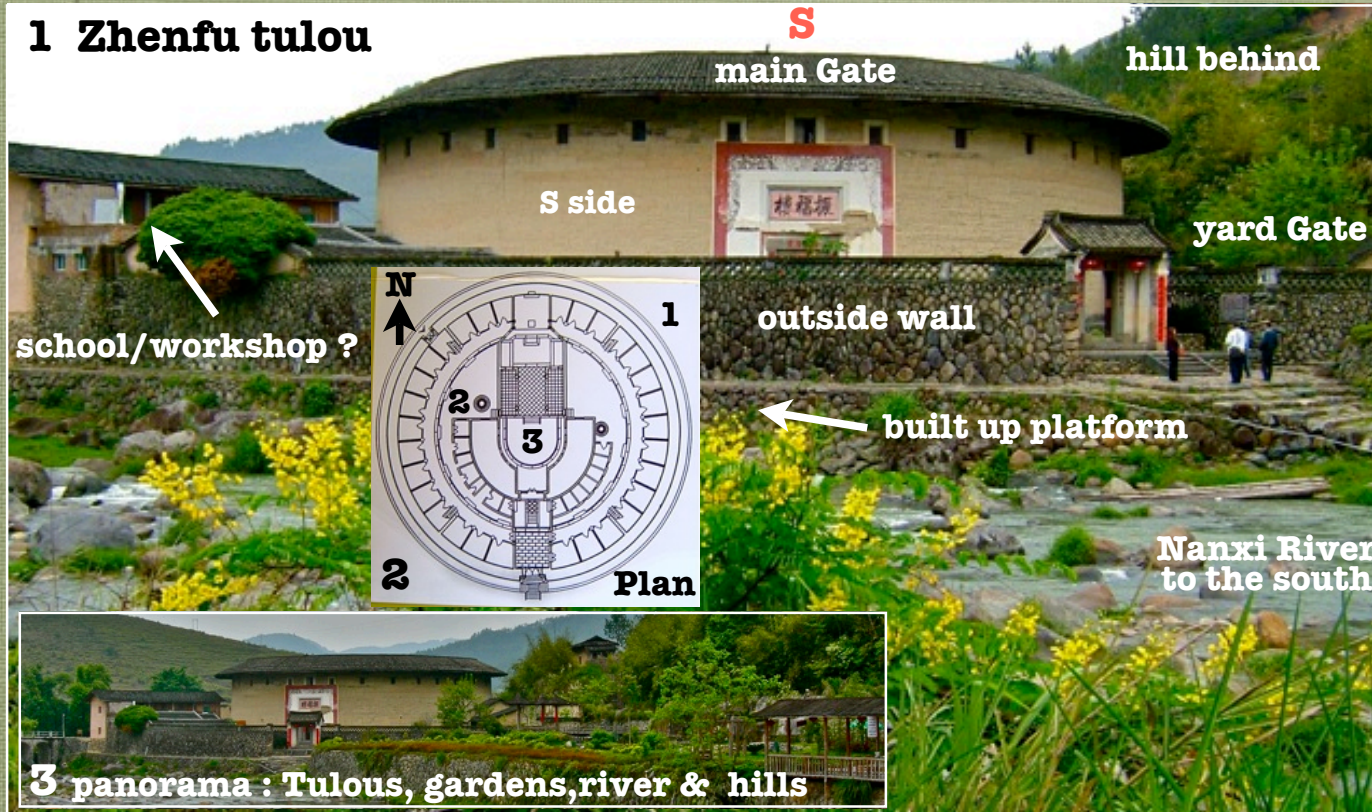
- ACE+ASH-Incs. Calgary Canada, <http://www.HakkaHeritage.com>, <jdo@ecobuildings.net>



18

Hakka Heritage 8: to all interested in Hakka culture, history & architecture 1/2
Zhenfu, Nanxi village, Hukeng Town, Yongding, Fujian, jdo © March 8/11

1 Zhenfu tulou

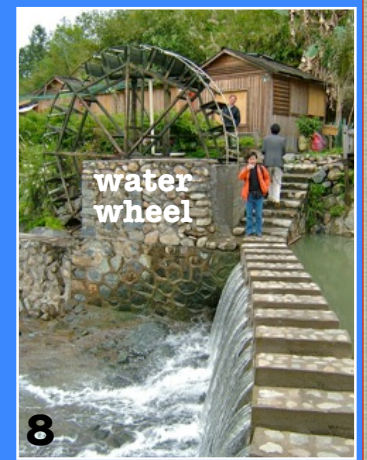


3 panorama : Tulous, gardens, river & hills

FACTS on Zhenfu: part of a sustainable **Hakka BioSphere+Trail**, J. Ostrowski/M. Ueda © March 8, 2011

- ~ 4 km from Zhencheng Lou ¹, Zhenfu lou is a 1.56 ha UNESCO World Heritage site ² built by Su clan ^{3,4} in 1913 ^{1,3,6}
- **Specs:** walled cobblestone front courtyard inside main gate as 1st line of defence, safe place for children & drying of food. 1st ring: 3 storied rammed earth wall (FF 1-5), 42.5 m ø ⁵, 16 m high ⁴, based on Bagua ⁵ (8 Trigrams ^{1,3,5}) of Feng Shui. 2nd ring: 1-story brick/wood semi circle, total 96 rooms ^{1,3,5}. 3rd ring: Ancestral Hall (F 12) + 2 business halls. Western influence ^{3,5} as in Zhencheng lou ³. Open galleries overlooking inner courtyard have brick floors (F 15). Area = 4,000m² ^{1,3,5}. 2 entrances: South gate, west side door (F 2). Greywater system as usual in all tulous (F 12). State museum in 2007, 2009, is now Research Institute (2010).
- **Conclusions:** based on 2 visits, notes & further research Lat: 24° 38' 06", Long: 116° 56' 59" ²
 - 1) **idyllic site:** rural, hill behind to deflect cold north winds, river (F 8) to reflect sun, for micro-climate, gardens & fish ponds
 - 2) **fire:** brick firewalls, brick floors, 2 wells (FF 2, 20), 4 stairs ⁵ (F 11), fire doors (assumed)
 - 3) **multi-use:** residential building + tobacco industry office & storage room ³, which funded construction (company village)

• ACE+ASH-Incs., <http://www.HakkaHeritage.com>, <jorg@HakkaHeritage.com>



Sustainability: good S orientation/Feng Shui/multi-use/local materials/gardens/fish ponds+water power 2/2



References: this PostCard/PlaceMat will reside at <http://www.HakkaHeritage.com>,

- 1) Ye Enzhong, ed., He Baoguo, *Fujian's Earthen Buildings*, Beijing, 2009, pp 39-41
- 2) UNESCO, http://whc.unesco.org/download.cfm?id_document=101073
- 3) Zhenfu Lou: <http://www.ydtu.com/EarthBuilding/Zhenfu-Lou.aspx>
- 4) Wang Fu Ping, *A History of Tulou Buildings*, Haifeng, 2008, pp 58-61
- 5) site signs (1 outside, 1 inside)

Notes/Quotes/Site/Info/Recommendations: “Princess of Tulous”⁵

- 1) **Note:** village also called: XiaNanxi (postcard), Xipian³. It is one of the best preserved & most solid tulou.
- 2) **Quotes:** “Zhencheng's [little] sister building”¹, “Princess of Tulous”⁵
- 3) **Site:** beautiful site for day's stroll & picnic, Huanchang & Wan'an buildings, viewing deck & waterwheel nearby,
- 4) **Information:** west side ruins were tobacco workshops destroyed in 1930s⁵. West brick structure is workers' residence⁵.
- 5) **Recommendation:** Hike surrounding hills for better view & appreciation.

• ACE+ASH-Incs. Calgary Canada, <http://www.HakkaHeritage.com>, <jdo@ecobuildings.net>



Hakka Heritage 9: to all interested in Hakka culture, history & architecture 1/2
Jiqing Lou, Chuxi village, Xiayang Town, Yongding, Fujian, jdo © March 9/11



FACTS on Jiqing: part of a sustainable **Hakka BioSphere+Trail**, J. Ostrowski/M. Ueda © March 9, 2011

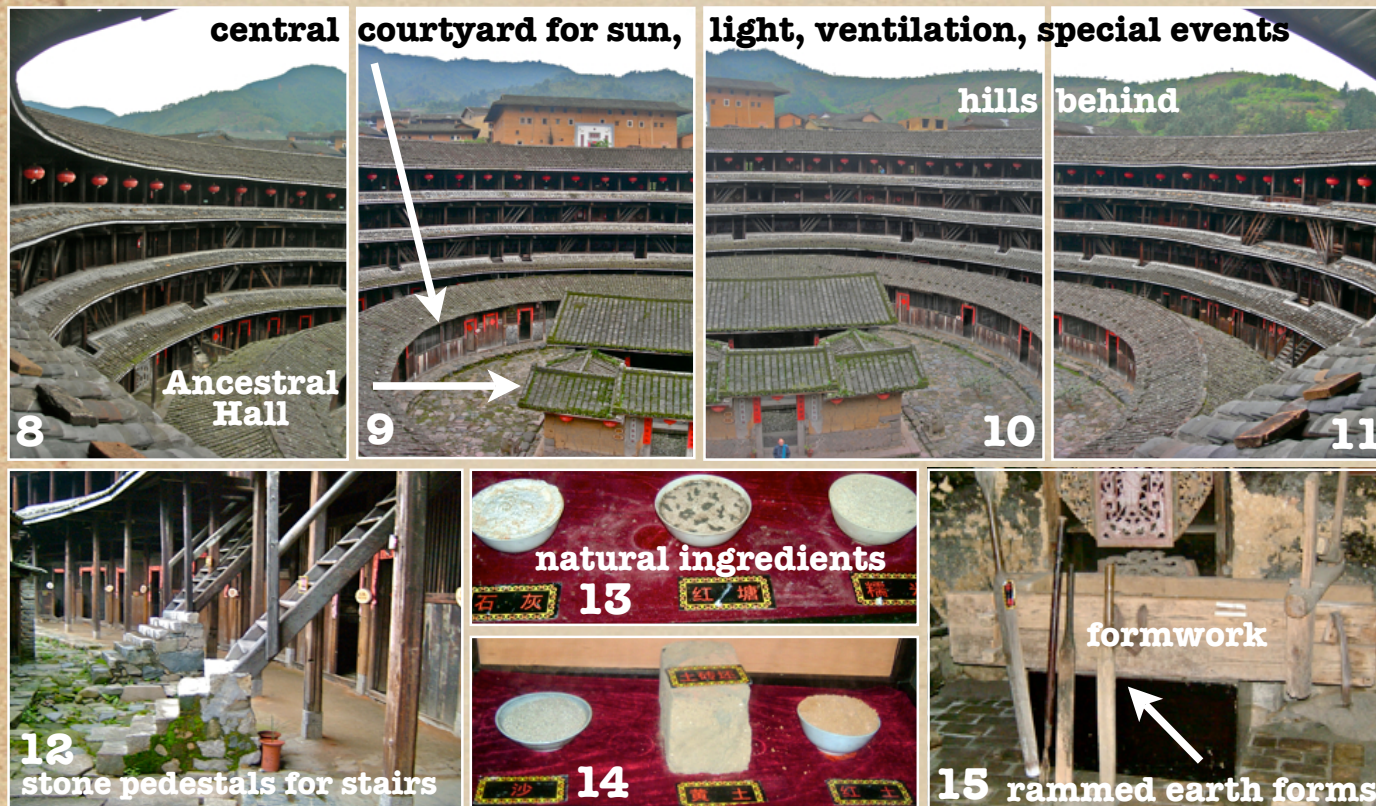
- ~ 190 km east of Xiamen, Chuxi is a 14.72 ha UNESCO World Heritage site ^{1a}, with 5 round & 4 square tulous on north slope
- **Specs:** Jiqing lou was built 1403-1424 (Ming dynasty) ^{1b, 3, 4} by Xu clan ², 66 m ø ^{2, 5}. Area = 2,826 m² ^{2, 5}. Outer ring: 4 story, 2 m wide ^{2, 3} rammed earth wall (FF 1-6). Ground floor: 53 rooms, upper floors @ 56 rooms ⁵. 1 stairway @ 72 units ^{2, 4}. Inner ring: 1-story ^{3, 4} 26 rooms of brick & wood ⁵. Total rooms: 247. Design is based on traditional Chinese Feng Shui ³ (8 Trigrams). No nails used ³. Similar in design concept to Eryi & Shengwu tulous by providing both private & common space ². Front gate leads to entrance hall, to open patio, inner ring, passage, courtyard, Ancestral Hall & backyard. Ground: Kitchen/Dining; 2nd: barns; 3rd: living rooms, 4th: bedrooms ³
- **Conclusions:** based on 2 visits, notes & further research
- 1) **capacity:** Chengji lou: 400 rooms/66m ø/5,376 m² for 600 persons → **Jiqing lou** 250 rooms/66m ø/2,826 m² = ~320 persons
- 2) **changes:** from no stone foundation to pebble veneer, inner corridor to open gallery (F 8-11) & 1 to 72 stairs (in 1744)
- 3) **defence features:** 9 wooden watch stands ² (FF 1-6), hidden rear escape stairs to secret hole in wall (at back) ⁵



• ACE+ASH-Incs., <http://www.HakkaHeritage.com>, <jorg@HakkaHeritage.com>

Lat: 24° 33' 00", Long: 116° 53' 58" ^{1a}

- **Sustainability:** local rammed earth/wood, self-sufficiency **Jiqing 2/2**
- wise land use/high density/courtyard/community living+shared amenities



References: this PostCard/PlaceMat will reside at <http://www.HakkaHeritage.com>,

- 1) UNESCO, a) http://whc.unesco.org/download.cfm?id_document=101073 4) http://en.wikipedia.org/wiki/Fujian_Tulou
b) http://whc.unesco.org/archive/advisory_body_evaluation/1113.pdf 5) <http://www.ydtu.com/EarthBuilding/Jiqing-Lou.asp>
- 2) Wang Fu Ping, *A History of the Tulou Buildings*, Haifeng, 2008, pp 77-81
- 3) *Hakka Legends*, http://www.whatsonxiamen.com/travel_msg.php?titleid=444&traveltype=Travel%20in%20Xiamen

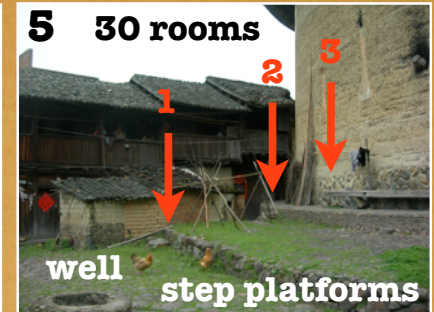
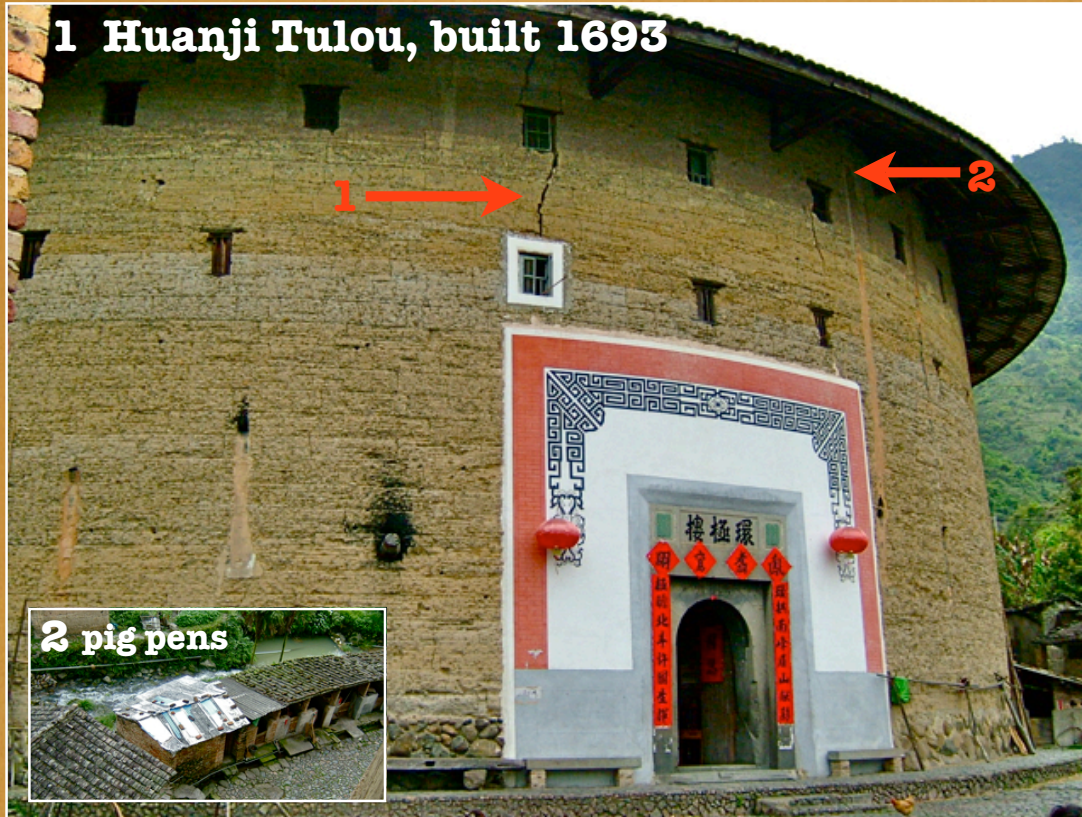
Notes/Site/Info/Recommendations: worth visiting with 9 UNESCO tulous, 5 round, 4 square

- 1) **Note:** a large unusual 587-year old, defensive tulou that underwent significant physical changes through the years
- 2) **Quote:** "This one Hakka Tulou can house a small community"³, "disobedient building" (rules not followed)²
- 3) **Site:** 5 round tulous: Jiqing, Gengqing, Yuqing, Fuqing & Shanqing; 4 square tulous: Shengqing, Fangqing, Gongqing & Xiqing
- 4) **Information:** ¥70/¥35 Rammed earth forms & natural ingredients are displayed in museum (FF 13-15).
- 5) **Recommendation:** Stay for week. Hike in surrounding hills overlooking site. Bring binoculars.

- ACE+ASH-Incs. Calgary Canada, <http://www.HakkaHeritage.com>, <jorg@HakkaHeritage.com>



Hakka Heritage 10: to all interested in Hakka culture, history & Ecotecture 1/2
Huanji Lou, Nanjing village, Hukeng Town, Yongding, Fujian, jdo © March 12/11



FACTS on Huanji lou: part of a sustainable **Hakka BioSphere+Trail**, J. Ostrowski/M. Ueda © March 12, 2011

- ~ 190 km east of Xiamen, Huanji lou ("superior circle"⁶), is an intermediate-size round tulou, facing south, on its own.
- **Specs:** Huanji lou was built in 1693^{2,3} (Qing dynasty⁵) by Su clan². 43.2 m ø^{1,2}, ~ 4,800 m² (?)². Outer ring: 4 story, 20 (?) m high¹ rammed earth wall (FF 1, 6, 7). Ground floor: 32 rooms rammed earth/wood. Inner ring: 1-story brick, 12 guest rooms & 2 halls¹. Total rooms: ~150. A 2-story adjacent building (F 5) flanks Huanji lou with another 30 rooms, probably to house tobacco workers.
- 4 unique aspects: 1) excellent acoustics in centre of courtyard (FF 17-18), 2) Ancestral Hall outside of (north side) of courtyard (FF 19, 20), and survival of: 3) 1918 6.2 earthquake (see cracks FF 1, 6), 4) Kuomintang bombing attack in 1940s⁵

• **Conclusions:** based on 2 visits, notes & further research

- 1) **Capacity:** if Chengji lou's 400 rooms could house 600 people → Huanji lou's ~150 rooms could house ~225 persons
- 2) **Myths:** brown sugar/glutinous rice not used in walls, crack did not self-heal⁴, area based on ø given, & height are wrong
- 3) **Acoustics:** this tulou excels in acoustics (based on experience), as does Eyri lou (but much larger at 108m ø)

• ACE+ASH-Incs., <http://www.HakkaHeritage.com>, <jorg@HakkaHeritage.com>



Sustainability: local rammed earth/wood, durability, acoustics **Huanji 2/2**
 • wise land use/high density/courtyard/community living+shared amenities



References: this PostCard/PlaceMat will reside at <http://www.HakkaHeritage.com>,

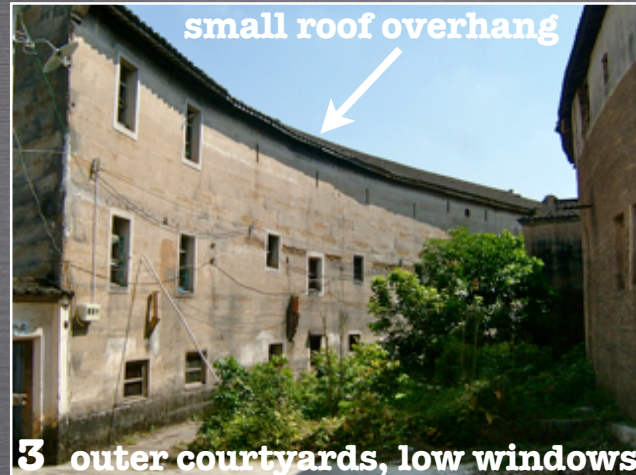
- 1) He Baoguo, *Home Is Where the Heart Is*, Haichao, 2008, p 22
- 2) Wang Fu Ping, *A History of the Tulou Buildings*, Haifeng, 2008, pp 64-67
- 3) Ye Enzhong, ed., He Baoguo, *Fujian's Earthen Buildings*, Beijing, 2009, pp 62-63
- 4) *Myths & Secrets of Hakka Round Houses*, http://www.whatsonxiamen.com/travel_msg.php?titleid=339&traveltype=Fujian%20Travel
- 5) <http://www.pixieadventures.com/product/?prodid=44>
- 6) site sign (in Chinese)

Notes/Quotes/Site/Info/Recommendations: the **acoustics** are unique for Yongding county

- 1) **Note:** a medium sized, 318-year old tulou, famous for its 6.2 earthquake crack & acoustics in the center of the courtyard
- 2) **Quote:** "Anti-seismic Huge Castle" (postcard), "most mysterious"³, "impious" (no Ancestral Hall in courtyard)¹
- 3) **Site:** round tulous: Yanxiang & Zhenfu, ruined walls of burned & rectangular tulou, Liben, are also located in Hukeng¹
- 4) **Information:** no information at this time
- 5) **Recommendation:** not worthy as special trip for this tulou alone, but in conjunction with others, one day will suffice
 - ACE+ASH-Incs. Calgary Canada, <http://www.HakkaHeritage.com>, <jorg@HakkaHeritage.com>



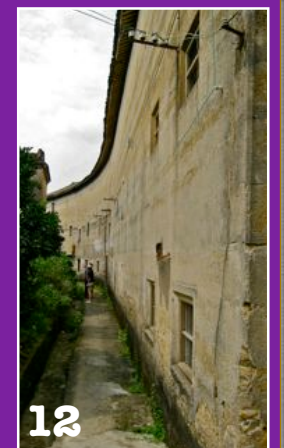
Hakka Heritage 11: to all interested in Hakka culture, history & Ecotecture 1/2
Yuan Yuan Lou, Tongpa Village, Songkou Town, XiaDian, Guangdong, jdo © March 12/11



FACTS on Yuan Yuan lou: part of a sustainable **Hakka BioSphere+Trail**, J. Ostrowski/Q. Lijing/X. Li © March 13, 2011

- ~ 70 km east of Meizhou, Yuan Yuan lou faces south to the confluence of the Song Yuan and Han Rivers ¹ (F 1)
- **Specifications:** Yuan Yuan lou, built ~1700 ¹ (Qing dynasty) by Lee clan ¹, is a palace style tulou, 2 stories high in the front, 3 stories in the back, similar to the stepped massing in a Phoenix style tulou mansion such as Fuyu lou in Honkeng Village, Fujian. Province
- **unique aspects:** A) site: adjacent gardens & ponds; B) tulou: 1) Royal Palace style architecture, 2) 4 (ascending) courtyards (FF 14, 16, 17, 20), 3) grand entrance & staircase (FF 4, 10), 4) Ancestral Hall on top floor (FF 13, 15), 5) durable rammed earth walls (except for cracks) (FF 7-12), 6) finishing details (FF 6, 14, 19), 7) convex walls (FF 2, 3), 8) low windows (FF 2-3), 9) unkept & unknown, unvisited & unprotected
- **Conclusions:** based on 3 site visits by team members, notes & on-going field trips & research
 - 1) **Unique:** palatial & mysterious Hakka site development (gardens, orchards, fish ponds) & unparalleled building architecture
 - 2) **Plan:** sophisticated layout, with processional courtyards, main gate, side/rear doors, gardens/ponds - like a mini Forbidden City
 - 3) **Rammed earth walls:** unusually high-quality, durable, well preserved (except for cracks), curved & straight (FF 2-12)

• ACE+ASH-Incs., <http://www.HakkaHeritage.com>, <jorg@HakkaHeritage.com>



Sustainability: local rammed earth/wood, durability, precious history **Yuan Yuan 2/2**
 • palatial Hakka architecture/high density/courtyard/community living+shared amenities



13

14 exquisite woodwork



15 3rd floor view



16

Courtyard 2



17 inner Courtyard 1



18 side door



19

carvings



20

Courtyard 3



References: this PostCard/PlaceMat will reside at <http://www.HakkaHeritage.com>,

- 1) correspondence with Qiu Lijing, Jiaying University in Meizhou, Yan-Li Xiaoyan, in Shenzhen
- 2) <http://www.caryouyou.com/note/img/2010-08-19/16637.html>
- 3) http://blog.mzsky.cc/hqswyw/blog_365

Notes/Quotes/Site/Info/Recomendations: this Hakka palace monument is a unique tulou

- 1) **Note:** there are no English or Chinese write-ups anywhere in the world. All research is original.
- 2) **Quotes** (couplets): top: "YuanYuan Lou", Left: "the distant mountain is flourishing"; Right: "the headstream is rolling,"¹
- 3) **Site:** many related buildings comprise the site beyond a single building
- 4) **Information:** 3 field trips have been made, A 4th site visit is planned for more fact-finding. No other information available.
- 5) **Recommendation:** this rare piece of historical Hakka architecture must be saved by a private/public partnership

• ACE+ASH-Incs. Calgary Canada, <http://www.HakkaHeritage.com>, <jorg@HakkaHeritage.com>

21 inner Gate

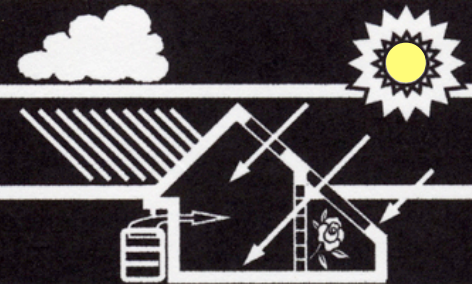


A *utonomous &*

S *ustainable*

H *ousing Inc.*

城市和可持續的家園



International Partnerships

- ✓ Alberta/Canadian Governments (embassy)
- ✓ History Channel, US
- ✓ Hakka Research Institute, Jiaying University
- ✓ • Tsung Tsin Association of Ontario?
- University of Washington?
- Vancouver Tsung Tsin Association?
- Canadian Universities (Architecture)?
- Canadian & Chinese corporations
- Canadian & Chinese NGOs
- individuals

Hakka Projects underway 1/10

1) Architectural Design:

a) Biosphere, RecoCity & Trail demonstration:

- meetings with, short listing of, partners & sites
- September-October 2011, trip #6

b) Pattern Language studies: (generic features)

- architectural, planning, sustainable & social



Hakka Projects underway 2/10

2) an effort to rescue & preserve Yuan Yuan:

- another 3 field trips
- write article
- more field data
- ask protection status



Hakka Projects underway 3/10

3) Structural Engineering studies:

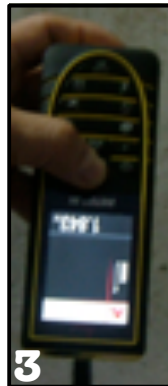
- to strengthen new & old rammed earth walls
- local & natural ingredients
- examination of engineering (failures)
- earthquake performance (round)



Hakka Projects underway 4/10

4) Physics & Mechanical studies:

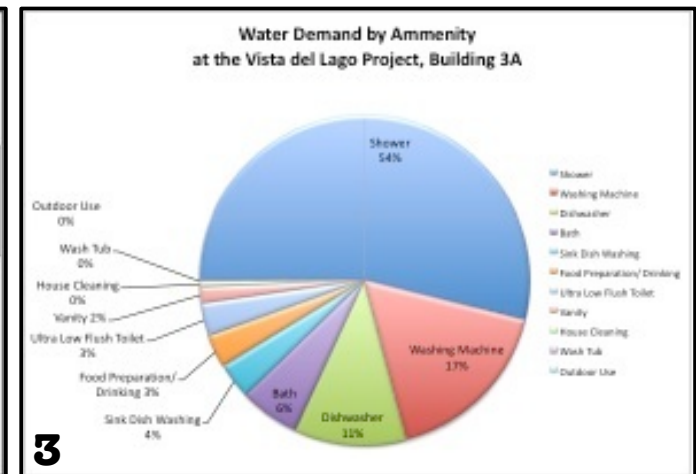
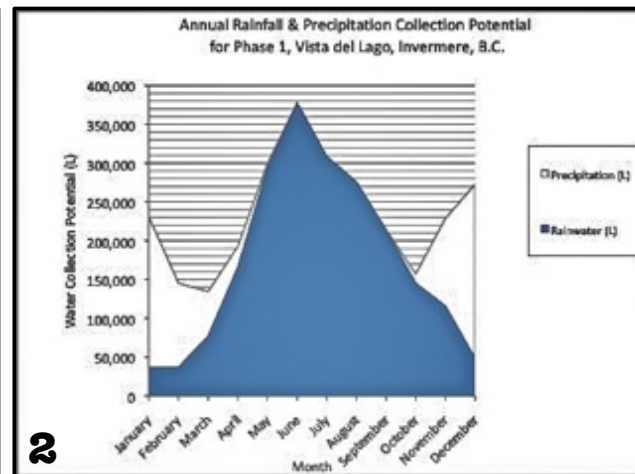
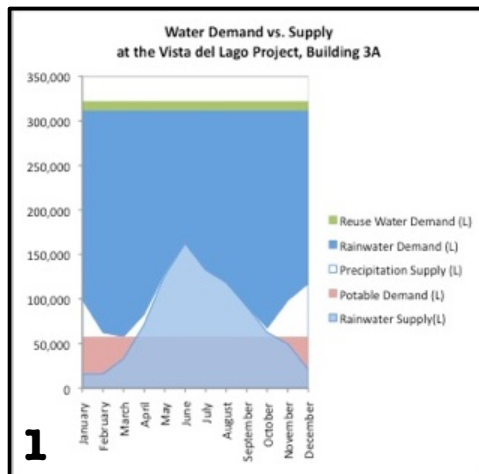
- calculate mass & building time constant (BTC)
- create of a simulation program
- cross-verify **temperature** monitoring results
- calculating **embodied energy**



Hakka Projects underway 5/10

5) rainwater harvesting & conservation:

- calculations of potential rainwater collection
- collection, storage & distribution in tulou



Hakka Projects underway 6/10

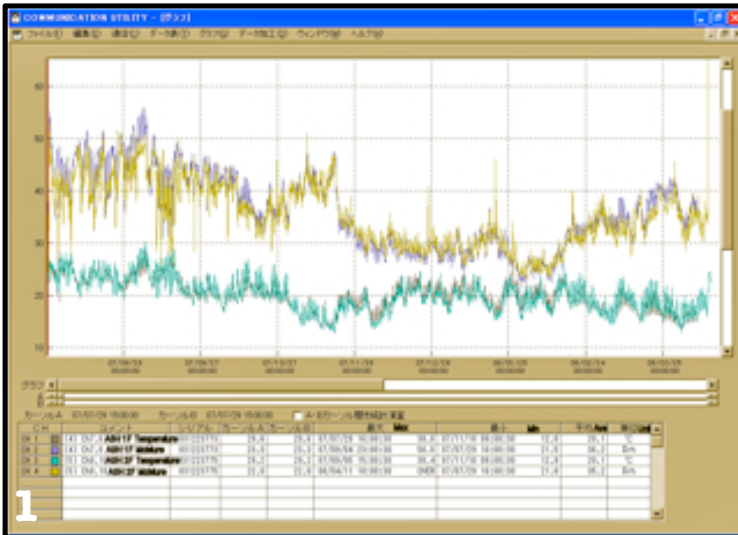
- 6) toilets:** building on past, ready for future
- honouring existing methods of recycling waste
 - + major improvements in hygiene & safety
 - increasing # of tourist accommodations



Hakka Projects underway 7/10

7) monitoring for 2 years:

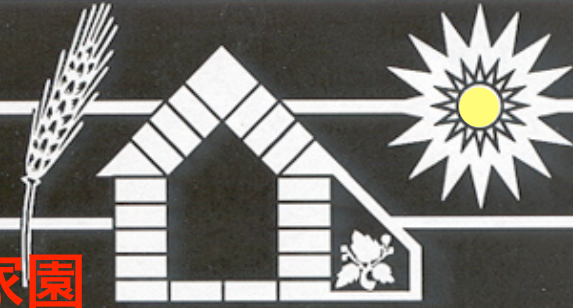
- temperature monitoring at Chengqi lou
- is it warm in winter, cool in summer?



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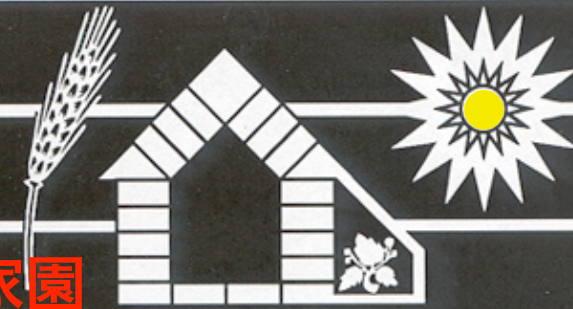


Hakka Projects underway 8/10

8) Foreign Study exchanges:

- architecture schools
- mini conferences
- practicums/internships
- foreign exchange





Hakka Projects underway 9/10

9) Posters/PostCards: abstracts of Hakka tulous

- useful private/public souvenirs/fundraisers

Chengqi: +Feng Shui/light/sun/ventilation, 452 ppa, local materials/industry, self-sufficient EcoCity 2/2

References: this PostCard/PlaceMat will reside at <http://www.HakkaHeritage.com>

Notes/Quote/Site/Info/Recommendations: Chengqi lou was featured as Chinese stamp in 1986!

1) Note: Chengqi Lou is not "the largest of the earth buildings". Eryi lou is 108.8m od. Shenyuan lou is 75m ø

2) Quote: "King of Tulou (Round Earth Buildings)". "excellent examples of ecologically sustainable building design"

3) Site: Walk site & hill (~30 buildings) with brochures for a week to experience & understand people, life, culture & architecture.

4) Information: Minor Ueda is monitoring temperature & humidity for 2 years <mu@ecobuildings.net>

5) Recommendation: Modern architectural developments should be banned for many reasons. Stay in Tulou, not hotel.

• ACE+ASH-Incs. Calgary Canada, sustainable design/consulting, <http://www.EcoBuildings.net>

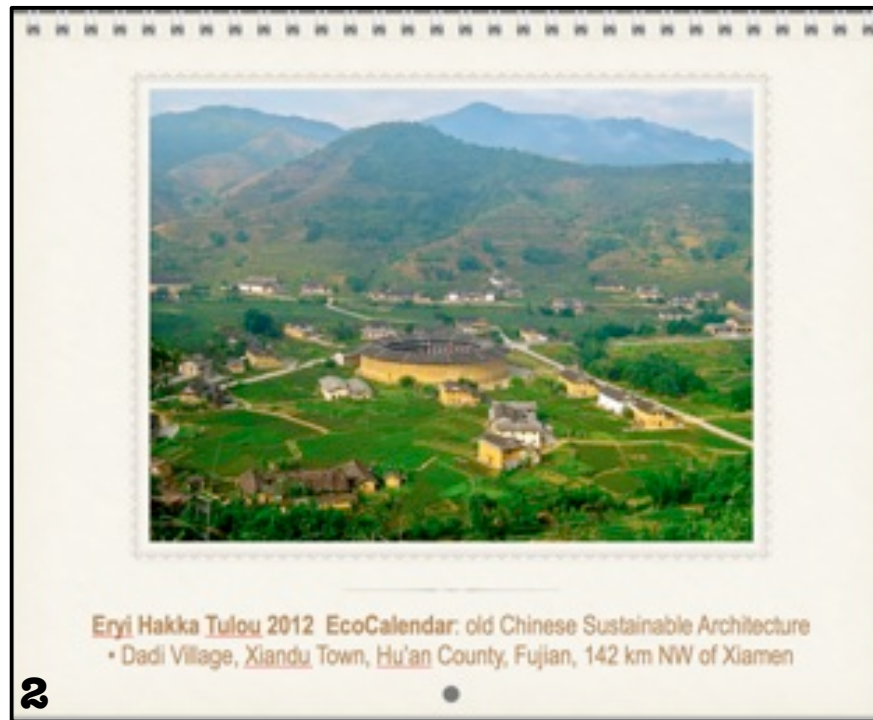
Hakka Heritage 4: to all interested in Hakka history, culture & architecture 1/2
Chengqi Lou, Gaobei Village, Gaotou Town, Yongding, Fujian pdo © March 2/11

FACTS on Chengqi Lou: sustainable Hakka BioSphere+Trail, Jorg Ostrowski © March 2, 2011

- 2 km²/1000 World Heritage Site, built by Jiang clan 1658-1705^{1,2}, Ming dynasty Area: 5,375 m² 14,400 rooms 1.4
- Specs: 2 concentric rings around an ancestral hall (P.F. 1-13, 17). Main building is 12 m 1.4 (32.5 m) ø, 4 stories (10m high, 72 rooms/floor). Overhanging on ground floor storage on 2nd. Bedrooms on 3rd & 4th. Historic cartman's work on 2nd-4th & lead to 4 main at 4 central points. South Gate, west & east side doors control defense, security & fire escape (P.F. 1-3, 6). 2nd ring has 80 rooms on 2 stories. 3rd ring is a 1-story 32-room school¹ or library². Capacity > 800 people 1.4
- Conclusions: based on several visits, talking to elders, plant/animal review, research & monitoring
- 1) if Chengqi at 7.5 m ø can house 800 people, then Eryi lou at 108.8 m ø could house many more (see 202)
- 2) although always drawn & quoted as "circular", Chengqi is actually oblong (see P.F. 9, photo from Zheng, 2008)
- 3) Chengqi is 1 of the largest/most famous tulous in the world, a good high profile building to monitor T&M
- 4) monitoring will determine if tulous are "cooler in summer, warmer in winter" as everyone claims (see 202)

• ACE+ASH-Incs., <http://www.HakkaHeritage.com> <jorg@HakkaHeritage.com>

Hakka Projects underway 10/10 10) other products • T-shirts & 2012 Calendars



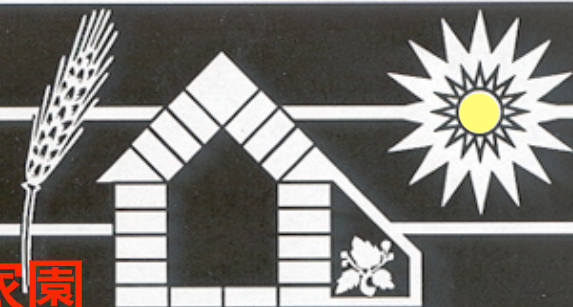
8 Questions: would UW be willing to:

- 1) provide a **Letter of Support** for BioSphere Plan?
- 2) help **raise funds** at the right time?
- 3) **sell** CDs, Posters, 2012 Calendars & T-Shirts?
- 4) see if anyone has a **tulou/weilong** for lease?
- 5) suggest possible private/public **partners**?
- 6) apply for R&D **funding**?
- 7) promote the project?
- 8) co-author **articles & papers**?

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☐ <http://www.EcoBuildings.net>
☐ <http://www.BioSphereLeapFrog.com>
☐ <http://www.HakkaHeritage.com>

- ☐ Jorg Ostrowski, B. Arch. (Toronto), M. Arch. A.S. (MIT), President jdo@ecobuildings.net
- ☐ Helen Villaraza-Ostrowski, B.S. Arch. (UST), Manager hvo@ecobuildings.net
- ☐ Karen Braun, B. Sc. (Hon), Research kb@ecobuildings.net
- ☐ Minoru Ueda, Japanese Architect & Building Engineer mu@ecobuildings.net
- ☐ Xiaoyan Li, M.Sc., MMU (UK), China Representative xy@ecobuildings.net

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- ☐ Minoru Ueda, Japanese Architect & Building Engineer mu@ecobuildings.net
- ☐ Limei Zhang/Hong Zhao, candidate, M. Planning/M. Arch., XAUAT lz@ecobuildings.net

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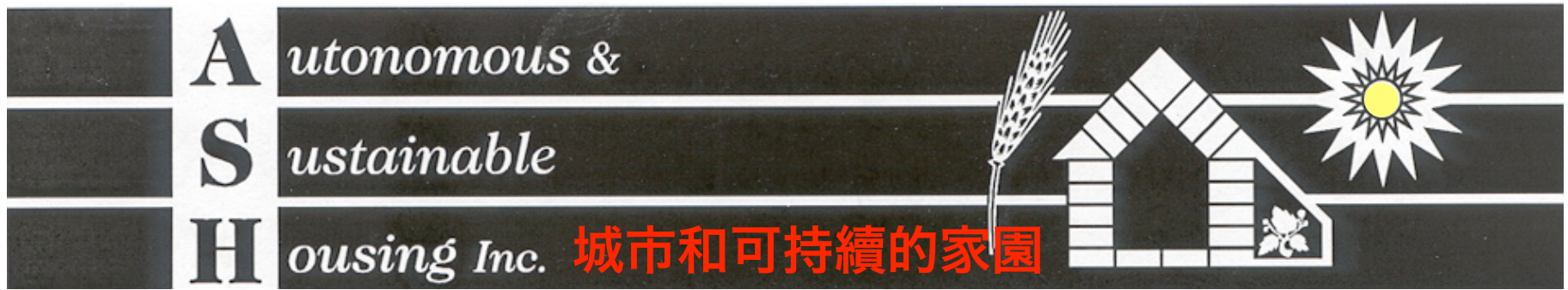
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Thank you for watching

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