

**PARTICIPATORY IDENTIFICATION AND EVALUATION OF INDICATORS
OF RESILIENCE IN SOCIO-ECOLOGICAL PRODUCTION LANDSCAPES:
A CASE STUDY OF AN INDIGENOUS RICE PADDY CULTURAL LANDSCAPE IN TAIWAN**

2016.1.13

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Three Participatory Action Research Projects commissioned by Hualien County Cultural Affairs Bureau 2011~2016

2011.05~2012.02

花蓮縣富里鄉豐南村水圳與梯田文化景觀
登錄前期作業暨管理維護計畫



指導單位：行政院文化建設委員會文化資產總管理處籌備處
主辦單位：花蓮縣文化局
執行機關：社團法人花蓮縣野鳥學會
計畫主持人：李光中（東華大學自然資源與環境學系副教授）

中華民國 101 年 2 月

Stakeholder participation in legal designation of a Cultural Landscape

2012.07~2013.06

花蓮縣文化景觀富里鄉豐南村
吉哈拉艾保存維護計畫



指導單位：文化部文化資產局
主辦單位：花蓮縣文化局
執行機關：國立東華大學
計畫主持人：李光中（東華大學自然資源與環境學系副教授）

中華民國 102 年 8 月

Stakeholder participation in planning for the Cultural Landscape Management Plan

2015.05~2016.02

花蓮縣富里鄉豐南村吉哈拉艾文化景觀
環境回復力指標研究計畫

《期末報告》



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委託單位：花蓮縣文化局
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計畫主持人：李光中（東華大學自然資源與環境學系副教授）
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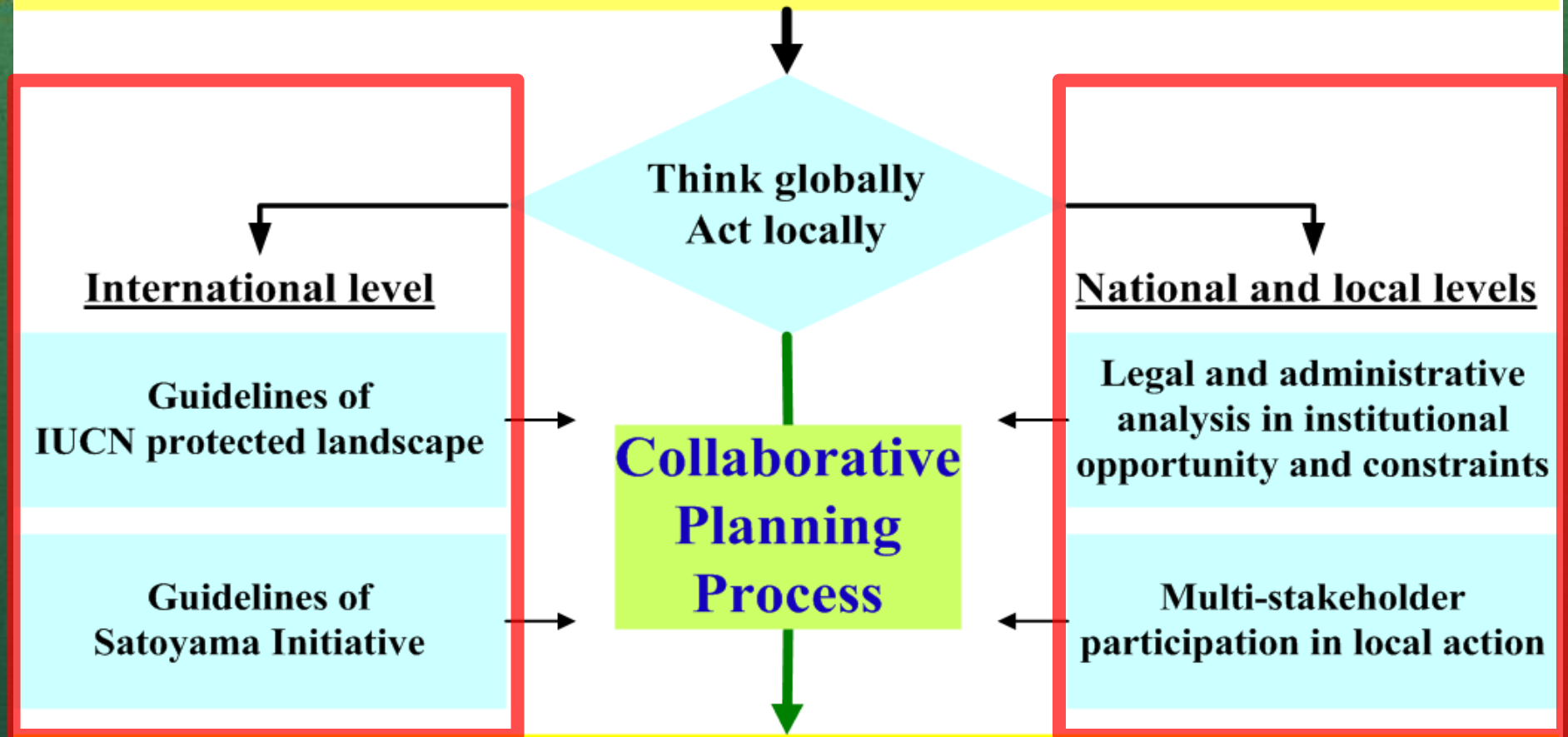
中華民國 105 年 1 月

Stakeholder participation in identification and evaluation of indicators of resilience in the Cultural Landscape

Action research flowchart, 2011.05~2013.06

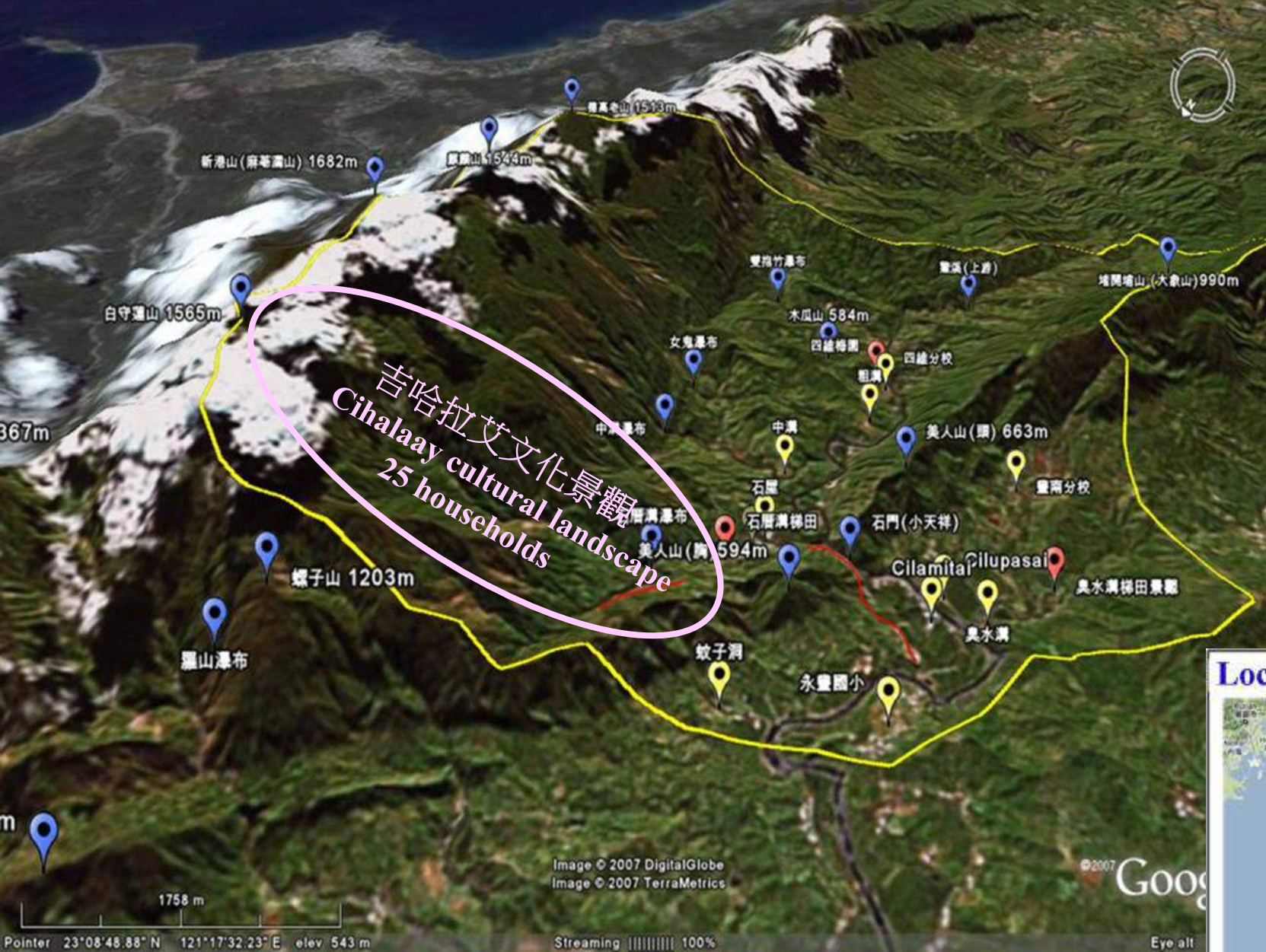
Action Research Goal

To facilitate a collaborative planning process to help stakeholders to designate a Rice Paddy Cultural Landscape and formulate its Management Plan

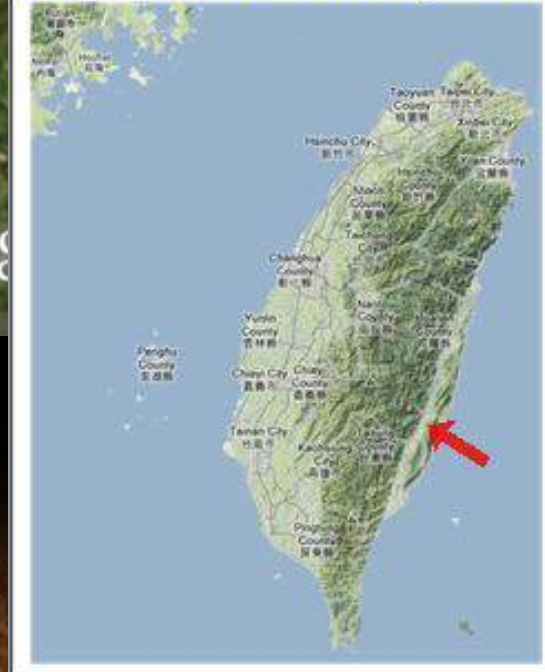


Outcome

Designation of the first satoyama-like Cultural Landscape in Taiwan, and formulation of a Mid-term Management Plan of the Cultural Landscape



Location of case study area

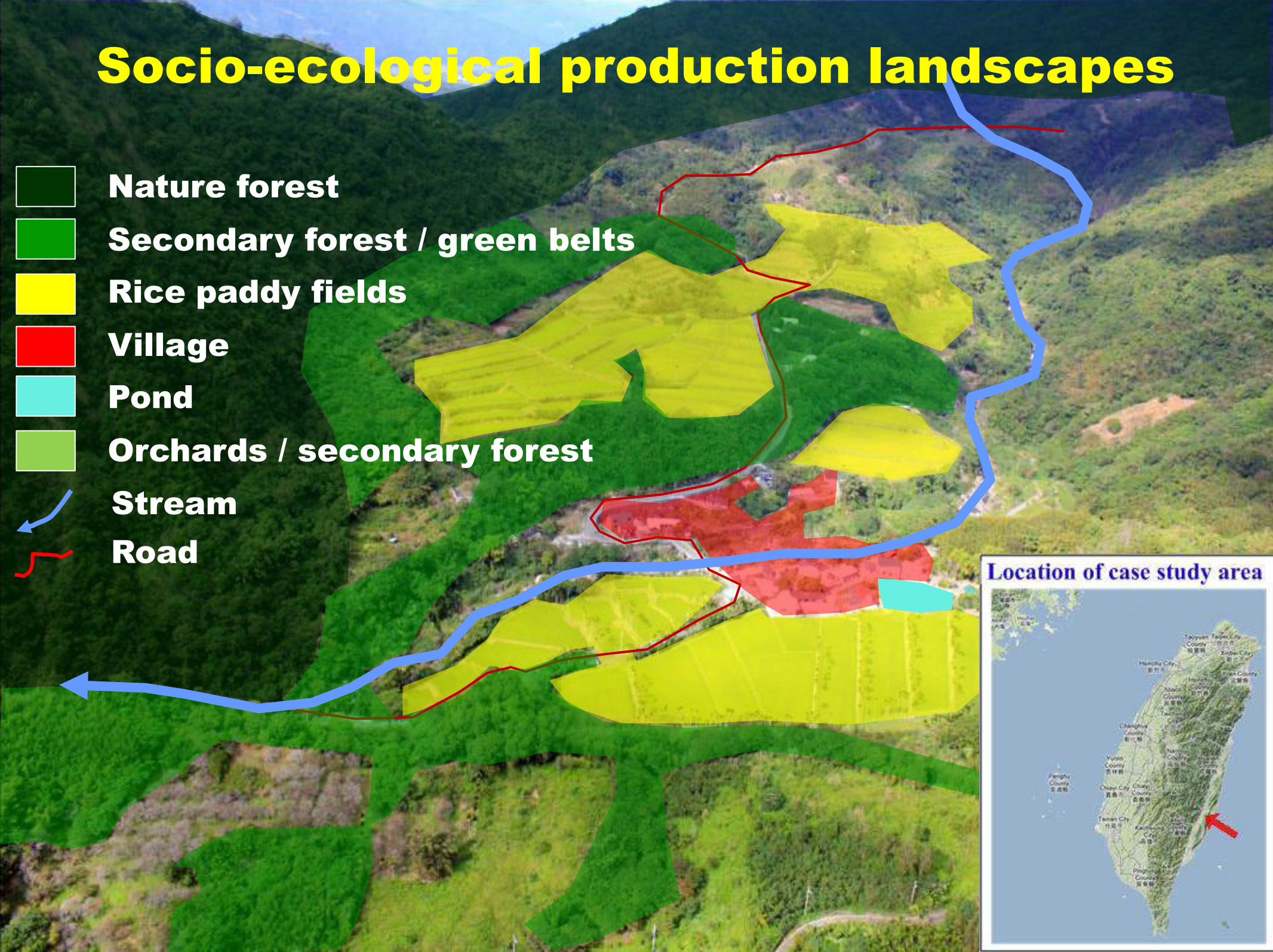


花蓮縣富里鄉豐南村 Fon-nan Village, Hualien

村里別	戶數	人口數	原住民	原住民%
	Households	population	indigenous	indigenous %
豐南村	293	744	454	61%

Socio-ecological production landscapes

-  **Nature forest**
-  **Secondary forest / green belts**
-  **Rice paddy fields**
-  **Village**
-  **Pond**
-  **Orchards / secondary forest**
-  **Stream**
-  **Road**

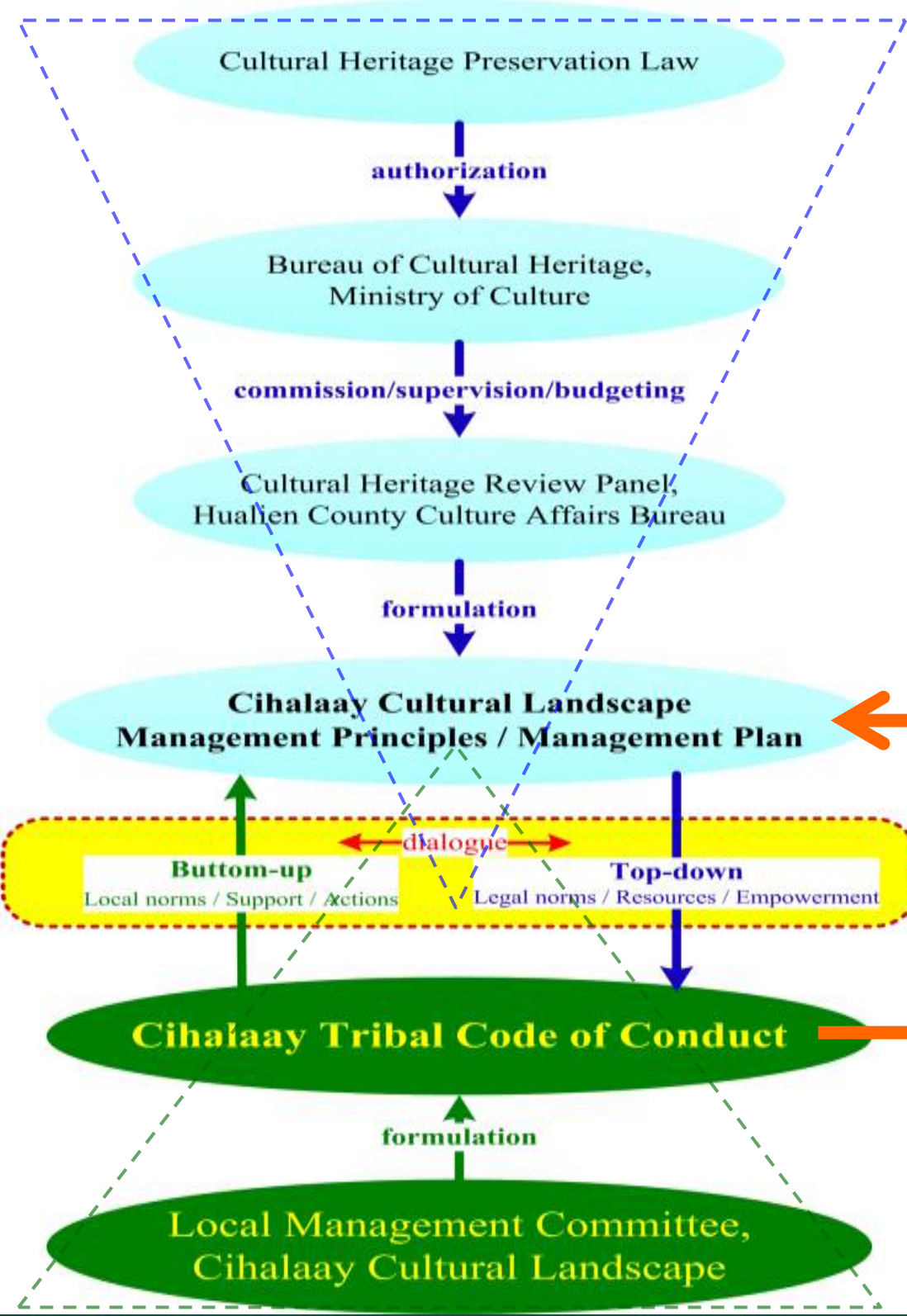


Location of case study area



Participatory Planning Processes (based on IUCN CEC, 1999)



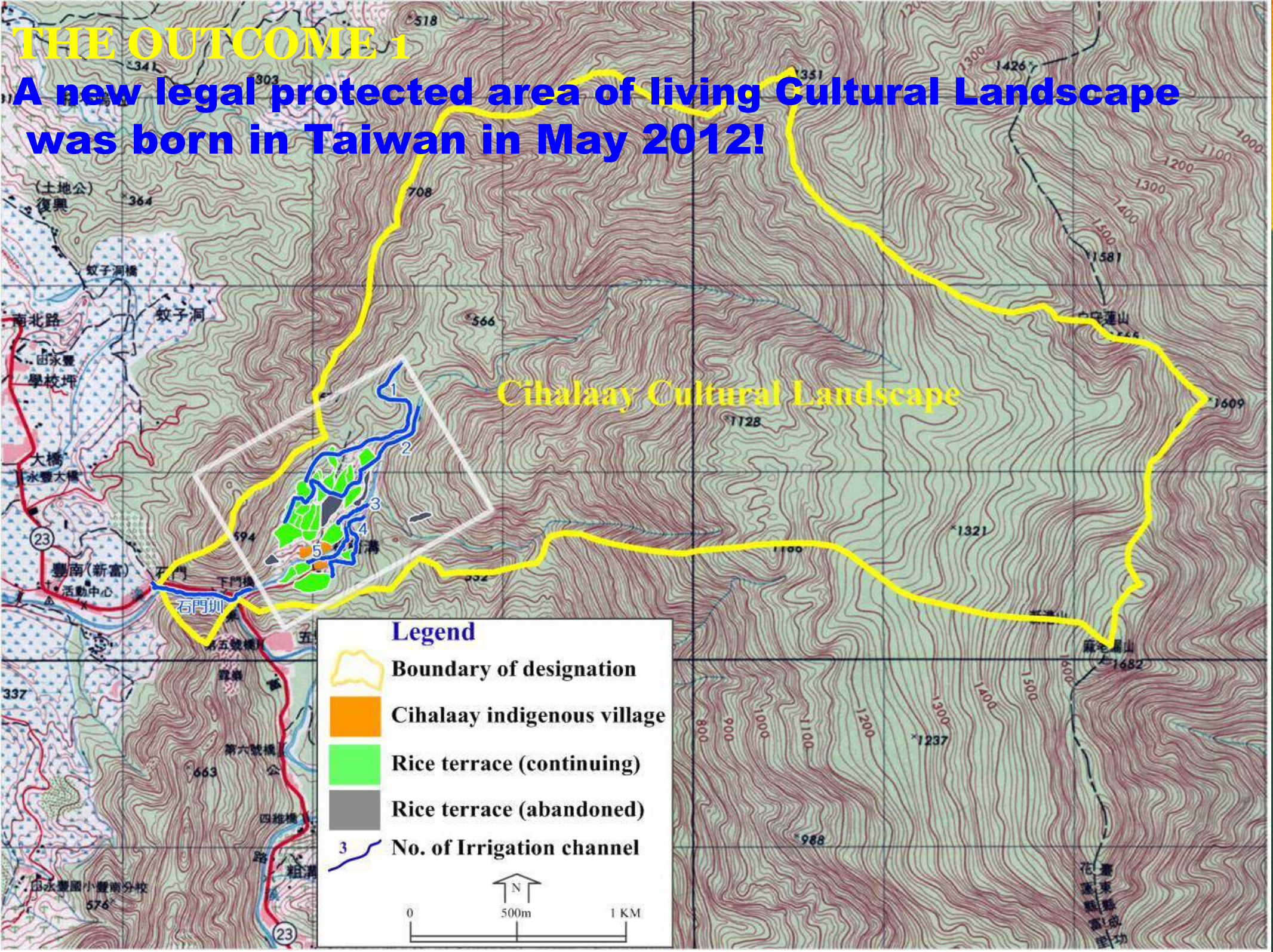


Strategy: Incorporating Local Code of Conduct Into Management Principles/Plan
In light of Satoyama Initiative three-fold approach
As a conceptual framework



THE OUTCOME 1

A new legal protected area of living Cultural Landscape was born in Taiwan in May 2012!



THE OUTCOME 2

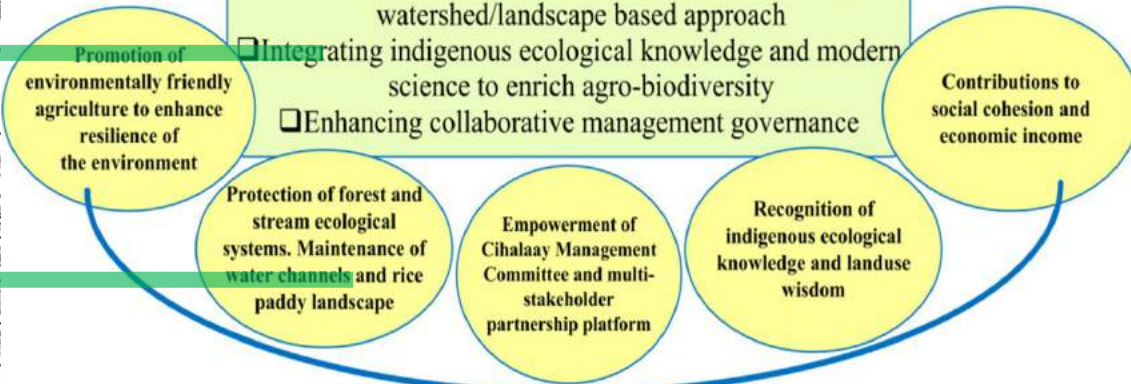
The mid-term Cihalaay Cultural Landscape Management Plan

行動策略 strategies	工作項目 Tasks	Time table			吉哈拉艾文化景觀管理委員會 + 下列主要夥伴機關(構)								
		短程 (1-3年)	中程 (4-6年)	長程 (7-10年)	花蓮縣 文化局	林務局 花蓮林 區管理 處	水土保持局 花蓮分 局	花蓮區 農業改 良場	花蓮縣 原住民 行政處	富里 鄉公所	農田水 利會 富里工 作	東華 大學	永豐 國小
A. 在自然回復力的限度內循環使用自然資源	A-1 農地生物多樣性調查監測	*	*	*				+					
	A-2 坡地及野溪潛在災害調查監測	*	*	*				+					
	A-3 溪流指標魚類及水質調查監測	*	*	*	+							+	
	A-4 聚落資源回收及生活污水生態處理	*	*	*			+						
	A-5 生態與文化旅遊遊覽	*	*	*									
	A-6 原住民生態與文化	*	*	*									
B. 推動巡山護溪、引進環境友善農業技術、維護梯田水圳文化景觀、	B-1 封溪護魚										+		
	B-2 山林盜採協防												
	B-3 有機或生態友善農作												
	B-4 減輕猴群危害農作												
	B-5 梯田和水圳日常修繕										+		
	B-6 梯田和水圳傳統工										+		
C. 建立和維繫以吉哈拉艾文化景觀管理委員會為主體的權益關係人溝通與合作平台	C-1 吉哈拉艾文化景觀											+	
	C-2 夥伴機關平台運作											+	+
D. 發掘和發揚阿美族傳統知識和土地利用智慧	D-1 原住民傳統農業與											+	+
	D-2 社區本位環境教育											+	+
	D-3 巴嘎龍耐(青少年)傳											+	+
	D-4 四維分校農事體驗											+	+
	D-5 四維分校環境教育											+	+
E. 促進部落生活品質和經濟收入成長	E-1 有機或生態友善農											+	
	E-2 生態與文化旅遊經											+	
	E-3 聚落家屋及道路景觀改善	*	*	*	+			+					
	E-4 聚落特色景點暨公共區域營造	*	*	*	+			+					

Vision
Realising Cihalaay indigenous community in harmony with nature

Approach

- Securing diverse ecosystem services and values by a watershed/landscape based approach
- Integrating indigenous ecological knowledge and modern science to enrich agro-biodiversity
- Enhancing collaborative management governance



Follow-up...

Participatory Planning Processes (based on IUCN CEC, 1999)

Action Research Spiral Planning

Evaluation

Action

Step 1 Preparation May-Jun 2011

- ✓ Local issue identification through participatory mapping
- ✓ Recruitment of 1st and 2nd Stakeholder Meetings

Step 2 Discussion Jul 2011

- ✓ Conduction of 1st and 2nd Stakeholder Meetings
'Where' to designate a Cultural Landscape

Step 3 Consensus-building Jul 2011

- ✓ A Local Management Committee
- ✓ Conduction of 3rd and 4th Stakeholder Meetings
Management Principles of the Cultural Landscape
- ✓ Completion of legal process of the Cultural Landscape

Step 4 Action Plan Jul 2011

- ✓ Participatory mapping of the Cultural Landscape
- ✓ Preparation of the Mid-term Management Plan
- ✓ Conduction of three new Stakeholder Meetings
the Mid-term Management Plan

Step 5 Implementation & Monitoring Jul 2013-

✓ To be continued

2015.05~2016.02

花蓮縣富里鄉豐南村吉哈拉艾文化景觀
環境回復力指標研究計畫

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中華民國 105 年 1 月

Stakeholder participation in identification and evaluation of indicators of resilience in the Cultural Landscape

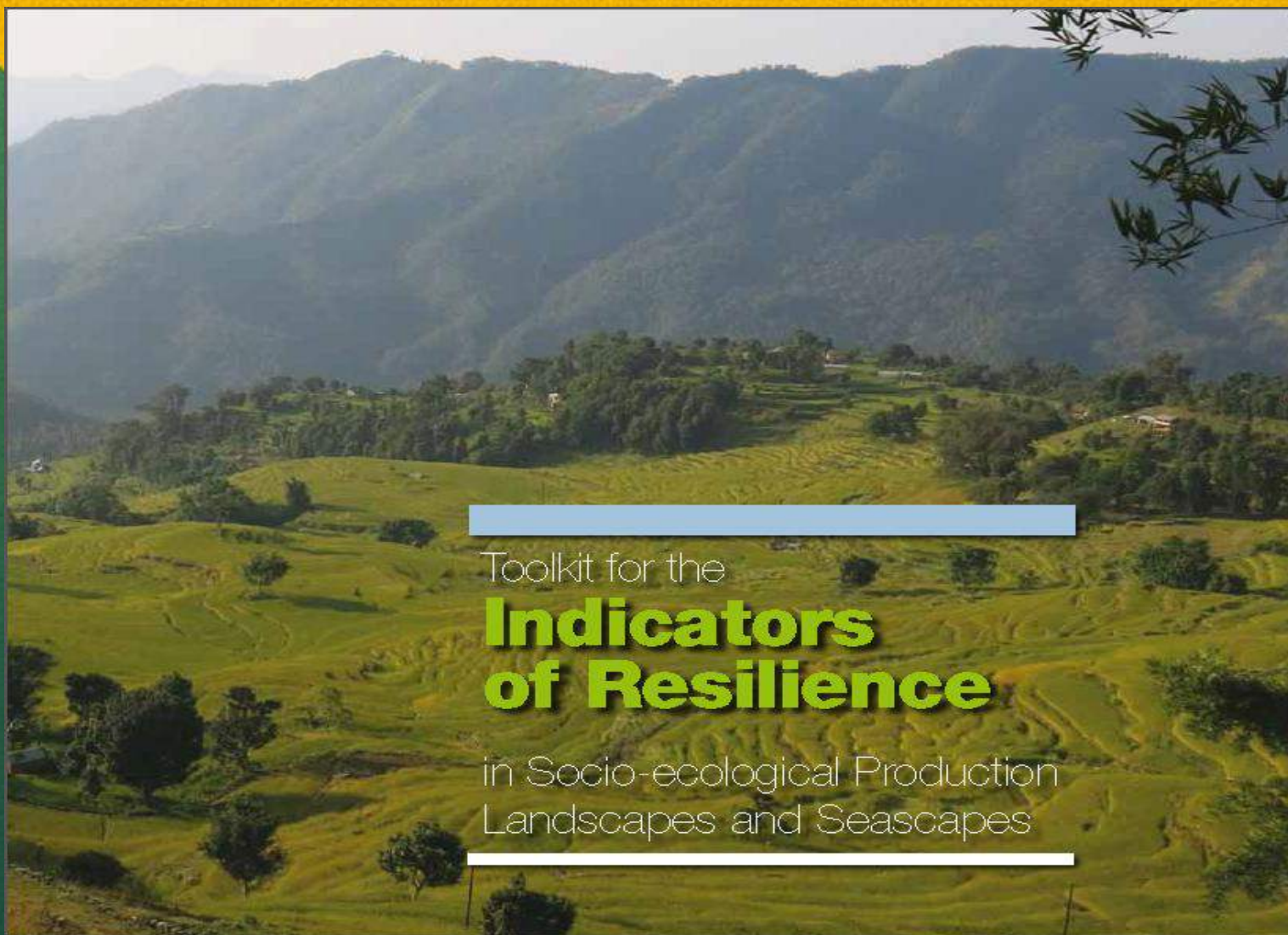
Corresponding IPSI Strategic Objective & Priority actions

- IPSI Strategic Objective 1: Increase knowledge and understanding
 - Priority action d. Further promote existing studies and analysis on SEPLS and promote similar analysis on different thematic issues.
- IPSI Strategic Objective 3: Enhancing Benefits
 - Priority actions b. Continue building on the existing work with indicators of resilience in SEPLS by additional testing in a broad range of landscapes and seascapes, and further refining of the set of indicators to enhance community empowerment and engagement

Goal of the third-year project

- To help local stakeholders to monitor the progress of the implementation of the Cihalaay Cultural Landscape Management Plan

Toolkit for the Indicators of Resilience in SEPLS (UNU-IAS et al. 2014)



Toolkit for the
**Indicators
of Resilience**

in Socio-ecological Production
Landscapes and Seascapes



20 Indicators of Resilience in (SEPLS)

(UNU-IAS et al. 2014)

A. Landscape/seascape diversity and ecosystem protection

- 1) Landscape/seascape diversity
- 2) Ecosystem protection
- 3) Ecological interactions between different components of the landscape/seascape
- 4) Recovery and regeneration of the landscape/seascape

Scores	Trends
(5) Very high	↑ Upward trend
(4) High	
(3) Medium	→ No change
(2) Low	↓ Downward trend
(1) Very low	

E. Livelihoods and well-being

- (16) Socio-economic infrastructure
- (17) Human health and environmental conditions
- (18) Income diversity
- (19) Biodiversity-based livelihoods
- (20) Socio-ecological mobility

B. Biodiversity (including agricultural biodiversity)

- (5) Diversity of local food system
- (6) Maintenance and use of local crop varieties and animal breeds
- (7) Sustainable management of common resources

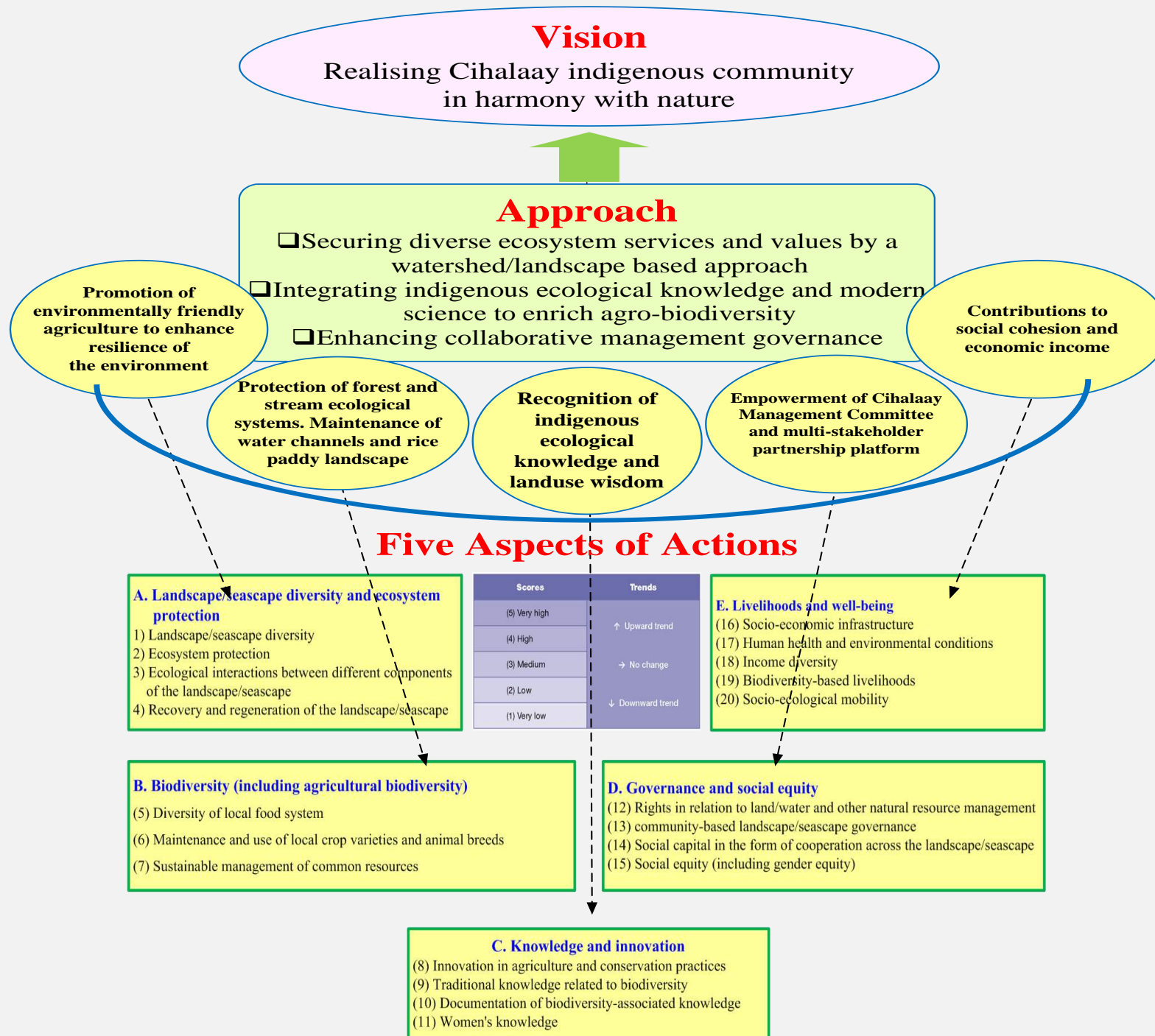
D. Governance and social equity

- (12) Rights in relation to land/water and other natural resource management
- (13) community-based landscape/seascape governance
- (14) Social capital in the form of cooperation across the landscape/seascape
- (15) Social equity (including gender equity)

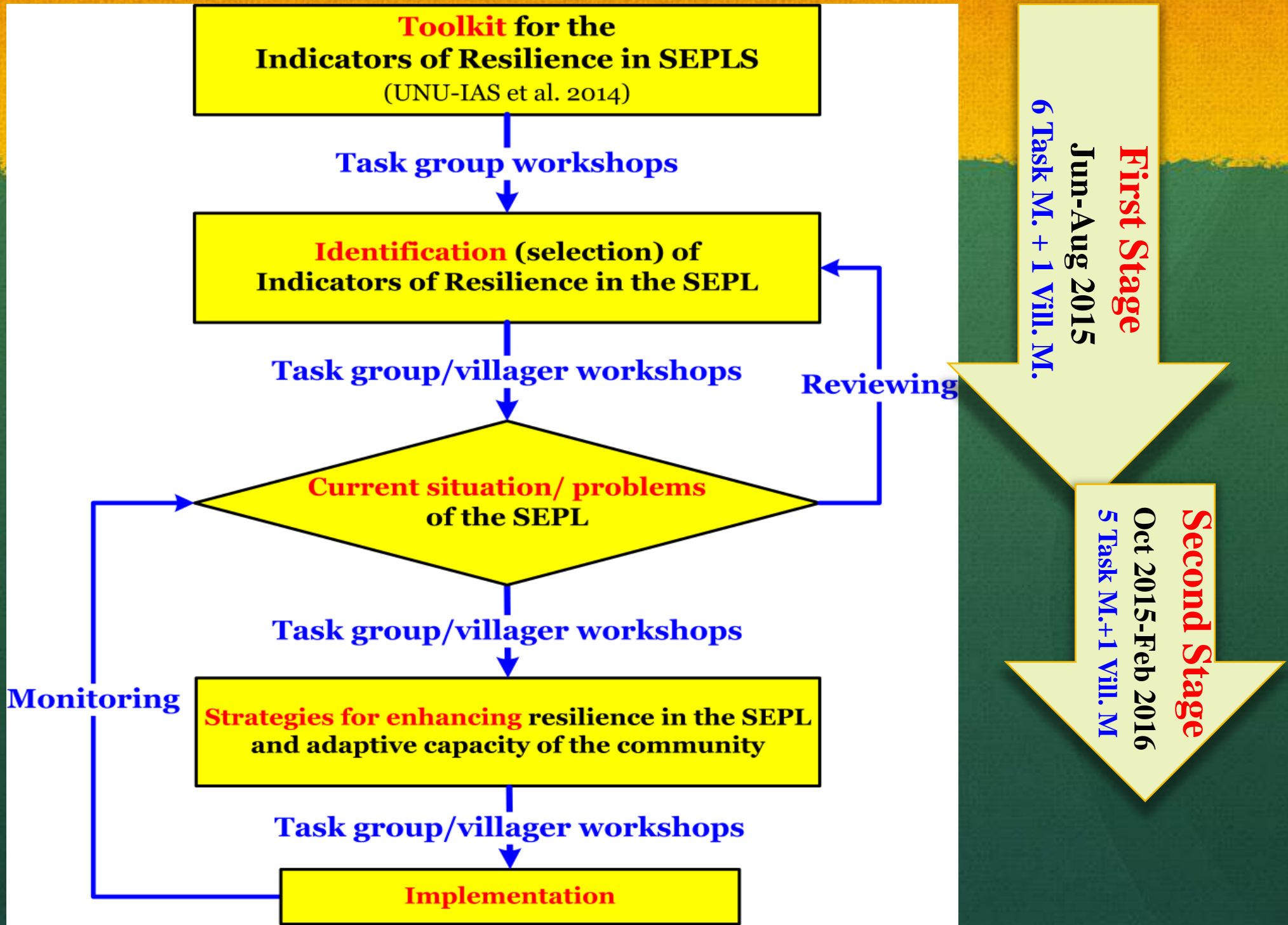
C. Knowledge and innovation

- (8) Innovation in agriculture and conservation practices
- (9) Traditional knowledge related to biodiversity
- (10) Documentation of biodiversity-associated knowledge
- (11) Women's knowledge

Connections between the three-fold approach to Satoyama Initiative and the indicators of resilience in SEPLs



Action research flowchart, 2015.05~2016.02

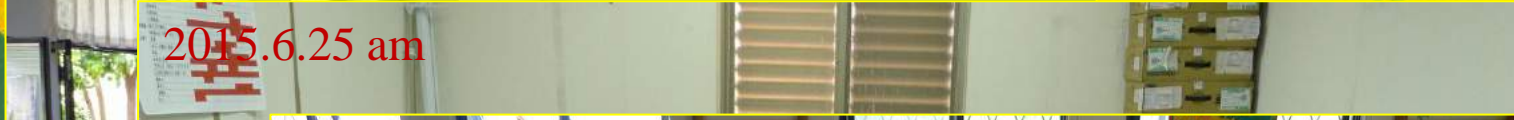


Six Indicator Task Group meetings for the first stage 2015.6~2015.8

2015.6.8 am



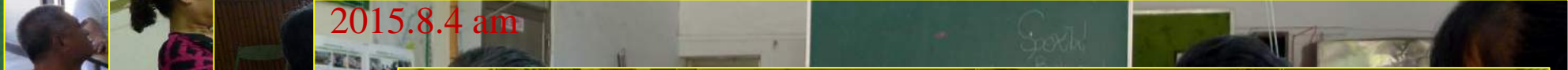
2015.6.25 am



2015.7.17 am



2015.8.4 am



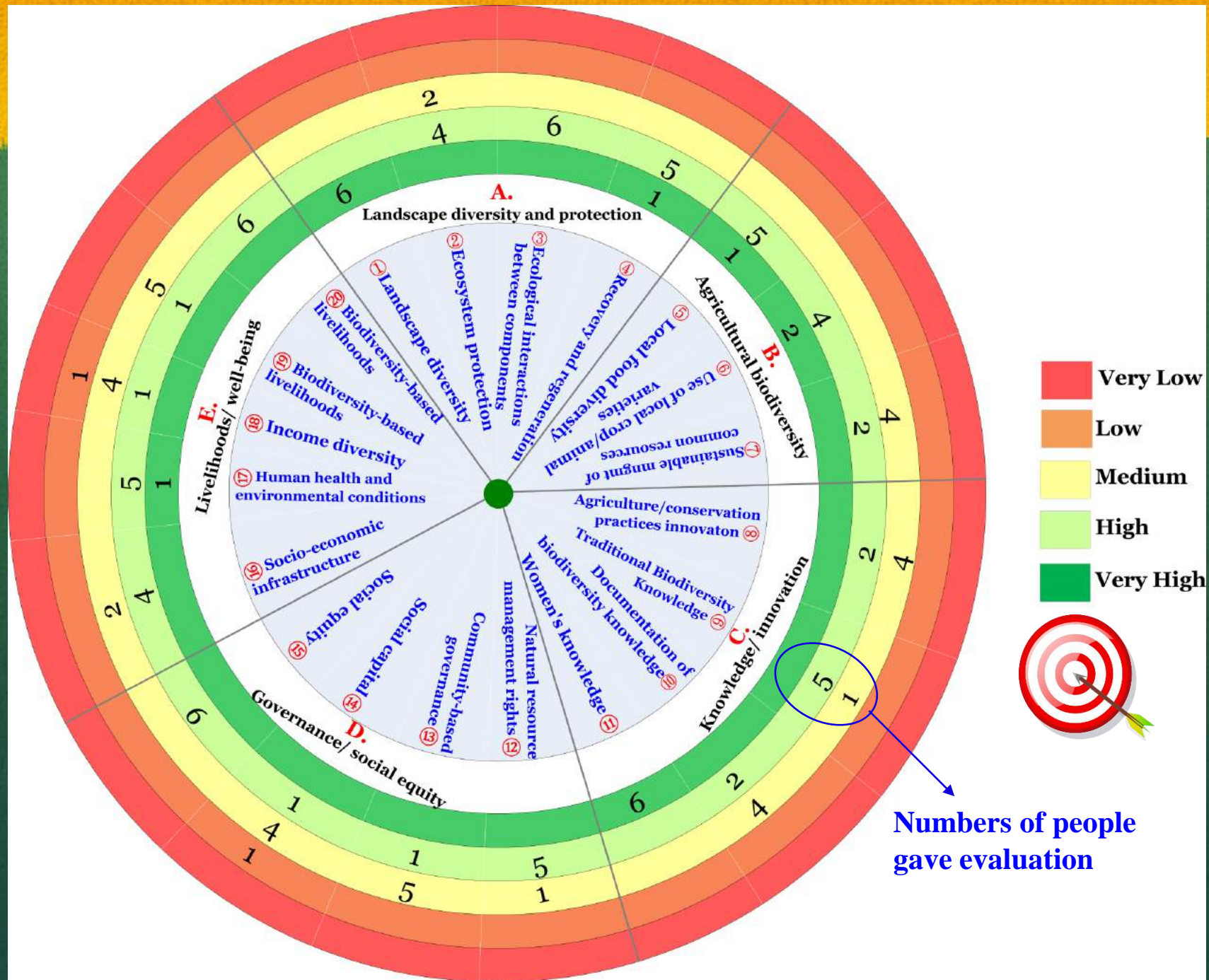
2015.8.4 pm



2015.8.14 am



Outcome 1: evaluation of the indicators of resilience in the Cihalaay Cultural Landscape by the Task Group



The first 25-household villager meeting

17 Aug 2015



Five Indicator Task Group meetings for the second stage 2015.10~2016.1

2015.10.7 am Review of the villager meeting

2015.12.4 am
Working out strategies
for Group A indicators

2015.12.23 am
Working out strategies for
Group B & C indicators

2016.1.4 am
Working out strategies for
Group D & E indicators

2016.1.4 pm
Working out strategies for
Group D&E indicators



Outcome 2: 38 Strategies for enhancing resilience in the SEPL

38 strategies / 5 groups of indicators

A Landscape diversity/ protection
B Agro-biodiversity
C Knowledge / innovation
D Governance / social equity
E Livelihoods / well-being

指標增進對策 \ 指標類別和編號	A. 地景多樣性/保護				B. 農業生物多樣性			C. 知識和創新				D. 治理和社會公平				E. 生計與福祉				
	A1	A2	A3	A4	B5	B6	B7	C8	C9	C10	C11	D12	D13	D14	D15	E16	E17	E18	E19	E20
	A1	A2	A3	A4	B5	B6	B7	C8	C9	C10	C11	D12	D13	D14	D15	E16	E17	E18	E19	E20
1. 增加水稻梯田內田埂及周圍綠籬地景多樣性	✓	✓	✓	✓				✓												
2. 連通天然水系↔人工水圳、梯田灌溉系統及營造水塘等人工濕地	✓	✓	✓	✓			✓	✓												
3. 歷史梯田等休耕地復耕、種植傳統作物、生態友善作物	✓	✓	✓	✓				✓										✓	✓	
4. 維護阿美族自給自足庭園植物生態環境多樣性傳統	✓	✓	✓	✓				✓			✓							✓	✓	
5. 控制危害農作物物種(山豬、獺猴)		✓	✓	✓				✓												
6. 移除外來入侵種		✓	✓	✓			✓	✓												
7. 增加友善環境生態農法、減少慣行農法			✓					✓												
8. 防止森林牛樟等珍貴樹種盜伐			✓	✓			✓													
9. 在地糧食市集					✓	✓														
10. 當令蔬果展示及解說					✓	✓												✓	✓	
11. 生態魚池經營並收購福壽螺養魚					✓	✓														
12. 在地產酒(小米露)、酵素...					✓	✓												✓	✓	
13. 建立在地糧食作物/品種資料庫					✓	✓			✓	✓										
14. PAKALONGAY 課程傳承傳統生態知識					✓	✓			✓	✓	✓									
15. 推廣原住民野菜食藝及拼布、編織等手工藝									✓	✓										
16. 與永豐國小及相關團體合作在地環境教育活動									✓	✓										
17. 製作相關摺頁/手冊/書籍									✓	✓										
18. 傳統歌謠傳唱及建立資料庫									✓	✓										
19. 建立國有林共管機制:巡邏山林、森林產物利用、外來種防治、生態資源保育及復育												✓	✓	✓						
20. 以原基法傳統領域為自我宣稱,配合多元權益關係人協同經營(共管)治理模式,透過協議及實踐,逐步取得認可,擴大在地社群經營管理權												✓	✓	✓						
21. 善用文化景觀保存管理原則/保存維護計畫以及在地文化景觀管理委員會與花蓮縣文化局共同搭建的多元權益關係人夥伴關係工作平台												✓	✓	✓						
22. 以吉哈拉艾文化景觀管理委員會集體經營哈拉米為目標													✓	✓						
23. 定期進行地景回復力指標評估及監測並回饋部落公約及保存維護計劃之參考修訂													✓	✓						
24. 啟動村民議程,加強豐南村各相關組織、團體間的協同經營														✓						
25. 加強年輕人與年長者的對話,妥善定位(年輕人的新權責角色)															✓					
26. 老人日托及衛生所功能加強																✓	✓			
27. 增加守望相助隊巡護老者及年輕人的新任務																✓	✓			
28. 創新產業累積社區老人照顧基金																✓	✓	✓	✓	
29. 災害(沖蝕、水災、山崩)防治生態工程規劃及應變計畫																✓	✓			
30. 推廣生態農業並活用自然資源																		✓	✓	
31. 推廣生態及文化旅遊																		✓	✓	
32. 推廣在地美食及耆老民俗工藝																		✓	✓	
33. 有條件的護溪/垂釣保護級利用計畫							✓	✓										✓	✓	
34. 維護石厝溝溪的飲用及灌溉水質/水量		✓																✓	✓	
35. 休耕地種植景觀植物(花海)增加旅遊吸引力																				✓
36. 傳承原住民適地適時適用的生態知識(分區概念:部落、農耕、漁獵)並避免一窩蜂種植市場作物																				✓
37. 新住民的環境教育與溝通																				✓
38. 守護祖產、慎重土地買賣																				✓

Second-stage indicator workshop meetings

Oct 2015 to Feb 2016

- **The second villager meeting:**
 - To be held on 17 Jan 2016...

Preliminary Conclusions

Some Preliminary Findings...

- The recruitment of a **small local working group** can be an **effective way** for the research team to explore more **in-depth understandings** of local people about the indicators of resilience in SEPLs.
- By conducting a series of task group meetings, participants learnt different aspects of **local knowledge** from each other, built up **partnership** among them, carried out the **selection and evaluation of 20 indicators of resilience** and **worked out strategies** for the Cihalaay Cultural Landscape.

Some Preliminary Findings...

- In general, local people who participated the **task group** agreed that the indicator system of resilience in SEPLs (UNU-IAS et al. 2014) were **workable and helpful**.
- However, the other villagers who learnt about the indicators for the first time from **the village meeting** **felt difficult to understand**. Many of them complained about the **technical terms and complexity** of the indicator system. They would like to participate in the future but suggested the research team to **simplify the indicator system** before the next village meeting.



Thank you for listening