

The Light Institutional Farm & Training Center

A Practice-Based Research Platform for Agroecology, Food Systems, and Policy Engagement

The Light 農場與培訓中心 | 農業生態學、糧食系統與政策研究的實踐型研究平台

Keywords 關鍵字

Agroecology | Sustainable Agriculture | Food Systems | Climate Resilience | Food Security | Food Justice | Regenerative Farming | Organic Agriculture | Smallholder Farmers | Women Empowerment | Rural Development | Capacity Building | Global South | East Africa | Uganda | Kenya | Taiwan | Living Lab | Field Research | Policy Research | Agricultural Training | Participatory Research | Community Development | SDGs | Climate Adaptation | Biodiversity | Soil Health | **Water Resources Management** | **Water-Agriculture Nexus** | **Integrated Water Resource Management** | **Watershed Management** | **Agricultural Water Use Efficiency** | Seed Sovereignty | Local Food Systems | Agricultural Extension | Farm School | Vocational Training | NGO | International Development | Research Partnership | **Water Security** | **Sustainable Irrigation** | **Water Governance**

農業生態學 | 永續農業 | 糧食系統 | 氣候韌性 | 糧食安全 | 食品正義 | 再生農業 | 有機農業 | 小農 | 婦女賦權 | 鄉村發展 | 能力建設 | 全球南方 | 東非 | 烏干達 | 肯亞 | 台灣 | 活實驗室 | 田野研究 | 政策研究 | 農業培訓 | 參與式研究 | 社區發展 | 永續發展目標 | 氣候調適 | 生物多樣性 | 土壤健康 | **水資源管理** | **水資源與農業關聯** | **整合型水資源管理** | **集水區管理** | **農業用水效率** | 種子主權 | 在地糧食系統 | 農業推廣 | 農場學校 | 職業訓練 | 非營利組織 | 國際發展 | 研究合作 | **水資源安全** | **永續灌溉** | **水資源治理**

I. Institutional Positioning

一、研究中心定位

The Light Farm & Training Center is a practice-based research platform integrating field implementation, academic research, and policy engagement, with a focus on:

The Light 農場與培訓中心是一個實踐型研究平台,整合田野實施、學術研究與政策參與,聚焦於:

- **Agroecology** (農業生態學)
- **Sustainable Food Systems** (永續糧食系統)
- **Food Justice** (食品正義)
- **Climate Resilience** (氣候韌性)
- **Water Resources & Agricultural Environment** (水資源與農業環境)

The Center is positioned as a **Living Laboratory**, where research is not confined to theoretical models or simulations, but is tested, refined, and advanced within real agricultural settings, real communities, and real policy contexts—**with particular emphasis on the critical interconnections between water resources, agricultural productivity, and environmental sustainability.**

本中心定位為一個「活的實驗室」,讓研究不僅停留在理論或模型推演,而是能在真實農業場域、真實社群與真實政策環境中被驗證、修正與深化,特別強調水資源、農業生產力與環境永續性之間的關鍵連結。

II. Research Orientation & Academic Value

二、研究取向與學術價值

The Light provides an enabling environment for research centers and interdisciplinary teams to undertake:

The Light 為研究中心與跨領域團隊提供一個有利的環境來進行:

Research Activity	研究活動
Applied & Participatory Research	應用型與參與式研究
Long-term Field Observation in agriculture, food systems, and water-agriculture interactions	農業、糧食系統及水資源-農業互動的長期田野觀察
Co-production of Knowledge with farming communities on water resource management and sustainable agricultural practices	與農業社群共創知識,涵蓋水資源管理與永續農業實踐
Policy Analysis & Translation linking empirical research to institutional recommendations on water governance and agricultural environment	將實證研究轉化為政策分析與制度建議,包含水資源治理與農業環境面向

The research methodology we seek responds to contemporary academic calls for

interdisciplinary, Global South–anchored, and practice-based approaches, explicitly recognizing water resources as a foundational pillar of agricultural sustainability and food system resilience.

我們尋求的研究方法回應當代學術對跨學科、以全球南方為錨點、以實踐為導向的研究取徑需求,明確將水資源視為農業永續性與糧食系統韌性的基礎要素。

III. Core Objectives for Research Collaboration

三、研究中心合作的核心目標

1. Education & Research Capacity Development

教育與研究人才培育

The Center strengthens the role of sustainable agriculture, **water resources management**, and food systems within research training:

本中心強化**永續農業**、**水資源管理**與糧食系統在研究培訓中的角色:

- Field-based courses and applied research programs **integrating water-agriculture nexus studies**
- 田野導向課程與應用型研究計畫,整合**水資源-農業**關聯研究
- Thesis and dissertation field sites for Master's and PhD research **on agroecology, water management, and environmental sustainability**
- 碩士與博士論文田野研究場域,聚焦於**農業生態學**、**水資源管理與環境永續**
- Joint supervision, visiting scholar programs, and researcher exchanges **focusing on interdisciplinary water-agriculture-climate research**
- 聯合指導、訪問學者計畫與研究人員交流機制,深化以**水資源-農業-氣候**為核心的跨領域研究

2. Food Security & Food Justice Research

糧食安全與食品正義研究

The Light frames food systems as social, economic, **environmental**, and governance challenges:

The Light 將糧食系統視為社會、經濟、**環境**與治理挑戰:

- Food security and access **in relation to water availability and agricultural water security**
- 糧食安全與可近性,連結**水資源可得性與農業用水安全**
- Resilience of local and regional food systems **through sustainable water resource management**
- 在地糧食系統的韌性,透過**永續水資源管理**達成
- Inequality, power relations, and institutional structures **in agricultural development and water governance**
- 農業發展與水資源治理中的不平等、權力與制度結構

3. Research–Policy Interface

實證研究與政策分析的連結

Functioning as a research–policy interface, the Center enables research teams to:

作為實證研究與政策分析的連結平台,本中心協助研究團隊:

- Test policy assumptions in real-world agricultural contexts **including water resource allocation and management models**
- 測試政策假設於真實農業情境,包含水資源分配與管理模式
- Generate primary data from field-based practice **on water use efficiency, irrigation systems, and watershed management**
- 產生田野實踐的第一手數據,涵蓋用水效率、灌溉系統與集水區管理
- Enhance contextual relevance and operational feasibility of policy research **linking agricultural productivity with water resource sustainability**
- 提升政策研究的在地相關性與可操作性,連結農業生產力與水資源永續性

4. Advancing Agroecology in Policy Research

農業生態學的政策研究推進

Research outputs from The Light contribute to:

The Light 的研究產出貢獻於:

- Policy briefs and technical notes **on sustainable agriculture and integrated water resource management**
- 政策簡報與技術說明,涵蓋永續農業與整合型水資源管理
- White papers and advisory documents **addressing water-agriculture-climate nexus**
- 白皮書與政策諮詢文件,處理水資源-農業-氣候關聯
- Comparative studies on agriculture, food systems, **water governance**, and climate policy
- 農業、糧食系統、水資源治理與氣候政策的比較研究

5. Academic, Industry & Policy Dialogue

產業、學術與政策三方對話

Collaboration with research centers, think tanks, and responsible industry partners to advance:

與研究中心、智庫與負責任產業夥伴合作,推進:

- Sustainability indicators and assessment methodologies **for agricultural water use and environmental impact**
- 永續指標與評估方法,針對農業用水與環境影響
- Institutionalized research agendas **integrating water resource management into agricultural development frameworks**

- 制度化研究議程,將水資源管理整合進農業發展框架
- Transition from demonstration projects to research-based models in **water-efficient agriculture and climate-smart farming**
- 從示範計畫轉型為基於研究的模式,聚焦於節水農業與氣候智慧型農業

6. Long-Term Research & Data Accumulation

長期研究與資料累積

The Center emphasizes research depth and continuity, well suited for:

本中心強調研究深度與連續性,非常適合:

- **Longitudinal studies** on soil health, water quality, agricultural productivity, and ecosystem services
- 長期追蹤研究,涵蓋土壤健康、水質、農業生產力與生態系統服務
- **Repeated experiments and comparative research** on irrigation techniques, water conservation practices, and climate adaptation strategies
- 重複性實驗與比較研究,針對灌溉技術、節水實踐與氣候調適策略
- Development of cumulative, verifiable research datasets **linking water resources, agricultural outcomes, and environmental indicators**
- 發展可累積、可驗證的研究資料集,連結水資源、農業產出與環境指標

7. Strengthening Global South Research Agency

強化全球南方研究能動性

The Light prioritizes leadership and agency of Global South research institutions through:

The Light 優先支持全球南方研究機構的領導力與能動性,透過:

- Capacity building in research design and implementation **on context-specific water resource challenges and agricultural environment issues**
- 研究設計與執行的能力建設,針對在地特定的水資源挑戰與農業環境議題
- Participation in international research networks **addressing water security, food security, and climate resilience in East Africa**
- 參與國際研究網絡,處理東非的水資源安全、糧食安全與氣候韌性
- Evidence-based engagement in policy discourse **on water governance, sustainable agriculture, and rural development**
- 基於實證的政策論述參與,聚焦於水資源治理、永續農業與鄉村發展

Knowledge production is locally grounded while globally relevant, **particularly in addressing water scarcity, agricultural sustainability, and climate adaptation in resource-constrained contexts.**

知識生產從在地出發,同時具全球相關性,特別是在處理資源受限環境中的水資源短缺、農業永續性與氣候調適議題。

8. Integrated Research on Agriculture, Environment, Water & Climate

農業、環境、水資源與氣候變遷整合研究

The Center positions agriculture as part of the climate solution **and recognizes water resources as the critical nexus connecting agricultural production, environmental health, and climate resilience:**

本中心將農業定位為氣候解決方案的一部分,並將水資源視為連結農業生產、環境健康與氣候韌性的關鍵樞紐:





- **Agroecosystem management** integrating soil, water, biodiversity, and climate considerations
- 農業生態系管理,整合土壤、水資源、生物多樣性與氣候考量
- **Climate adaptation and mitigation strategies** through water-efficient agriculture and regenerative practices
- 氣候調適與減緩策略,透過節水農業與再生實踐
- **Integrated approaches** to land use, water resource management, environmental protection, and agricultural development
- 整合性取徑,涵蓋土地利用、水資源管理、環境保護與農業發展
- **Water-energy-food nexus** research in smallholder farming systems
- 水資源-能源-糧食關聯研究,聚焦於小農系統

IV. Role in the Research Ecosystem

四、The Light 在研究體系中的角色

The Light Farm & Training Center functions simultaneously as:

The Light 農場與培訓中心同時扮演以下角色:

Role	角色定位
 Field-based research platform for agroecology and water-agriculture systems	農業生態學與水資源-農業系統的田野研究平台
 Training site for researchers and graduate students in sustainable agriculture and water resource management	研究人員與研究生的實地訓練基地,涵蓋永續農業與水資源管理
 Testing environment for policy-oriented research on water governance, agricultural environment, and climate resilience	政策導向研究的測試與驗證場域,針對水資源治理、農業環境與氣候韌性
 Global South—anchored hub for international collaboration on water security, food systems, and sustainable development	以全球南方為核心的國際研究合作節點,聚焦水資源安全、糧食系統與永續發展

The Light transforms agricultural practice into a researchable, comparable, and policy-relevant knowledge platform—linking field realities with academic inquiry and

institutional decision-making, with water resources serving as a foundational thread connecting agricultural sustainability, environmental health, and community resilience.

The Light 將農業實踐轉化為可被研究、比較與政策化的知識平台,連結田野、學術與制度,並以水資源作為貫穿農業永續性、環境健康與社區韌性的基礎主線。

* 職業技能培訓與在地夥伴關係建構延伸合作方案

V. Vocational Training & Skills Development Programs

五、職業技能培訓與發展計畫

5.1 Integration of Agricultural and Technical Skills Training

5.1 農業與技術技能培訓的整合

The Light Farm & Training Center extends beyond agroecological research to encompass comprehensive vocational training, recognizing that sustainable rural development requires diverse technical competencies alongside agricultural knowledge.

The Light 農場與培訓中心的功能不僅限於農業生態學研究,更涵蓋全面性的職業培訓,認知到永續鄉村發展需要多元技術能力與農業知識的結合。

Core Vocational Training Streams 核心職業培訓領域:

- **Agricultural Skills 農業技能**
 - Agroecological farming practices 農業生態學耕作實踐
 - Organic agriculture and composting 有機農業與堆肥
 - Seed saving and propagation 種子保存與繁殖
 - Post-harvest processing and value addition 採後處理與增值加工
- **Construction & Infrastructure Skills 建築與基礎設施技能**
 - Carpentry and joinery 木工與細木工
 - Metalwork and welding 鐵工與焊接
 - Masonry and concrete work 水泥工與砌磚
 - Basic plumbing and sanitation systems 基礎水管工程與衛生系統
 - Electrical installation and maintenance 電力安裝與維護
- **Mechanical & Equipment Skills 機械與設備技能**
 - Small engine repair and maintenance 小型引擎維修與保養
 - Agricultural equipment operation 農業設備操作
 - Solar panel installation and maintenance 太陽能板安裝與維護
 - Water pump systems and irrigation equipment 水泵系統與灌溉設備

VI. Partnership Framework with Local Institutions

六、與在地機構的合作框架

6.1 Secondary School Partnerships

6.1 與高中學校的合作夥伴關係

Collaboration Models with Ugandan Secondary Schools:

烏干達高中學校合作模式:

- **Curriculum Integration 課程整合**
 - Practical agricultural science modules aligned with Uganda National Curriculum
 - 與烏干達國家課程接軌的實用農業科學模組
 - Field-based learning experiences for O-Level and A-Level students
 - 為 O-Level 與 A-Level 學生提供田野學習體驗
 - Career guidance in sustainable agriculture and technical trades
 - 永續農業與技術行業的職涯輔導
- **Technical Skills Workshops 技術技能工作坊**
 - Weekend and holiday intensive training programs
 - 週末與假期密集培訓計畫
 - Hands-on workshops in carpentry, metalwork, and basic construction
 - 木工、鐵工與基礎建築實作工作坊
 - Certification programs recognized by Uganda Vocational Qualifications Framework (UVQF)
 - 符合烏干達職業資格框架(UVQF)認證的培訓計畫
- **Teacher Training & Capacity Building 教師培訓與能力建設**
 - Professional development for agriculture and technical teachers
 - 農業與技術教師的專業發展
 - Resource sharing and curriculum co-development
 - 資源共享與課程共同開發
 - Exchange programs between schools and The Light Center
 - 學校與 The Light 中心之間的交流計畫

6.2 NGO and Civil Society Partnerships

6.2 與非政府組織及公民社會的合作

Strategic Collaboration with Local and International NGOs:

與在地及國際非政府組織的戰略合作:

- **Youth Empowerment Organizations 青年賦權組織**
 - Joint training programs targeting out-of-school youth
 - 針對失學青年的聯合培訓計畫
 - Skills development linked to local employment opportunities
 - 與在地就業機會連結的技能發展
 - Entrepreneurship training in agriculture and technical trades
 - 農業與技術行業的創業培訓
- **Women's Empowerment NGOs 婦女賦權非政府組織**
 - Gender-responsive vocational training programs

- 性別敏感的職業培訓計畫
- Income-generating skills development (food processing, tailoring integrated with farming)
- 創收技能發展(食品加工、裁縫與農業整合)
- Leadership and cooperative management training
- 領導力與合作社管理培訓
- **Environmental and Agricultural NGOs 環境與農業非政府組織**
 - Collaborative research on sustainable practices
 - 永續實踐的合作研究
 - Joint advocacy for policy change in agricultural education
 - 農業教育政策改革的聯合倡議
 - Resource mobilization and knowledge sharing networks
 - 資源動員與知識分享網絡

6.3 International Organization Partnerships

6.3 與國際機構的合作夥伴關係

Engagement with Research and Academic Networks:

與研究與學術網絡的互動:

- **Research and Academic Networks 研究與學術網絡**
 - CGIAR (Consultative Group on International Agricultural Research): Agricultural research partnerships
 - 國際農業研究磋商組織:農業研究合作夥伴關係
 - Regional universities and research centers: Joint degree programs and field research
 - 區域大學與研究中心:聯合學位計畫與田野研究
 - International technical training providers: Skills certification and quality assurance
 - 國際技術培訓提供者:技能認證與品質保證

VII. Specialized Training Programs

七、專業培訓計畫

7.1 Construction and Infrastructure Skills

7.1 建築與基礎設施技能

Carpentry (木工)

- Furniture making and joinery techniques
- 家具製作與細木工技術
- Construction formwork and roofing
- 建築模板與屋頂工程
- Tool maintenance and workshop safety
- 工具保養與工作坊安全

Metalwork and Welding (鐵工與焊接)

- Arc welding and metal fabrication
電弧焊接與金屬加工
- Agricultural equipment repair
農業設備維修
- Gate, window, and door frame construction
大門、窗戶與門框建造

Masonry and Concrete Work (水泥工與砌磚)

- Foundation and wall construction
地基與牆體建造
- Brick and block laying techniques
磚塊與砌塊砌築技術
- Plastering and finishing
抹灰與修飾

7.2 Water and Electrical Systems

7.2 水電系統

Plumbing and Water Systems (水管工程與水系統)

- Rainwater harvesting system installation
雨水收集系統安裝
- Irrigation system design and maintenance
灌溉系統設計與維護
- Sanitation and wastewater management
衛生設施與廢水管理
- Water quality testing and treatment
水質檢測與處理

Electrical Installation (電力安裝)

- Basic household and farm electrical systems
基礎家庭與農場電力系統
- Solar power installation and maintenance
太陽能安裝與維護
- Energy-efficient lighting and appliances
節能照明與電器
- Electrical safety and troubleshooting
電力安全與故障排除

7.3 Equipment Operation and Maintenance

7.3 設備操作與維護

Basic Mechanical Equipment Repair (基礎機械設備維修)

- Small engine maintenance (generators, water pumps, tillers)

- 小型引擎保養(發電機、水泵、耕耘機)
- Agricultural machinery operation
- 農業機械操作
- Preventive maintenance protocols
- 預防性維護規程
- Workshop management and parts inventory
- 工作坊管理與零件庫存

VIII. Training Delivery Framework

八、培訓執行框架

8.1 Training Methodology

8.1 培訓方法論

Practice-Based Learning 實踐型學習

- 70% hands-on practical work, 30% theoretical instruction
- 70% 實作練習, 30% 理論教學
- Real-world project implementation
- 真實世界專案實施
- Apprenticeship and mentorship models
- 學徒制與師徒制模式

Competency-Based Assessment 能力本位評估

- Skills demonstration and certification
- 技能展示與認證
- Portfolio development
- 作品集發展
- Industry-recognized qualification pathways
- 產業認可的資格途徑

8.2 Certification and Accreditation

8.2 證書與認證

National Qualification Alignment 國家資格接軌

- Uganda Vocational Qualifications Framework (UVQF) compliance
- 符合烏干達職業資格框架
- Directorate of Industrial Training (DIT) recognized certificates
- 產業培訓局認可證書
- Articulation with formal TVET (Technical and Vocational Education and Training) pathways
- 與正式技職教育培訓路徑的銜接

IX. Impact and Sustainability Indicators

九、影響力與永續性指標

Measurable Outcomes 可衡量成果:

- Number of youth and adults trained annually
- 每年培訓的青年與成人人數
- Percentage of trainees achieving employment or self-employment
- 受訓者獲得就業或自僱的百分比
- Income improvement for program graduates
- 計畫畢業生的收入改善
- Number of local partnerships established
- 建立的在地合作夥伴關係數量
- Integration of trained individuals into community development projects
- 受訓人員融入社區發展專案的程度

Long-term Sustainability 長期永續性:

- Creation of local trainer cadre (train-the-trainer model)
- 建立在地培訓師隊伍(培訓培訓師模式)
- Establishment of income-generating workshop units
- 建立創收的工作坊單位
- Community ownership and management transitions
- 社區所有權與管理轉移
- Policy influence on national vocational education frameworks
- 對國家職業教育框架的政策影響

X. Contact for Partnership and Collaboration

十、合作夥伴關係聯絡資訊

For inquiries regarding vocational training partnerships, institutional collaboration, or research engagement with The Light Farm & Training Center:

關於與 The Light 農場與培訓中心的職業培訓合作、機構協作或研究參與之諮詢:

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The Light Farm & Training Center is committed to transforming lives through integrated agricultural research, vocational skills development, and sustainable community empowerment in East Africa.

The Light 農場與培訓中心致力於透過整合性農業研究、職業技能發展與永續社區賦權，轉化東非地區的生活。