

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 | 粮食系統 | 氣候韌性 | 粮食安全 | 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。