

ABC DESIGN

Design market-led Agriculture-Based Clusters with clear services, responsibilities and economics.

OBSERVE	DESIGN	BUDGET	VERIFY
Members and buyers	Value-chain system	Shared services	Governance and proof

LEARN / COMPLETE / APPLY

Practical reading, worked examples and reusable worksheets for farmers, youth enterprises, cluster teams and agricultural professionals.

AUTHOR

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Printable and digitally fillable PDF + editable Word edition. This is a planning and learning resource, not an approved site design or a guarantee of financial results.

START HERE

Design a system, not only a group

In the FPI framework, an Agriculture-Based Cluster (ABC) coordinates producers, enterprises, institutions and services around agricultural value chains. Under the Rural and Urban Agriculture Innovative Production Program (RUAIPP), ABCs connect production with aggregation, processing, logistics, markets and learning. Agriculture Systems Integration (ASI) links these functions into an operating system.

FAO describes agro-based clusters as interconnected producers, agribusinesses and institutions addressing common opportunities and challenges. A farmer group may be part of a cluster, but a membership list alone does not create a functioning cluster. [A1]

Planning stage	Pages	Output
Define market, membership and flows	3-6	Cluster scope, buyer requirements and volume model
Design services and governance	7-9	Asset layout, decision rights and service economics
Control delivery and implementation	10-12	Quality records, safeguards and action gates
Review and further reading	13	Evidence-based completion check

Cluster name / location / facilitator / planning period

Fill the pale PDF response cells and save a new copy. Use Word when adding members or expanding tables. Draw maps in Word, with PDF annotation tools or on paper. The worked cluster is hypothetical; no real buyer, member commitment or yield is asserted.

ABC-01 | PURPOSE AND BOUNDARIES

Define the problem the cluster will solve

Begin with a bottleneck that coordinated action can address. State the service area, product chain, participant types and proposed shared functions. Compare the cluster option with a smaller pilot or an existing service provider before acquiring assets.

Design question	Your answer / evidence
Priority problem and who experiences it	
Core crop or product and intended market	
Geographic service area / travel time limits	
Producer, processor, buyer and support actors	
Services to share and services to keep individual	
What is outside the initial scope?	

Value proposition: what improves, for whom, and how will you measure it?

Smallest workable pilot and evidence needed before scaling

ABC-02 | DEMAND AND OFFTAKE

Work backwards from the customer

Record the buyer specification before planning hectares or processing capacity. Distinguish an introduction, expression of interest, trial order and enforceable purchase agreement. Never treat forecast demand as guaranteed offtake.

Buyer requirement	Confirmed evidence / gap
Buyer identity and due-diligence contact	
Product form, grade, packaging and testing	
Quantity per delivery / season and tolerance	
Delivery point, transport and rejection terms	
Price formula, currency, payment and deductions	
Contract status, expiry and conditions	

Market scenario	Verified demand	Implication for pilot / capacity
Confirmed trial / cautious start		
Expected but not contracted		
Demand or buyer payment fails		

Do not expand until these buyer and market conditions are satisfied

ABC-03 | MEMBER AND RESOURCE MAP

Know who can deliver what

Separate total land from productive, water-supported and committed land. A member signature is not evidence of yield, quality, delivery timing or finance. Keep personal details in a controlled membership register rather than a public map.

Member / group ID	Ready area (ha)	Expected product / timing	Commitment / gap



Original blank planning grid. Add a scale, orientation and legend; it is not a survey or satellite image. Use PDF annotation tools, Word or a printed copy for drawing.

Aggregation points, travel constraints, supporting institutions and missing partners

ABC-04 | MASS BALANCE AND BOTTLENECKS

Match supply, processing and demand

Use one consistent basis at each stage: fresh raw input, accepted raw input, processed output and packed saleable output are different quantities. Never compare dryer raw-feed capacity directly with dried-product demand.

Hypothetical cluster calculation	Result
40 members x 2 ha x 3 t fresh raw input/ha	240 t potential raw production
240 t x 75% delivered share	180 t delivered raw input
180 t x 90% intake acceptance	162 t accepted raw input
162 t x 20% process recovery	32.400 t processed output
32.400 t x 98% packing recovery	31.752 t saleable packed output
1.2 t raw/day x 150 operating days	180 t raw annual intake capacity
162 / 180; packed output less 30 t buyer demand	90% annual capacity use; 1.752 t above demand

All yields, recoveries, participation and capacities are invented teaching assumptions, not moringa production guidance. Annual capacity can appear sufficient while peak harvest weeks still overwhelm intake.

Your mass-balance stage	Input and factor	Output / unit
Committed area -> potential raw output		
Delivery -> acceptance -> processing		
Packing -> saleable output -> buyer demand		
Peak-week supply -> usable intake capacity		

Bottleneck, evidence source and adjustment to the pilot

ABC-05 | SHARED ASSETS AND LAYOUT

Design the service chain

FARM BLOCKS -> COLLECTION -> INTAKE / LOT RECORD -> PROCESSING -> QUALITY RELEASE -> STORAGE -> DISPATCH
Support all stages with water, energy, maintenance, finance, training, records and safe waste handling. This is a planning sequence, not a validated factory layout.

Shared service / asset	Capacity and location	Owner / operator	Make, hire or outsource?
Nursery / approved inputs			
Collection and transport			
Intake, weighing and grading			
Drying / processing / packaging			
Water, power, storage and maintenance			
Testing, records and training			

Clean / dirty separation, access, drainage, utilities and expansion constraints

Asset chosen for the pilot, alternative considered and proof of need

Validate food-flow zoning, occupational safety, effluent and engineering requirements with competent local specialists before construction or operation.

ABC-06 | GOVERNANCE AND SPV DESIGN

Separate ownership, management and oversight

A special purpose vehicle (SPV) is a legal entity established for a defined project or purpose. Its form, shareholder rights, liability, tax and reporting obligations depend on local law and its documents. This worksheet records design choices; it does not establish an entity or replace legal advice.

Decision / responsibility	Who proposes?	Who approves?	Control / record
Membership and exit			
Land use and producer obligations			
Asset ownership and major investment			
Borrowing and bank payments			
Fees, pricing and benefit allocation			
Quality rejection and dispute resolution			
Accounts, audit and public reporting			

Proposed ownership, management team, member voice and reserved decisions

Conflicts of interest, complaints, non-compliance and exit rules requiring legal review

Never assume that joining a cluster transfers land, makes someone a shareholder, guarantees a loan or commits a buyer. Use explicit, understandable agreements and independent review where needed.

ABC-07 | SHARED-SERVICE ECONOMICS

Show who pays and when

Budget each service separately before combining the cluster accounts. Distinguish processor revenue, producer payments, service fees and grants. Eliminate internal transfers when preparing a consolidated view so the same income is not counted twice. [A2]

Illustration only: annual shared-service cash cost USD 54,000 / 180,000 kg delivered raw input = USD 0.30/kg cost-recovery fee. At USD 0.36/kg, fee receipts are USD 64,800 and the difference is USD 10,800 before excluded debt service, asset replacement, taxes or other costs. At 120,000 kg with unchanged costs, the cost-recovery fee becomes USD 0.45/kg.

Budget item	Basis / beneficiary	Annual USD	Who pays / when?
Labour, management and administration			
Water, energy, maintenance and cleaning			
Testing, packaging and logistics			
Finance, insurance and compliance			
Investment and replacement cash needs			
Fees / sales / grants: separate sources			

Service fee formula, minimum throughput and who bears a shortfall

Payment timing, working-capital gap and committed funding evidence

ABC-08 | QUALITY, LOGISTICS AND TRACEABILITY

Keep the chain accountable

Assign responsibility for identity, quantity, quality and custody at each handover. Record the link between member, farm block, harvest lot, intake batch, processing batch and customer delivery. Do not merge rejected material into accepted stock without a documented disposition decision.

Handover	Required record	Responsible person	Failure response
Farm to collection			
Collection to intake			
Intake to processing			
Processing to packed stock			
Stock to buyer			

Example record field	Your agreed format
Member ID / block / harvest date / lot ID	
Quantity, quality result and release status	
Transport ID, buyer and delivery reference	

Biosecurity, cleaning, isolation and recall/withdrawal exercise to test before scale-up

ABC-09 | INCLUSION AND STEWARDSHIP

Make benefits and responsibilities visible

Discuss participation barriers before setting membership terms. Ask how youth, women, small-scale producers and affected neighbours will be heard, trained and protected. Record consent, resource constraints and complaints; do not assume that a community meeting resolves all rights or interests.

Safeguard area	Commitment / control	Evidence / reviewer
Land access and affected-user consent		
Fair participation and transparent fees		
Training, accessibility and worker safety		
Water allocation and drought priorities		
Waste, residues and environmental impacts		
Complaint handling and conflict of interest		

Resource-sharing opportunity: material, safe use, quality test, recipient and economics

Treat residue reuse or industrial symbiosis as a proposal to validate. A by-product is not automatically safe, lawful, nutritious or commercially valuable.

Community concerns, agreed action and feedback date

ABC-10 | IMPLEMENTATION AND MONITORING

Launch through evidence gates

Gate	Required evidence	Owner / date	Go / revise / stop
1. Market and member validation			
2. Resource and technical feasibility			
3. Governance and committed finance			
4. Pilot commissioning and trial delivery			
5. Review before expansion			

Indicator	Definition / target	Data owner
Committed members actually delivering		
Accepted kg / delivered kg		
Saleable output / accepted raw input		
Peak capacity use / on-time delivery		
Unpaid producer or buyer balances		
Water, energy and incidents per output unit		

First 90 days: priority actions, budget, owners and review meeting

Case check: in ABC-04, saleable packed output is 31.752 t, not 180 t. The 180 t figure is delivered fresh raw material. Annual capacity use is 90%, but a peak-week intake schedule is still needed.

REVIEW AND FURTHER READING

Complete the cluster design review

Completion criterion	Evidence reference / gap
Buyer requirements and contract status are explicit	
Member area and delivery commitments are evidenced	
Mass balance and peak bottlenecks reconcile	
Assets, decision rights and service fees are justified	
Quality, inclusion and cash controls have owners	

Reviewer decision and required revisions

[A1] FAO. Agro-based Clusters in Developing Countries: Staying Competitive in a Globalized Economy. 2010.

<https://www.fao.org/4/i1560e/i1560e00.htm>

[A2] FAO. Farm Management Tools, Module 4. Cost, break-even and cash-flow methods.

<https://www.fao.org/4/a1298e/a1298e12.pdf>

RUAIPP, ABC and ASI references describe the FPI learning framework supplied for these materials; FAO is cited for general cluster and management concepts only. The templates, hypothetical cases and proposed review gates are original to this release.

Local legal, land, food-safety, labour, environmental and finance requirements must be checked for the actual entity and site. No corporate registration, SPV approval, offtake or financing is represented as secured. References checked 12 October 2026.

FPI ONLINE ACADEMY

Turn learning into a working plan

An Agriculture-Based Cluster succeeds as an operating system only when its producers, services, infrastructure, governance and customers fit together. Use this pack to make those connections explicit and testable.

What you will produce

A market-led cluster scope and member-resource map.

A raw-material-to-saleable-product balance and shared-asset plan.

A governance, service-fee, traceability and implementation framework.

Use within Agriculture Systems Integration

Connect the farm, the cluster and the water budget. Use all three worksheet packs together, but maintain separate evidence files, decisions and approvals for each project.

Farmers Pride International
RUAIPP: Rural and Urban Agriculture Innovative Production Program
ABC: Agriculture-Based Cluster
ASI: Agriculture Systems Integration

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