Supplementary Material

Table S1 Frequency Analysis of Interview Content with Ordinary Villagers

	ID	Element Content	Mention Frequency	Percentage	Keyword
Problem-Obstacle Element	PO1	Industry transformation policies	43	38.05%	Transfer, Land Transfer, Cooperatives, Expiry, Contract, Organization, Contracting, Forced Transfer, Unable to Cultivate
	PO2	Poor living conditions	27	23.89%	Income, Rent, Capital, Low Wages, Idleness, Reduced Rent, Elderly, Too Little, Aging, Decreasing, Elderly People, Deterioration
	PO3	Lack of experience and technology	10	8.85%	Technology, Experience, Manpower, Capability, Risk, Breeding Market, High Mortality, Dead Fish
	PO4	Information isolation, influenced by traditional thoughts	14	12.39%	Self-Sufficiency, Vegetable Gardening, Farming, Unsuccessful Packaging, Unwilling to Transfer
	PO5	Limited free time	7	6.19%	Leisure, Time, Children
	PO6	Improper collective village management	12	10.62%	Environment, Village Collective, Village Committee, Neglect, Untreated, Overgrown with Weeds, Odor
Goal Element	PG1	Maintaining the status quo, continuing to transfer land for rent	7	20.00%	Transferring Land, Willingness, Transfer Out, Transfer Costs, Status
	PG2	Improvement of welfare, benefits, and subsidies	14	40.00%	Improvement, Increased Rent, Management, Pension Insurance, Profit Sharing, Compensation, Free, Government, Income, Support, Town

	PG3	Participation in breeding or other businesses	4	11.43%	Cooperation, Participation, Shrimp Farming
	PG4	Children returning to participate in business	5	14.29%	Children, Returning
	PG5	Obtaining employment opportunities	5	14.29%	Training, Labor, Working, Employment

Table S2 Frequency Analysis of Interview Content with Village-based Operators

	ID	Element Content	Mention Frequency	Percentage	Keyword
Problem-Obstacle Element	JO1	No fields to cultivate, forced to seek alternative livelihoods	19	21.35%	Government, Maintenance, Land, Farming, Employment, Rice, Ponds, Lotus Shrimp, Transfer, Contract Signing, All
	JO2	Business profitability decline	30	33.71%	Sales, Customer Base, Retail, Difficulties, Within Village, Not Many, Pandemic, Sales Volume, Customers, Low Income, Rural Area
	JO3	Breeding industry faces higher relative risks	10	11.24%	Technology, Peak Season, Shrimp, Convenient, Breeding, Easy to Learn, Lobster
	JO4	Years of experience, unwilling to change industry	5	5.62%	Switching Industries, Three to Four, Two Years, Five to Six Years, Initially
	JO5	High costs and significant daily expenses	14	15.73%	Materials, Pesticides, Fertilizers, Capital, Procurement, Debt, Expenses, Education, Pension, Swine Fever, Costs
	JO6	Government subsidies insufficient	11	12.36%	Subsidies, Impoverished Households, Leaders, Assistance, Subsidies, Pension, Village Committee
Goal Element	JG1	Increase other income	9	25.71%	Income, Business
	JG2	Maintain status quo	8	22.86%	Maintain, Status Quo, Convenience, Grandson, Mood, Pension
	JG3	Policy subsidies	13	37.14%	Subsidies, Government, Guidance, Assistance, Subsidies, Village Committee
	JG4	Expand scale	5	14.29%	Expand, Hardware, Increase, Quantity, Storefront

Table S3 Frequency Analysis of Interview Content with Village-based Breeders

	ID	Element Content	Mention Frequency	Percentage	Keyword
Problem-Obstacle Element	YO1	No fields to cultivate, forced to seek other means	25	12.44%	Land, Government, Transfer, Cooperatives
	YO2	Income is unstable	73	36.32%	Income, Market, Sales, Traders, Disadvantageous, Risk, Loss, Market Conditions, Unstable, Pandemic, Profits, Failure, Production, Maintain, Unsold, Low Efficiency, Demand, Decrease, Loss, Decline, Fluctuation, Peak And Off-Peak Seasons
	YO3	High costs	56	27.86%	Cost, Feed, Agricultural Products, Shrimp Fry, Investment, Seeds, Fertilizer, Pesticides, Production Materials, Chemical Fertilizers, Contracting Fees, Capital, Labor Costs, Expenses, Leveling Fees, Purchases, Principal
	YO4	Limited policy subsidies	17	8.46%	Subsidies, Reduction, Decrease, Insufficient
	YO5	Technology is immature	30	14.93%	Technology, Experience, Machinery, Weather, Labor, Manpower, Variety, Knowledge, Complex, Exploration, Going It Alone, Difficult, Operation, Quality, Challenging
Goal Element	YG1	Policy subsidies support	31	33.70%	Policies, Government, Benefit, Services, Strive For, Township Government, Free, Guarantee, Subsidies, Support, Fairness, Higher Authorities
	YG2	Trial rice-shrimp farming	4	4.35%	Farming, Grain, Rice Cooperatives

	YG3	Cooperate and share experiences	33	35.87%	Learning, Association, Organization, Exchange, Training, Peers, Hubei, Breeders, Outsiders, Out-Of-Town, Meetings, Help
	YG4	Capitalize on policy benefits to breed lobsters	24	26.09%	Breeding, Last Year, Profit-Making, Three To Four Years, Four To Five Years

Table S4 Frequency Analysis of Interview Content with Village Committee

	ID	Element Content	Mention Frequency	Percentage	Keyword
Problem-Obstacle Element	GO1	Decision-making lacks villager support	20	36.36%	Farmers, Policy, Villagers, The Public, Mediation, Disagreement
	GO2	Construction projects involve villager property issues	6	10.91%	Housing, Accommodation
	GO3	Tight funding preparation	21	38.18%	Income, Investment, Difficulty, Town Government, Insufficient, Annual Income, Funds
	GO4	Farmland abandonment, environmental pollution	8	14.55%	Fallowing, Abandonment, Damage, Not Quite Adequate, Cadmium Exceeding Standards
Goal Element	GG1	Government funding, policy support	16	20.25%	Superiors, Technical Support, Funding, Town, Village Planning, Costs, Striving, Free, Skills, Town and County Officials, Drive, Guidance, Increase, Nation, District Government
	GG2	Combine environmental governance with transformation	21	26.58%	Maintenance, Guidance, Greening, Grain, Recovery, Industry Chain, Regulation, Strict, Effort, Rice-Shrimp, Tap Water, Exploration, Pig Farming Withdrawal, Non-Grain, Transformation, Management

	GG3	Village construction	32	40.51%	Construction, Development, Roads, Poverty Alleviation, Facilities, Expansion, Hongnan Highway, Unified Model, Shunfengqu Housing Area, Sujiatang Housing Area, Decision-Making, Dilapidated Houses, Construction, Alongside, Pavement, Whole Village Construction, Cultural Tourism, Idle, Beautiful Village Construction, Heliqiaojiang Housing Area, Coverage, Village
	GG4	Improve people's livelihood	10	12.66%	Role, Subsidies, Employment, Demand, Per Capita Income

Table S5 Frequency Analysis of Interview Content with Land Cooperative

	ID	Element Content	Mention Frequency	Percentage	Keyword
Problem-Obstacle Element	HO1	Land transfer lacks villager support	9	34.62%	Ideology, Disunity, Disagreement, Ideological Work, Older Generation, Inherent Bias, Unwillingness
	HO2	The number of land bidders decreases	11	42.31%	Bidding, Division, Hubei, Auction, Not Completely, Not Making Money
	HO3	Industry transformation carries risks	6	23.08%	Rice-Shrimp, Difficulties, Balance, Uniformity, Risk, Can't Handle, Unforeseen
Goal Element	HG1	Increase capital income	8	34.78%	Income, Vacant Houses, Enterprises, Bring, Funds, Property Income
	HG2	Policy funding	3	13.04%	Allocation, Striving, Government, Superior
	HG3	Transfer out more land	12	52.17%	Transfer, Rent, Land, Investment Attraction

Table S6 Frequency Analysis of Interview Content with External Breeders

	ID	Element Content	Mention Frequency	Percentage	Keyword
Problem-Obstacle Element	WO1	Lobster farming risks	6	13.33%	Pandemic, Waste, Terrain, Water Temperature, Breeding, May Disease, Lifting of Lockdown
	WO2	Hometown breeding grounds are saturated	21	46.67%	Hubei, Coming Over, Land, Hometown
	WO3	Local sales volume is small	11	24.44%	Sales, Procurement, Shrimp Collection, Our Village, Panlongling Village, Restaurants, Urban Area, Changsha, Too Small, Insufficient, Market, Buyer, Shenzhen, Demand, Peddler, Shanghai, Wangcheng
	WO4	Dense lotus flowers are detrimental to lobster survival	7	15.56%	Lotus, Not Conducive, Blocks Sunlight, Too Much, Vigorous
Goal Element	WG1	Many people in the hometown make money by breeding shrimp, and I also want to try	20	25.00%	Breeding, Contracting, Investment, Relatives, Taking Over, Family Members, Clan
	WG2	Ensure lobster quality	25	31.25%	Training, Technology, Water Quality, Rice-Shrimp, Polyculture, Learning, Environment, Medication, Windbreak, Testing, Family Fish, Meeting Standards, Large Lobster, Liming, Quality, Technical Work, Guidance, Unable to Sell, Planting Aquatic Plants, Experience
	WG3	Expand breeding scale	6	7.50%	Development, Excavation, Growth, Expand, Scale

WG4	Cooperate with peers for mutual benefit	12	15.00%	Organization, Peers, Exchange, Competition, Loss, Cooperation, Association, Partnership, Symposium
WG5	Maintain the status quo	17	21.25%	Fixed, Making Money, No Worries, Investment, Difficulty, Leisure, Stable, Busy Farming Season, Unplanned, Production, Maintain, Raise Well, Restart

Table S7 Frequency Analysis of Interview Content with Cultural and Tourism Enterprises

	ID	Element Content	Mention Frequency	Percentage	Keyword
Problem-Obstacle Element	QO1	Popularity is not high	9	15.00%	Promotion, Not Very Good, Popularity, Advertising, Marketing, Internet Celebrity, Starting, Platform, Not Many
	QO2	Products lack uniqueness	13	21.67%	Insufficient, Resources, Landscape, Scenic Area, Environment, Management, Investment Ratio
	QO3	Scenery is limited by season	12	20.00%	Lotus, Peak Season, Season, Constraints, Limited, Flowering Period, Off-Peak and Peak Seasons
	QO4	Consumption is relatively high compared to urban areas	19	31.67%	Parent-Child, Few, Changsha, Citizens, Lacking, High-End, Consumption, Mid-To-High-End, Family, Housing Prices, Consumer Group, Foot Traffic, Age, Ahead
	QO5	Location advantage is not obvious	7	11.67%	Transportation, Destination, Location, Comparatively Far, Limitations, Location, Somewhat Remote
Goal Element	QG1	Enhance core competitiveness	23	27.38%	Operation, Facilities, Capability, Enhancement, Highlights, Strength, Food Festival, Promotion, Value-Added Activities, Exploration, Service, Standards, Signage
	QG2	Collaborate with well-known brands	18	21.43%	Wenheyou, Cooperation, Training, Enterprise, Guidance, Exchange, Joint Effort, Mutual Benefit, Intentions
	QG3	Attract more consumers	18	21.43%	Tourists, Drawing In, Visitors, Self-Media Matrix, Ctrip, Profit, Marketization

	QG4	Create rural characteristic cultural and tourism projects	25	29.76%	Investment, Development, Construction, Policy, One Township One Product, Beautiful Village, Attempt, Wetland, Water Area, Panlongling Village, Complex, Government, Local Enterprises, Local Flavor, Cultural Tourism, Creation, Benchmark, Poverty Alleviation

Table S8 Frequency Analysis of Interview Content with Town Government

	ID	Element Content	Mention Frequency	Percentage	Keyword
Problem-Obstacle Element	ZO1	Superior policy requirements	15	75.00%	Every Household, Headache, Agricultural Subsidies, Involving, Spiritual Civilization, One Town One Feature, Demolition and Green Restoration, Government, Industrial Layout, Precision, Five-in-One, One River Two Banks Three Axes, Industrial Development Pattern, Superior Requirements
	ZO2	Soil pollution necessitates transformation	5	25.00%	Remediation, Long-Term, Basic Farmland, Transformation, Harmlessness
Goal Element	ZG1	Develop specialty agriculture	10	28.57%	Aquatic Product Breeding and Processing Base, Aquatic Products, Fisheries Industry, Trade and Fisheries Capital, Lotus Shrimp Industry, Healthy Aquaculture, Special Agricultural Industry Cluster, Modern Breeding Sightseeing Demonstration Area
	ZG2	Develop rural tourism	12	34.29%	Tourism, Leisure, Rural Tourism, Internet Plus, Featured Town, Red Culture, Local Customs, Featured Small Villages, Tourist Ancient Towns, Qiaokou Shrimp Tourism and Culture Theme Park

	ZG3	Environmental governance	13	37.14%	Residential Environment Remediation, Small-Scale Sewage Treatment Facilities, Domestic Waste Treatment, No Major Demolition and Construction, Centralized Collection and Transport, Waste Sorting System, Grease Trap, Three Tanks One Land, Septic Tank, Composting Tank, Micro-Water Body Management, Diverting System Drainage

Table S9 Consumer Online Text Frequency Analysis

	ID	Element Content	Mention Frequency	Percentage	Keyword
Problem-Obstacle Element	X01	Location is somewhat remote	6	100.00%	Navigation, Positioning, Traffic, Location, Inaccurate
Goal Element	XG1	Leisure and vacation	35	72.92%	Environment, Hotel, Breakfast, Leisure, Vacation, Comfortable, Wife, Smart, Tranquil, Serene, Garden View Suite, Outing, Relaxation, Starry Sky Suite, Fully Smart
	XG2	Appreciate the scenery	3	6.25%	Lotus Pond, Scenery, Sunset Glow
	XG3	Experience rural life	10	20.83%	Suburbs, Countryside, Away From, Rowing, Lotus Seed Pod Picking, Free-Range Eggs, Culture, Food and Accommodation, Bustle, Changsha Rice Noodles

Figure S1 Industry Transformation Current Stage Actor Relationship Matrix

	Town government	Village committee	Land cooperative	Ordinary villagers	Village-based breeders	Village-based operators	External breeders	Cultural and tourism enterprises	Consumers
Town government		Government leads, allocates funds, and greatly supports livelihood; village committees implement policies and seek funds from the government.	Interactions through village committees.	The government occasionally organizes domestic services and nanny vocational training; some villagers participate.	The government occasionally organizes skill training and peer exchanges.	Government officials occasionally take care of businesses.	Government occasionally organizes skill training and peer exchanges.	The government publicizes policy directions; businesses understand policy projects.	No interactions.
Village committee			Cooperatives handle land transfer matters, and village committees manage daily operations.	Dividing the village into 18 groups for management, establishing group leaders; setting up youth and elderly party branches to lead villagers in improving living environments and mediating villagers' lives; villagers follow village arrangements.	Village cadres set breeding requirements, maintain breeding environment (rarely); local breeders breed according to requirements, initially received subsidies, now do not.	Village cadres occasionally look after business operators.	Village cadres set breeding requirements and maintain breeding environment (rarely); external breeders breed according to requirements, initially received subsidies, now do not.	Enterprises operate independently and coordinate with village cadres when issues arise.	Village committees provide consultation services for consumers.
Land cooperative				Distributing rent to group leaders, who then distribute it; villagers receive fixed rent, transfer land.	Village investment prioritizes locals; local breeders regularly pay rent.	No direct interactions.	External breeders regularly pay rent.	Regularly submit land and housing rent.	No interactions.
Ordinary villagers				Neighborly harmony, often dancing, walking, playing mahjong together.	Few contacts, villagers occasionally buy lobsters, considering external breeders more reliable; local breeders employ some local labor during peak season.	Villagers buy daily necessities, sometimes in town or online, occasionally dine out; business operators mainly sell to villagers.	Good relations; villagers generally buy lobsters from external breeders; external breeders rent housing, employ some local labor during peak season.	Villagers often walk in Heliqiaojiang but don't consume; tourist sites open to the public but fenced for management.	No interactions.	No interactions.
Village-based breeders					Organized by the government and external enterprises for cooperative exchanges.	Supply and sale of lotus shrimp.	Organized by the government and external enterprises for cooperative exchanges.	Supply and sale of a small amount of lotus shrimp.	Retail of lobsters.	
Village-based operators						Competitive relations.	Supply and sale of lotus shrimp.	Business operators often walk in Heliqiaojiang.	Supply and sale of a small amount of goods; consumers mostly dine in village restaurants.	
External breeders							Mutual aid, organized by the government and external enterprises for cooperative exchanges.	Supply and sale of a small amount of lotus shrimp.	Retail of lobsters.	
Cultural and tourism enterprises									Enterprises cater to family trips, providing accommodation, dining, and entertainment; consumers mainly engage in homestay stays, lotus viewing experiences, rarely in gourmet or cultural consumption.	
Consumers									Mainly city high-end consumers engage in family trips, team-building activities.	