

EVOLVING TECHNOLOGY THROUGH COLLABORATION AND
PARTNERSHIP:
CASE OF IDE'S WORK WITH TOMATO PACKAGING IN HIMACHAL
PRADESH, INDIA

A Case Study Prepared for IDE India

By

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Summary

The project: The project titled "Sustainable Retailing of Post Harvest Technology to the poor: alternative institutional mechanisms for developing and transferring technology" is being implemented by IDE (India) with the funds received from NRI as a part of the latter's larger CPHP supported by DFID. The project began in January 2000. A UK based agency was chosen by NRIL as the principal project holder. The UK agency contracted IDE to carry out the field level work connected with identifying the area, the issues for work, the specific post harvest stage for intervention, technology identification, sourcing and adaptation.

After initial research using the SRL framework, IDE identified tomato as the main crop for intervention and a developing and commercialising suitable cardboard box packaging as the main task. The project was implemented in partnership with RUCHI, an NGO based in the region, IIM Ahmedabad and reputed manufacturers of the boxes. While the partnership between the UK agency and IDE was formalised through an agreement, the other two were not.

Analysis of the partnership processes leads to the following inferences:

- inclusion of a partner for formal, legal or stylistic reason alone may not lead to very productive partnership,*
- existence of personal rapport between key individuals, preferably dating back to a period even before the formal partnership begins seems to lead to good partnerships*
- partners need to evolve mutual roles and responsibilities while remaining sensitive to mutual concerns rather than ink them in a MoU or a formal agreement. A formal MoU or agreement is necessary when financial relation is important if not central, but otherwise it may be superfluous at best and counterproductive at worst. Somehow, signing of the agreement seems to drive all the mutuality out of the partnership.*

I Introduction

The project: The project titled “Sustainable Retailing of Post Harvest Technology to the poor: alternative institutional mechanisms for developing and transferring technology” is being implemented by IDE (India) with the funds received from NRIL. The project began in January 2000. A UK based agency was chosen by NRI as the principal project holder. The UK agency contracted IDE to carry out the field level work connected with identifying the area, the issues for work, the specific post harvest stage for intervention, technology identification, sourcing and adaptation.

In consultation with the UK agency, IDE chose the tomato crop grown on hill sides by poor farmers in Himachal Pradesh. Wooden boxes, conventionally used for packaging by farmers were seen as being environmentally not sustainable and increasingly infeasible in view of the ban imposed on tree felling in the state. It was hence decided to find suitable technology that would replace wooden boxes for packaging tomato. IDE persuaded the Indian Institute of Management Ahmedabad to take interest in the project. The latter involved the largest CCC box manufacturer in India to design and test the technology. IDE collaborated with RUCHI, an NGO that was engaged in sustained development work with the farmers in the area as an interface to work with the farmers. IDE had previous association with RUCHI in the process of demonstration and development of its mountain MI kits. The first phase concluded with the identification and first field level as well as transportation trials of the CCC (VC-15 box of dimension 363X192X373 mm made out of 5 ply 150 gsm material with 8 ventilation holes) technology in June 2001. The second phase is being directly implemented by IDE and envisages further adaptation and modification of the technology (for reducing box volume, improving its moisture resistance, improving its acceptance in trade circles and reducing its costs) and commercialisation of the technology through sustainable engagement of local private sector players. As of going to press, the producers had tied up with a manufacturer based in Delhi to manufacture 100,000 boxes with credit arrangements with a local bank facilitated by IDE as well as RUCHI. IDE expects the technology to be widely and repeatedly used in future. RUCHI, the box manufacturer, IDE and the trade circle expect quick expansion of this scale and application of CCC box for packing of peach, capsicum and some other produce from this region.

The time line of relevant events is given in the Annex 1.

II Institutions and Agencies Involved

a. UK Department for International Development (DFID)

b. Natural Resources International (NRIL)

c. UK Agency: A division of a well known group of development organisations and individuals, concerns itself with collaborative evolution of appropriate technology for use in the developing world. For this project it appointed and outsourced relevant expertise and itself concerned with donor relation and funds management.

d. IDE: A liaison office of IDE US till recently, it became an independent Indian entity in May 2001. Has been engaged in development and marketing of divisible, affordable technology and its commercialisation through private sector for helping small farmers raise their income. Prior experience was in irrigation. IDE was exploring the concept of a "mountain market-shed" with a view to improve market performance and net incomes to farmers in 1997-98 using a Ford Foundation grant. This was their first foray in post-harvest side and they had acquired familiarity with HP. They were encouraged to apply their methodology of mass marketing and the understanding of marketshed to the post harvest theme by NRIL.

Indian Institute of Management, Ahmedabad: This is the best known management institution in India and has a specialised division working on agriculture. Rather than a formal institutional partnership, what seems of greater relevance is the collaboration with one specific faculty member at IIMA in this division. He had worked on food packaging and in fact had assisted Gujarat farmers take to CCC Boxes.

e. Rural Centre for Human Interest (RUCHI) is an established NGO that works in Solan district of HP on a range of development issues including watershed development, quake proof housing, promotion of horticulture and micro-credit. RUCHI has created a network of SHGs in over four dozen villages in the district. RUCHI had collaborated with IDE in demonstrating its micro-irrigation equipment around the same time. Due to personal rapport of CEO of RUCHI with a key functionary of IDE, the two organisations had developed mutually supportive relationship. RUCHI looked at IDE as the source of new and beneficial technology and provided them access to farmers and local support.

In addition, three other organisations were involved. The Indian Institute of Packaging in Delhi is a public agency concerned with research, development and testing of packing materials supported by Council of Scientific and Industrial Research of GoI. IDE approached them and explored the possibility of collaborative development work. Eventually, IIP did help in testing of CCC Boxes developed for a fee. The two other agencies were manufacturers of CCC Boxes. One of them, the largest manufacturer in India is based in Ahmedabad and the top management there had live and vibrant relations with IIMA which

they cherished. The second manufacturer is based in Delhi and has commercial interest in the success of the CCC Box.

The interests and competencies of the various agencies are summed up in Annex 2.

III The Process in Brief

Following formal agreements between NRIL/UK Agency on one hand and UK Agency and IDE on the other, IDE undertook a detailed study of the area using the SRL framework. They studied four communities in Solan district and four in Kullu district. The former was done with the intermediation of RUCHI while a private sector agriculture input dealer mediated the latter. IDE did not start the research with a pre-conceived notion that its CPH work will concern tomato packaging. It was discovered during this research that:

- it was much easier for the researchers to interact with farmers when they worked in collaboration with RUCHI than when they went through the input dealers. RUCHI had presence in villages in the form of Watershed Committees or SHG, had credibility and enjoyed trust of the people. Farmers were free and interacted with confidence with IDE personnel there. The input dealer could primarily introduce the researchers to his clientele but since his own equation with them was in the commercial realm, he had little influence on the social processes.
- farmers in both the locale had expressed grave concern about the impact of government ban on tree felling on the packaging and hence potential profitability of the produce.
- farmers in villages serviced by RUCHI had acquired access to irrigation for growing off-season tomatoes through the watershed development work of RUCHI and had quickly grabbed the initiative in cultivation. This was a crop of the small and marginal farmers who could deploy their family labour in its cultivation, harvesting and post harvest.
- two traditional packaging forms (kilta and wooden box) and one relatively new form (plastic crates) were seen being in practice. Of these, wooden boxes were used for tomatoes sold in Delhi market, often for subsequent transportation beyond. This form of packing was the one affected by the ban. Since Delhi market was the most lucrative, farmers perceived a major threat to their income in the coming years.
- packing in wooden boxes was labour intensive. Wooden material had to be first procured and then boxes prepared by nailing pieces together in the prescribed style. Men, women and children all would be busy in making the boxes one day ahead of the

predetermined time for harvesting and sending the material to Delhi. Farmers reported that if they could not make enough boxes ready, then even top quality produce would have to be sold at a discount in the local market. An alternative to this was thus sorely needed.

IDE team identified packaging of tomato as an important issue. In the parlance of SRL framework, this was expected to lead to “reduced vulnerability” for the rural farm households. Searching for leads, they came across a paper of Prof. Girija Sharan, a faculty member in IIMA on the very same subject and promptly co-opted him in the research. He was enthusiastic about the research programme because he saw an opportunity to apply his own research in a practical setting, being able to solve an important issue. In fact this involvement and interest was sufficiently strong and beyond meeting out of pocket costs, IIMA team never mentioned reward for their work. IIM team used their good offices and designed a box at CORE in Ahmedabad. CORE top management has close contacts with IIMA and they saw a possibility of being able to contributing to development in this association, as also a potential business opportunity. (The latter perception became misplaced as it became clear that IDE wished for an affordable solution.) The UK agency was kept informed of the whole process at periodic intervals. They operated through the agency of a consultant appointed by them for this purpose. Neither any staff from the agency nor the consultant visited India at any point in time. The UK agency dealt almost exclusively with tasks of donor relationship and providing leads and contacts in UK. As a part of this, IDE team visited UK and completed their formal literature review and technology scan. The UK agency also identified a food packaging specialist. He visited India towards the end of 2000. Having interacted with IIM faculty he suggested to IDE that they were on a good track and needed to continue work in that direction.

A thorough transportation trial of the CCC packaging material was done in summer of 2001. IDE paid for the boxes for this trial and bore the cost of transportation. The ownership and the risk of the tomatoes remained with the farmers who agreed to participate in the trial. The trial proved that CCC Box could indeed be a viable alternative to wooden box.

. Around this time, when all this work was done, EDA Rural Systems, contracted by the UK agency to do so, submitted a report on socio-economic assessment of the region that concluded that while tomato was an important crop for the farmers, packaging was not the most important issue.

Later, IDE and IIM team effected design changes in the CCC box after considering the performance parameters (capacity, stacking height and strength, bursting strength, moisture resistance and so on.) and also consulting *RUCHI, farmers, trade channels and local manufacturers*. Five rounds of redesigning have been gone through till date. By the summer of 2002, the product is ready for commercialisation. The local manufacturer and farmers together negotiated the terms of supply. The manufacturer insisted on advance payment of half the cost of the boxes. Since farmers obtain wooden boxes or box material on credit, this seemed to pose a road block. RUCHI stepped in to suggest that they would

facilitate the financing of the boxes by way of a loan from the local Bank to the SHGs and then on-lent to the farmers. This arrangement was sweetened by IDE offering to make an incentive of 20% in the form of boxes, that is, farmers would get 20% of the boxes they order free. The commission agents in Delhi are kingpins in tomato marketing for these farmers and they saw their interests being adversely affected. Hence they tried to oppose

this new form of packaging but concerted action from farmers has seen them back down. This arrangement between farmers, bank, RUCHI, the manufacturer and IDE is through an unwritten and informal agreement. It is hoped that once the first lot of 100,000 boxes are sold, demand from farmers as well as market players would make the new product marketing sustainable.

Interestingly, IDE team identified two basic post-harvest problems: loss of value to farmers produce due to this inability to make all the boxes in time and the fact that traditional forms of packaging made possible and hence encouraged marketing un-graded materials with consequent impact on realised price. RUCHI saw the regeneration of tree cover in the region as the task to be addressed by the project. Farmers saw reduced drudgery and expenses in obtaining the boxes as the key benefits. (while making wooden boxes, nails had to be hammered in the wooden planks, most men and children working on the task would end up having bleeding hands.) The choice of the post-harvest problem to be addressed thus perhaps coincidentally addressed all these concerns. *Clearly, unless a new technology effectively addresses genuine but possibly differing concerns of all the parties involved, it may not be acceptable.*

IV Analysis of the partnership processes

An organisation works with a whole network of agencies and organisations in its task environment. In fact, organisation theorists identify five classes of organisations and entities in the task environment. These are: suppliers, buyers, competitors, regulators and the organs of the society/community within which the focal organisation works. Some or all of these actors in the task environment may be “organisations” pursuing their own objectives and goals. Not all the exchanges between the focal organisation and those outside it in the task environment can be called partnerships. An organisation buys a computer from say IBM, but this act does not become a partnership. To amplify this example, it may work jointly with a computer consultant for six months to install an ERP system. Yet this will not be called a partnership. To amplify even further, the computer consultant may represent the focal organisation in equipment purchase and still this may not become a partnership. In all the three, the computer seller and consultant are essentially service providers for a specific consideration. Their interest is limited to the consideration and the impact on their image of a good or a bad performance of the installed system.

It is thus useful to differentiate between “partnership” or “institutional collaboration” on one hand and highly specific and focused work achieved by joint co-operation by two agencies. A partnership between two agencies can be defined as an arrangement in which both the agencies, primarily motivated in

coming together by their commonality of interest in the shared objective, work for achieving it.

Keeping IDE as the focal organisation, four partnerships/institutional collaborations are of importance in this whole process. These are

IDE-NRIL
IDE-UK agency
IDE-RUCHI
IDE-IIM A.

The process variables of interest can be stated as:

- pre-partnership relationship, if any
- personal rapport between key persons
- mutual assessment of ability, standing, competence etc.
- existence of a formal agreement
- perception about “ownership” of the tasks
- frequency and nature of contacts etc.
- transparency and mutual accountability
- irritants if any and how are they sorted out
- social distance
- centrality of financial relationship

The process outcomes can be stated as

- trust
- enhanced mutual respect
- enhanced sensitivity to the other’s concerns
- willingness/ability to continue relationship beyond project period etc

IDE’s partnership with NRIL has been very productive has led to significant mutual satisfaction. NRIL has been very supportive of the work IDE has done and actively taken steps to ensure that the work on this project is facilitated. IDE was especially appreciative of the supportive role of Andy Hall, NRIL’s South Asia co-ordinator. NRIL’s involvement has been at more strategic level and not at the level of carrying out detailed tasks. An attempt is made to characterise the remaining three *operational partnerships* processes in terms of process variables and process outcomes in tables below

Process outcomes

	IDE partnership with		
Process outcome	UK Agency	RUCHI	IIMA
mutual trust	Fairly high	High	High
enhanced mutual respect	Arguable. respect exists for the consultant who dealt with IDE	significant	Substantial
enhanced sensitivity to the other's concerns	no information	high. IDE knows that it will have to prolong its stay presence beyond project period to satisfy expectations from RUCHI/SHG side	moderately high
willingness/ability to continue relationship beyond project period etc.	not demonstrated	stated emphatically as high desire, need and ability	indicated willingness to support second transportation trial

Process Variables

	IDE partnership with		
Process variable	UK Agency	RUCHI	IIMA
pre-partnership relationship	Existed in connection with MI project. IDE was sour about it	informal association in demo of MI kits. mutually satisfying	None
personal rapport between key individuals	Rapport existed with ex-Country Director	rapport existed between ED RUCHI and a key senior manager in IDE	rapport existed between a senior manager who was student of the concerned faculty

mutual assessment of abilities and standing	Good assessment that enabled well defined roles	clear assessment of mutual strengths	member good assessment of mutual strength
formal agreement	Yes	none	None
ownership of the task	IDE owned the task, UK agency in fact deployed none of its own staff	between them IDE was the owners, but for the farmers, the lines between the two were blurred	IIM came as an interested, keen and responsive consultant and owned jointly the devp process
frequency and nature of contacts	Periodic contacts on the phone	frequent and long personal visits of IDE staff	several visits/contacts from both the sides
transparency and mutual accountability	Fairly high	high	fairly high
irritants, if any and how are they sorted out	Though agreed in advance, sharing of project costs was a ticklish issue. Not sorted out	“too much time and efforts” of RUCHI may have been claimed by IDE	None
social distance	High	moderately high	moderately high
centrality of financial relationship	Complete	no financial relationship	marginal financial relationship

V Inferences

The following inferences seem to be possible from the above two tables and from the process description given earlier.

- inclusion of a partner into the process for formal, stylistic or legal reasons alone is unlikely to make for a great partnership. In India we have plenty of experience of this. State agencies involved in specific facets of development process are often included as partners in the process for such reasons. Their interest in the task at hand is tepid and participation perfunctory. On the other hand, they have disproportionate say in the structuring of the partnership and the tasks, and this creates tensions. Inclusion of the UK agency was done as “normally a UK agency becomes the principal contractor for a UK donor” , as noted by an earlier process documentation exercise notes.
- at least in the cultural context of India, prior personal rapport between key individuals is almost a precondition for even starting a meaningful partnership. I was told by RUCHI ED that rapport and relationship between him and a key functionary in IDE were quite important to making the relationship so productive. The concerned functionary of IDE echoed this sentiment saying that he chose RUCHI over some other potential grass-roots partners because he had rapport with RUCHI. Thus the beginning needs to be made using personal relationship between individuals from the two organisations. This is of course never sufficient since the nature of the partnership emerges through frequent and continuing interactions between people at all level. In this instance, IDE staff at all levels was appreciative and respectful about their counterparts in RUCHI and reciprocated the help they got.
- It would appear that unless financial relationship is central to the partnership, a formal agreement or MoU that specifies mutual roles and responsibilities is superfluous at best and counterproductive at worst. The roles and responsibilities need to evolve over time and through mutual respect and concern for the other’s point of view.
- *It is critical to back the partner in matters that involve risk and potential loss of face.* RUCHI staff told me that had the farmers incurred big losses in the first transportation trial, then there would have been a loss of face for them. Farmers thought till then that IDE people were really “new RUCHI staff” taken for the purpose. IDE

responded on the issue by stating that they had provided for incentive in the form of package costs and transportation costs. They had deliberately left the responsibility of the risk to the goods unstated so that the farmers would have a stake in the trials. But they would have bailed RUCHI out by settling with the farmers in any event of loss. This willingness to back each other may not be formally stated but emerges only out of mutual trust.

- clearly, if there is large social distance, then the nature of interactions has to be so deliberately designed to establish rapport and mutuality. Formal interactions seldom help in this matter.
- finally, and obviously, the basis of choosing partners must lie in the partners' operative mandate, competence or demonstrated interest, not in ephemeral infatuation with new ideas or prefuntory statement of interests.

Annex 1

EVENT/STAGE	STARTED	ENDED	REMARKS
IDE ASSOCIATION WITH RUCHI	1997	-	FOR WORK ON MI KITS AS WELL AS MOUNTAIN MARKET-SHED STUDY
INITIAL DISCUSSIONS WITH NRI	JUNE 1999	AUGUST 1999	
INITIAL FAMILIARISATION STUDY	MAY 1999	OCTOBER 1999	CONTINUATION OF MARKET-SHED STUDY
BAN ON TREE FELLING IN HP	AUGUST 1999		ON-GOING, INITIALLY A TRANSPORTATION SUBSIDY FOR WOOD IMPORTED FROM HARYANA WAS GIVEN, NOW WITHDRAWN. RETROSPECTIVE, from JAN 2000
AGREEMENT BETWEEN UK AGENCY AND IDE STUDY AS PER SRL FORMATS	MARCH 2000		
	FEB 2000	MAY 2000	CONCLUDED WITH CROP TOMATO, INTERVENTION ABOUT REPLACING WOODEN BOX WITH CCC BOX
CONTACT WITH IIM A	OCT 2000	CONTINUES	SERENDIPTIY, IDE HAPPENED TO SEE GIRIJA SHARAN'S PAPER
DESIGN AND LAB TESTING, INITIAL DISCUSSIONS ON VC 15			
HP GOVT BEGINS CEASING ALL OUTBOUND VEHICLES CARRYING FRUIT IN BOXES MADE OUT OF PROHIBITED SPECIES			
VISIT OF UK FOOD PACKAGING EXPERT			

TRANSPORTATION TRIAL OF VC-15	MAY 2001	MAY 2001	PACKAGES GIVEN FREE, NO GUARANTEE FOR TOMATO, TRANSPORT COST BORN BY IDE
PHASE II STARTS, EXIT ITC PROJECT LINKS IDE DIRECTLY WITH NRI MODIFICATION AND EVOLUTION OF GEN 2, 3, 4 PACKS FARMERS DISCUSSION WITH ADTIS FOR SCALING UP OF CCC PACKING	JUNE 2001		
	JUNE 2001	DEC 2001	INVOLVEMENT OF A DELHI MANUFACTURER DECISION TO SHIFT TO CCC BOX BY MEMBERS OF 4 SHG OF RUCHI IN SHARGAON
	JAN 2002	ON GOING, FORMAL MEET IN MARCH 2002	
LINKING SHG TO BANK FOR FINANCING OF BOXES LARGE SCALE ADOPTION OF CCC BOX	MARCH 2002	ON-GOING	FACILITATED BY IDE/RUCHI IDE OFFERS A 20% PROMOTIONAL INCENTIVE IT IS HOPED THAT 100000 BOXES WILL BE USED FOR PACKING 1500 MT OFF-SEASON TOMATO THIS SUMMER
	EXP JUNE 2002		
PARTNERSHIP PROCESS STUDY	APRIL 2002	APRIL 2002	

Annex 2

Agencies and their interests

Agency	Main mandate	Competency	Short term interest in CPHP project funds available for supporting work	long term interest in the CPHP project broadening of product portfolio	Remarks
IDE	evolving division, affordable technology and marketing it for benefiting farmers	marketing, supply chain, adaptive research, coalition building			
UK Agency Contracted by NRI IIM	adaptive research on appropriate technology	network with donors access to experts on diverse fields	promoting new CPH technology funds	strengthening network in Indian subcontinent	Had very good rapport with erstwhile IDE CD
	premier management teaching and research institute	credibility, access to government, large and expert faculty pool, special focus on agriculture	seeing the research work being actually implemented	strengthening rural/agri research portfolio	involvement restricted to one faculty member
RUC HI	comprehensive rural development in the Solan district	strong network with farmers, close observations and knowledge of local issues	furthering interests of farmers	protection of environment	had earlier collaborated with IDE its mandate tends to be influenced by farmers served

CORE	for profit manufacture of CCC box	carton design, development, testing and manufacture	supporting developmen t work of IIMA	commercial interest	was involved in the process by IIMA
SUPR EME	as above	as above,	establishing links with users	commercial interest in a growing segment	located in Delhi, hence closer to HP

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