



## I. Idara-e-Kissan

### *Genesis of Idara-e-Kissan Organization*

The genesis of IK was the 1983 Pattoki Livestock Production Project (PLPP), initially supported by the German Government and implemented through technical assistance from GTZ. The emphasis was on extension and education of farmers with a view to improve productivity and farmers' incomes through the development of a participatory organization. During an in-house workshop of the project, it was realized that extension alone was not enough to achieve these objectives.<sup>1</sup> So a service provision element was added that included animal health, reproduction, feeding, extension and social components. This decision had its roots in the realization that increased farmer incomes were highly fungible and not always invested in livestock.

Initially, the project model was based on the collection of milk from farmers in 15 villages and selling it to private dairies in Lahore. The project provided price guarantees and assurances to buy all milk offered for sale by farmers. However, difficulties in selling milk to private dairies, especially during the flush season, underscored the need for creating processing capacity. The Pattoki milk processing plant was established in 1987 to help address the milk marketing problem, and with it the organization – *Idara-e-Kissan* – was also created as a means of developing a private enterprise that would generate its own funds, be financially self-sustaining, and involve members in the decision-making process of milk processing and marketing. *Idara-e-Kissan* was registered under the Pakistan Society Act in June 1989. In 1992, PLPP terminated and IK's own administration has been running the organization since then.

### *Initial Investment Costs*

The initial investment in IK, from 1984 to 1992, was Rs 200 million. The German government's contribution was Rs 180 million, which included Rs 100 million in local expenditures for the establishment of the Pattoki milk processing plant, vehicles, equipment and other hardware.

### *Growth of Operations*

The original IK model was developed in areas around Pattoki, in the milk belt along the left bank of the Ravi between Balloki and Gugera-Saddar/Akbar Chawk. This area consists of the western parts of the administrative districts Kasur and Okara. In the *Idara-e-Kissan* lexicon, this is IK-1. Now the IK model has been extended to more areas, as shown below:

- IK-1: Kasur, Okara
- IK-2 Syedwala (on right bank of Ravi), Sheikhpura
- IK-3 Arifwala, Hujra Shah Muqem
- IK-4 Sargodah, Layyah

IK-4 is the newest area. The historical evolution of IK operations is summarized in the table below:

<sup>1</sup> Discussions with CEO, Idara-e-Kissan.



**Table-1: Evolution of IK Operations**

Years =>	1992	1996	2000	2004
Villages Under IK Operations	87	139	351	519
Farmer Members	1,817	7,143	10,753	20,164
Milk Collected –6% Fat (million liters)	4.66	9.62	37.65	47.10

**Source:** Information provided by IK

Demand for UHT treated packed milk is limited due to modest income levels in Pakistan and its real price has fallen consistently over the years. IK evolved a new strategy focusing on lower cost segments of the marketing, involving cheaper packaging to market affordable products such as unpacked pasteurized milk. This has helped the bottom line.

Flush season milk has always been difficult to sell (IK faced the same problem as other dairies). To deal with strong seasonality, IK started a powdered milk plant (in 2001) with production capacity of 1 ton per hour. This plant works during the September-April period, i.e. 8 months a year.

Despite increasing the scale and scope of operations, and greater geographic dispersion of its activities, IK operates under the same basic model. This model is described below.

### *The Idara-e-Kissan Model*

Any livestock keeper in a target village can become a member if he/she owned one buffalo or one cow and is able to supply 300 liters of milk during a six-month period. Members are entitled to members’ services during the next six months. A village with 15 members can form a Village Committee (VC) and elect a ‘*nomainda*’ or representative at the village level for a five-year term. The villages in the Union Council elect Council members who form the Governing Body. The Governing Body meets quarterly and makes policy decisions. In addition there is an Executive Committee (EC) for operational decisions. The members of the EC are nominated. The Governing Body must approve any decisions made by the EC.

### *Milk Collection System*

From a milk collection perspective, each operational village (i.e. where IK collects milk) has a village milk collection point, where farmers deliver milk. A village milk collector (VMC) is present in the mornings and the evenings to receive milk, which is tested for fat content in the farmer’s presence and both the quantity of raw milk and its fat percentage are recorded. The price farmers receive depends on the fat percentage and payments are made weekly.

From here on, the responsibility for storing and transporting milk shifts to the VMC, who is a self-employed person and operates under the close supervision of the village council and can be



dismissed by them. Unlike the traditional *dodhi*, the VMC does not have price-setting power. The base price of milk (containing 6% fat) is announced by the IK and the VMC gets a commission for collecting, storing, and transporting the milk from the village to the collection center. The VMC in Village Vander received Rs 1.50 per liter for collecting milk and delivering it to the IK center at Hala.<sup>2</sup> Upon delivery at the center, milk is again tested for fat content and quality. If the delivered milk is rejected by the center, the financial liability is of the VMC and not of the farmers.

Each center can receive milk from 35-60 villages. The milk collection centers are equipped with chillers and PHE systems for cooling milk. The chilled milk is transported in truck-mounted insulated containers to processing plants. The transporters receive a commission for transporting milk. For instance, the commission for transporting milk from Hala Center to the Pattoki processing plant was Rs 0.35 per liter.

### *Package of Development Services*

Apart from the participatory nature of the organization, what distinguishes IK operations from those of the other commercial milk processing firms is the package of veterinary and other services offered to its members. Because IK is registered under the Pakistan Society Act, the members cannot receive income from the organization's activities. The profits from commercial milk processing and marketing operations are used to finance a range of development services. These include services directly related to livestock activities as well as social services aimed particularly at rural women.

IK staff members, some of whom are self-employed and stationed in villages, provide these services. This creates an incentive structure vastly different than the one facing the salaried staff at government veterinary and extension agencies. Professional staff hired by the IK supervises service delivery. The package of services is described below.

- Artificial insemination (AI) – These services are provided, free of charge to members, by IK technicians for the purpose of bringing about genetic improvement in herds and boosting their fertility. IK also maintains semen production at the Chuchak center to provide fresh insemination services.
- Animal Vaccination – farmers' livestock is protected against diseases by vaccination programs administered by the veterinary staff of IK. Vaccination is free of charge for members
- Animal Health Treatment – These services are provided at a nominal charge and part of the cost of medication is reimbursed to farmers after they have supplied 300 liters of milk during the 6-month period (as stipulated in their membership conditions). In practice, in Village Vander, the VMC collected the medication bill immediately and later offset it against the members' milk

<sup>2</sup> This amount can be higher if road infrastructure is inadequate and the distance from the village to the collection center is greater.



supply. An important aspect of this program is access to treatment services in case of an emergency. At such times, a veterinarian or needed IK staff is rushed to the farmers at their call. This solves some of the farmers’ most serious problems, i.e. non-responsiveness of government veterinary staff and high cost of private treatment.

- **Feed Improvement** – To improve productivity, IK procures quality concentrates such as cottonseed cake and supplies them to farmers at cost. It also produces balanced rations (known as ‘vanda’) and a mineral mix at its feed production unit located at Chuchak. IK makes efforts to provide quality fodder seed to farmers to raise productivity and to ensure adequate availability during the lean season. Towards the latter objective, farmers are also encouraged to grow non-traditional varieties of fodder. The improved seed for hybrid sorghum and *barseem* is obtained from Sargodah, and that of maize from Yusufwala.
- **Extension Services** – The aim of this program is to educate farmers about animal health, fodder, and feeding practices. Also demonstration plots for fodder are set up. The cost of seed and other inputs for these is borne by the farmer but fertilizer is supplied free by IK. The organization helps farmers procure quality seed from seed multiplication agencies in the private sector.
- **Social Services** – The IK operates a women’s program, which is aimed at supporting their role in rural households and involving them in a services package. The program has family planning, mother and child health, adult literacy, health education components, as well as a goat distribution component for poor women.

The Table below provides information on delivery of selected services.

**Table-2: IK Service Provision Levels (selected services)**

Service	1992	1996	2000	2004
Veterinary Cases	10,125	42,826	73,757	127,144
Animals Vaccinated	90,513	219,180	249,802	363,014
Artificial Insemination Cases	4,513	8,063	14,202	15,707
Target Group Meetings	811	2,637	3,425	6,486
Mother & Child Care Cases	720	10,333	19,080	21,674
Health & Livestock Meetings (Women)	134	1,540	2,623	3,240

**Source:** Information provided by *Idara-e-Kissan*

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## Cost of Development Services

*Idara-e-Kissan* is a non-profit organization. Profits from its commercial operations are used to finance development services for its members.

**Table-3: Costs of Development Services**

Year	Cost of Development Services (Rs million)	Turnover (Rs million)	Services Cost as %age of Turnover
1998	28.54	395.49	7.2 %
1999	27.32	516.12	5.3 %
2000	31.29	731.76	4.3 %
2001	40.61	697.23	5.8 %
2002	58.10	658.51	8.8 %
2003	53.80	793.77	6.8 %
2004	61.91	922.48	6.7 %

**Source:** Information provided by *Idara-e-Kissan*

From 1998 to 2004, the cost of development services has ranged from 4.3% to 8.8% of *Idara-e-Kissan's* turnover. The average for this period is 6.4%. The outlay on services was about Rs 62 million in 2004. A more detailed breakup of costs is not available, but Table 7 indicates that development services include some social services as well, although this does not appear to dominate livestock related services.

**Table-4: Basic Information about IK Member and Non-Members Farms**

	IK Member Farm	Non-Member Farm
Animal Units Per Farm	6.83	6.84
Animal Units Per Buffalo	1.50	1.50
No. Milk Buffalo Per Farm	1.70	1.56
Milk-Buff Animal Units Per Farm	2.55	2.34

**Source:** Survey Data (2005)

The IK member farms and the farms in the non-member control groups are identical in terms of average herd size, both owning between six to seven animal units. The average number of milk buffaloes in IK farms was marginally higher at 1.70 compared to 1.56 in the control group farms.



### *Enterprise Budgets*

This section presents enterprise budgets for one buffalo both for IK member farmers (see Table-10 below) and the control group of non-members (see Table-11 below).

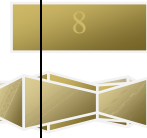
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**Table-5: Budget (Per Milk Buffalo) for IK Member Dairy Farmer**

	Unit	Quantity	Rate (Rs)	Cash (Rs)	Cost Per Animal Unit (Rs)
Milk	Head	2,003.36	14.58	29,209	
Calf-Female	Head	0.397	3,500.00	1,390	
Calf-Male	Head	0.397	2,500.00	993	
<b>Total Value of Production</b>				<b>31,591</b>	
<b>Input Costs</b>					
<i>Rabi Fodder Costs</i>					
Barseem	Acre	1.15	22,285	25,628	3,752.23
Oats	Acre	0.08	10,000	800	117.13
<i>Kharif Fodder Costs</i>					
Sorghum Fodder	Acre	1.25	5,738	7,173	1,050.15
Sadabahar Fodder	Acre	0.06	6,400	384	56.22
Maize Fodder	Acre	0.33	6,060	2,000	292.80
Other Kharif Fodder	Acre	0.16	6,066	971	142.10
Cottonseed Cake	Bag	13.07	454	5,935	2,327.33
Mineral Mix	Bag	0.66	14	9	5.44
Wheat Straw	Mds	59.00	112	6,608	967.50
Choker	Kg	4.40	6	24	3.54
Gur	Kg	15.33	27	411	60.15
Wheat Grain	Kg	29.35	10	301	44.05
Oils	Kg	3.30	139	459	67.16
Masalas		-	1	90	13.18
Health Treatment (Net of Reimbursement)	Total Rs			340	49.78
Vaccination	Total Rs			3	0.44
De-Worming	Total Rs			25	3.66
Breeding Costs	Total Rs			21	3.07
<b>Total</b>					<b>8,956</b>
<b>Cost Per Milk- Buffalo</b>					<b>13,434</b>
<b>Net Returns Per Milk Buffalo</b>					<b>18,157</b>

*Source:* Survey Data (2005)



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**Table-6: Budget (Per Mil Buffalo) for Non-IK Member Farmers**

	Unit	Quantit y	Rate (Rs)	Cash (Rs)	Cost Per Animal Unit (Rs)
Milk	Lit	1,599.04	12.85	20,548	
Calf-Female	Hd	0.397	3,500.00	1,390	
Calf-Male	Hd	0.397	2,500.00	993	
Adult-Male	Hd				
Total Output				22,930	
<b>Input Costs</b>					
<i><b>Rabi Fodder Costs</b></i>					
Barseem	Acer	1.00	18,377	18,377	2,686.70
Oats	Acer	0.03	5,000	150	21.93
Lucerne	Acer	0.13	25,000	3,250	475.15
<i><b>Kharif Fodder Costs</b></i>					
Sorghum	Acer	1.16	4,162	4,828	705.84
Sadabahar	Acre	-	6,400	-	-
Maize Fodder	Acer	0.50	6,909	3,455	505.04
Other Kharif Fodder	Acer	0.06	5,824	349	51.08
Cottonseed Cake	Bag	3.90	440	1,716	733.33
Mineral Mix	Bag	-	14	-	-
Wheat Straw	Md	58.00	63	3,654	534.21
Choker	Kg	28.00	6	175	25.58
Gur	Kg	16.00	22	352	51.46
Wheat Grain	Kg	2.50	10	26	3.75
Oils	Kg	0.67	123	82	12.05
Masalas		-	1	60	8.77
Health Treatment (Net Total Rs of Reimbursement)				283	41.37
Vaccination	Total Rs			30	4.39
De-Worming	Total Rs			7	1.02
Breeding Costs	Total Rs			22	3.22
<b>Total</b>				49,089	5,865.00
<b>Cost per Milk- Buffalo</b>					<b>8,797.00</b>
<b>Net Return</b>					<b>14,132.00</b>

*Source:* Survey Data (2005)



### *IK Members*

The IK member farmer produces on an average 2003 liters of milk per buffalo per year and earns gross revenue of Rs 29,209 from milk sales to the IK.

The cost of inputs is presented in the table on a per animal unit basis. The IK farmers' major input costs are Rs 5,410 for fodder or 60% of total input cost per animal unit. On an average the farmers had 1.23 acres of land under *Rabi* fodder, mostly *barseem* but also some oats. The acreage allocation to *Kharif* fodder was 1.8 acres, which was mainly sorghum but some farmers also planted maize fodder. Very few farmers used non-traditional fodders such as motgrass and *sadabahar*.

The second most important input cost is that of concentrates and supplements. Together these costs add up to Rs 3,488 per year or 39% of total input cost per animal unit. About two-thirds of this expenditure is the cost of cottonseed cake, which is fed to lactating buffaloes to increase their milk productivity.

The animal health costs (Rs 57) is small partly because IK subsidizes animal health treatment and vaccination. But this should not obscure the importance of these costs. Because the figures presented in the budget are averaged over all the farmers, including those whose animals do not fall sick, the average cost appears small. But in reality, the farmer whose animal falls sick bears the full cost of treatment, which is substantial.

On a per buffalo basis, the average cost for IK farmers is Rs 13,434 and net returns are Rs 18,157.

### *Non-Member Farmers*

The budget for dairy farmers who were not IK members is presented in Table-11. The average milk yield per animal for this group comes to 1,599 liters per year. These farmers received on an average Rs 20,548 by selling the milk to the traditional *dodhi*.

The main input cost for non-*IK* farmers was also the cost of fodder, which was Rs 4,445/animal unit per annum, accounting for 75.8% of input costs. The area allocated to *Rabi* fodder was 1.16 acres, which was mostly under *barseem*. The area under fodder in the *Kharif* season was 1.72 acres out of which 1.16 acres were for sorghum fodder and an additional 0.5 acres were planted as maize fodder.

The cost of feeding concentrates and supplements to milk animals was Rs 1,369. The share of cottonseed cake in this was 54% while wheat straw accounted for another 39% of this cost. Medical costs were small (Rs 50) but as mentioned earlier, averaging these costs over all farmers – including those whose animals do not fall sick – results in a smaller expected value in an *ex-ante*, probabilistic sense. The farmers whose animals actually fall sick pay much more, *ex-post*.



The non-IK farmers had a total cost of Rs 8,797 per milk buffalo and they earned a net return of Rs 14,132.

**Comparison between IK-Member and Non-Members**

A brief comparison of productivity related variables for both IK members and non-members is presented below in Table-12.

**Table-7: Comparative Productivity Levels -- IK Members vs. Non-Members**

	<b>Difference (IK Over Non-IK)</b>
Net Returns Per Milk Buffalo (Rs/Year)	+ 28.5%
Milk Prices Received (Rs/Litre)	+ 13.5%
Milk Yield Per Buffalo (litre/year)	+ 25.3%
Number of 'Wet' Milk Buffaloes	+ 8.97%
Number of 'Dry' Milk Buffaloes	- 6.00%

**Source:** Survey Data (2005)

Table-7 above shows that IK member farmers enjoy 28.5% higher net returns per milk buffalo compared to non-members. This is a result of 13.5% higher prices received based on the fat test. Note that the base price offered by IK for 6% fat milk was Rs 13.50/liter. Therefore, the average price received of Rs 14.58/ per liter indicates that milk produced by IK members had more than 6% fat. Because the non-members sold to the traditional *dodhi*, no fat test was conducted on the milk they supplied. *Dodhis*, however, have lots of experience and reasonably good idea of milk quality (including fat content). So apart from the *dodhi*'s own margin, possibly lower fat content of their milk (as judged by the *dodhi*), could be another factor explaining the lower prices they received. Moreover, by eliminating the middleman and consolidating milk collection operations to a scale larger than that of the typical *dodhi*, IK may be able to achieve economies of scale in transportation and handling, some of which may be passed on to the farmers.<sup>3</sup> Finally, IK members had 9% more milk buffaloes and 6% fewer dry buffaloes.

**Sources of Productivity Differences**

Having established that productivity at the IK members' dairy farms is higher compared to farms operated by non-members, we now try to trace the sources of these differentials. These can be divided into two groups --- (a) access to services and (b) usage levels of inputs

**Table-8: Sources of Productivity Difference**

<sup>3</sup> The author is thankful to an anonymous referee for this point.



Service/Input	Access to Services (%)		Usage Levels*	
	IK Members	Non-Members	IK Members	Non-Members
Artificial Insemination	28	6	-	-
Vaccination	83	72	2.3	1.5
Animal Health Treatment	44	44	4.4	1.9
LS extension workers' visit	56	0	2.9	0
Loans / Advances	78	39	Rs 3,264	Rs 2,285
Cottonseed Cake (Mds)			13.1	3.9
Wheat Straw (Mds)			59.0	58.0
Rabi Fodder (Acres)			1.23	1.16
Kharif Fodder (Acres)			1.80	1.72

\*Note: Unless otherwise stated, the figures refer to average number of times the service was used by farmer

**Source:** Survey Data (2005)

In terms of access to services, the IK members seem to enjoy a clear advantage in artificial insemination, vaccination and number of visits by livestock extension workers. The percentage of farmers having access to animal health treatments is about the same in both groups but this does not imply equal access, because service usage levels are greatly different. The IK farmers get between 4-5 animal treatments per year on an average while non-members average only about 2 treatments during the same period. Despite similar service coverage, the IK members' usage rate is almost twice that of the non-members. The same pattern is seen in the number of vaccinations. The IK members' animals on an average get between 2-3 vaccinations during the year while non-members' can manage only between 1-2 vaccinations for their herds. This means that IK members protect their animals against more diseases compared to non-members.

A comparison of input usage levels is presented in the lower panel of Table-8. In both the *Rabi* and *Kharif* seasons, the area allocated to fodder is somewhat higher on IK members' farms, but the difference is not very significant. The same is true of wheat straw. From amongst the inputs, the single most important contribution to productivity seems to come from cottonseed cake. The IK members reported using 13 Mds of cottonseed cake whereas non-members used only about 4 Mds. Although the number of milk buffalos is higher on IK members' farms (1.7) compared to non-members farms (1.56)



the difference in cottonseed cake usage is far more to be explained just by differences in herd composition.

### *Service Quality and Productivity*

Not all productivity differences can be attributed to quantitative aspects of services delivered. Service quality is also a very important factor in explaining productivity difference between members and non-members. The survey collected information on service quality that is presented below.

**Error! Reference source not found.** shows satisfaction levels of IK members with animal health services delivered by IK staff versus the satisfaction levels reported by non-members for services delivered by the private sector and government veterinary staff. It is clear that the distribution of IK members' satisfaction ratings is skewed towards high satisfaction, while that of the non-members is centered almost symmetrically at the medium satisfaction level. Farmers reported during the field survey that even the government veterinary staff engages in private practice and charges fees just like the private sector. So given that these services are delivered mostly on a payment basis to non-members, higher satisfaction levels reported for IK delivered services is all the more significant.

## **II. What Works and What Doesn't**

*Idara-e-Kissan* is a vertically integrated dairy cooperative. Unlike traditional cooperatives that own dairy farms, IK collects milk from thousands of geographically dispersed farmers, who are also its members. The cooperative delivers a package of veterinary and livestock extension services that are financed by profits from commercial operations. The milk procured from members is priced on the basis of fat content. Members tend to obtain better prices for milk compared to those offered by the traditional *dhodhi*.

The returns of IK members are 28.5% better than those obtained by non-members, who follow a low-input/low-productivity strategy. Apart from the approximately 13% higher price received for milk, this gap is also due to 25% higher productivity on IK members' dairy farms.

To support productivity, IK provides members with a range of services that include vaccinations, subsidized animal health treatments with partial or full reimbursement of medication costs, feed supplements and mineral mix and balanced feed rations. Members also get access to livestock extension. IK procures quality fodder seed from seed producing farms in the private sector for its members and sets up demonstration plots.

A greater proportion of IK members are covered by animal health treatment services and have more herd vaccinations as compared to non-members. Moreover, members' satisfaction with these



services is higher compared to satisfaction levels reported by non-members from services provided by government agencies and the private sector.

On the other hand, some limitations of the approach were also noted from the analysis of data and discussions with farmers in the field.

First, although farmers used cottonseed cake, it was privately supplied by VMC and there is no guarantee if it was the same high quality cake that IK procures for its members.

Second, no IK member reported using *vanda* – a balanced feed ration, which IK produces at its feed production facility at Chuchak. It seems that farmers try to concentrate on milk fat-enhancing cottonseed cake instead of using more balanced ration *vanda* ration because the IK pricing policy is based on milk fat content whereas the benefits of including *vanda* in the feed in terms of improved animal health and productivity are less immediate. Also cotton seed cake is a more traditional ingredient of animal feed than *vanda* and, therefore, some resistance to changing traditional practices may also be involved.

Third, no IK member reported using improved fodder seed supplied by IK. Moreover, no members planted any non-traditional fodders such as motgrass or *sadabahar*.

Fourth, artificial insemination was used by a greater percentage of IK members compared to the control group. But the majority of farmers still used natural services from the bulls available in the village. Unless concerted breed improvement efforts are made, milk yields from non-descript breeds available to the farmers is likely to remain low.

Fifth, IK extension service effectiveness is limited as indicated by the failure of farmers to adopt balanced feed rations and non-traditional fodder varieties. But another area of weakness is herd management. While vaccination helped control some diseases, other diseases that depend on better herd management, such as mastitis, are still common. Farmers do not adopt hygienic practices required to control such diseases, again indicating less than fully effective extension.

### III. Conclusion

The *Idara-e-Kissan* case underscores the scope for enhanced productivity and income growth in the dairy sector through the formation of a vertically integrated cooperative. However, unlike the typical cooperative that takes profits and distributes them back to members, the IK operates as a non-profit organization that uses profits to finance member services. This has increased the productivity and incomes of the members when compared to non-members.