smoke, and for a large number

of people to be trapped in

side the space that is on fire.

There will be no one to take

control of the situation because

no one is trained for such an

eventuality, the Fire Service

will be difficult to contact and

the Fire Service personnel

will never be on time to save

for toiler facilities is in short

supply, it needs no research to

foretell that water will be in

dire shortage in any building

during a fire. Although all tre-

for the resition of after types

at anknown and uncommon

eximguishers such as Carbon

Dioxide. Dry Powder, Foam,

means of Escape during a fire

has always been the major

cause of death in a fire. In cin-

ema halls, garments factories,

etc. the only collapsible gate of

the Main Entrance remains ei

ther locked or half-open. The

search for the gate attendants

pened in Mysore's Premier

Studio on February 8, 1989

during the shooting of Sanjay

Man's TV serial The Sword of

Tipu Sultan." The set caught

fire while a firecracker scene

was being exacted, the studio

gate was locked to keep away

members of the public, the

darwan had the key, he fled

the scene and 40 people died

from cinema, garments facto-

ries, high-rise office buildings.

etc. are kept constricted. In

most building types the num-

bers of gates are reduced to a

minimum to save man-power.

The width of doorways.

main entries, etc, are hope-

lessly inadequate to facilitate

the escape of all persons af-

fected by fire within the stipu-

lated time. The distance one

needs to travel to reach a

place of safety is another cri-

terion of good planning for fire

protection. In a congested sit-

uation like that of a cinema

hall, garments factory, shop-

ping centres, etc. people may

be expected to travel a dis-

tance of 12 metres per minute.

Thus everyone should be

within 30 metres (the distance

that one can travel in 2.5 min-

utes) from an exit door to a

light up cigarettes inside cin-

ema halls, flick ash and butts

on the floor/carpet. On 10

February, 1995 the lightman of

the BDR cinema hall in Dhaka

was stabbed by a group of

young men when he had

asked one of them not to

smoke inside the hall. No

smoking sings are displayed,

graphically and in Bengali, oc-

casionally in English, in many

buildings. However, such signs

are ignored and are not usually

observed. Unless, people are

strictly barred from smoking

inside high-risk areas, the risk

of a fire from this common

quirements for fire protection.

emphasis at design stage

should focus on the following.

number of doors, size of exits

should meet standards; con-

termines how much will burn.

sure that every person can

escape unaided to the open

air within 2.5 minutes of start-

gestion may impede escape.

1. capacity: To determine

* 2. Layout: Distance to exit

* 3. Finish materials: de-

* 4. Means of Escape: En-

* 5. Number and location of

The writer is an Associate

Professor of the Department of

Architecture BUET.

Although each building

source will loom large.

(not exhaustive)

and lobby, etc.

type may have special

It is common for people to

place of safety.

The only exits (main Entry)

inside the studio, 20 later.

having the key during a fire

Failure to find an adequate

etc. is equally critical.

rould spell disaster.

cannot be suppossed with a

In a country where water

Fire: Warning of Impending Disaster

HE recent spate of fire incidents in the city is but a warning of impen durg disaster live female workers died and at least 30 others were injured on 11 February 1995 at the Prostor Garments, Mirpur Bata and Fuji shops on Elephant Road were charred by fire on 24 November last year. Earlier last year nine persons died in the ill-fated fire at the Saudia Aransport counter at Fakirerpool. The list is becom-Ing unpalatable. Despite the number of fires and the latelities, the general response to the threat of fire continues to be of total indifference.

In spite of our total disregard, indeed disrespect, to fire and considering the prevalent general ignorance, the poten-"tiality of a fire starting, the lack of preparedness to tackle fire, etc. it is fortunate that casualties were not any higher. At this moment in time the management of the garments' factories, industries, the cinema hatls, the lavish offices in high-rise buildings, the shopping centres, etc. suffer from a degree of complacency that could soon pove to be suicidal.

Traditionally interiors of urban buildings were of noncombustible materials. Further, being dependent on natural ventilation, the circumstances did not usually permit the spread of fire internally, nor did a fire have the scope to develop rapidly in magnitude so as to affect the inmates.

However, recent trends show that the use of combustible materials for interior decoration is increasing, and that more and more spaces are becoming air-conditioned. Windows which were once open for ventilation are now closed, thus increasing not only the possibility of a fire developing, but the enclosed situation also contributes to jeopardizing escape of affected persons.

Escape will also be severely hampered because the number and width of exits are decreasing due to overzealous and stringent security measures in most buildings. It is common in almost all the garments factories of the country to keep only about 24 inches of the outermost collapsible gate open for reasons of security. The same could spell death. The five victims at Prostor Garments recently, the sixteen victims of Saraka Garments (Mirpur 1990; and the nine victims at the Saudia Transport counter (Fakirerpool. 1994) were all prey to lack of adequate escape facilities.

It is not uncommon in Bangladesh for occupiers to light up cigarettes or dispose ends in these enclosed boxes: thus increasing the risk of fire. Overloading power lines, erratic electrical wiring poor maintenance, etc. and increased use of electric equipment have also added to the

problem. Fire should now be considered with increasing seriousness because we are now housing more people in a building, our cities and its buildings are becoming more congested, we are using more combustible materials for our interiors, and of course, our carelessness with electricity, smoking habits, inflammable materials, etc. are pathetic. But, perhaps the factor that overrides all others is that building owners have driven security to a point where its has become a hazard to the safety of the inmates.

Unless precautionary and preventive measures are taken urgently, the possibility of a major fire in any of our buildings is just a matter of time. The probable causes of fire

1. Careless use of heating

appliances in kitchens, factories, lea-rooms etc.

2. Lighting naked fire inside the building for smoking,

cooking, etc.

3. Defective/improperly installed and operated electrical equipment/services

4. Poor or no maintenance of electrical installations Carefree smoking habits

and careless disposal of butts

6. Heat-generating manufacturing processes 7. Unauthorized storage/handling

flammable/explosive/combustible materials Once ignited, fire in any

large space such as factories. cinema halls, shopping cen tres, etc. may reach an unmanageable magnitude because of the following reasons:

1. Excessive burning due to combustible finish materials and the contents

2. People ignorant about behaviour during a fire will panic. If the assemblage is ma congested and/or dark space. and on the upper floors of a building the casualty will be heavy e.g. cinema halls, garments factories in multi-storied buildings, etc.

3. Means of fighting the fire at its early stage lacking

As panic-stricken people flee the affected area, efficient fire fighting will be hampered

1. No trained in-house personnel to operate extinguish ers/take charge

quate means of escape (as in both the above cases).

by Dr Nizamuddin Ahmed.

Smoke can obscure vision. induce panic by hindering breathing and compel intalation of toxic gases. Experts are convinced that most of the people killed by fires in buildings have first of all fafled to find an exit because of smoke. and have later been poiscred by carbon monoxide gas or suffocated by lack of oxygen.

The success of Means of Escape in case of fire depends totally on finding alternative escape routes when other exits have been blocked. Unfortunately most buildings in Dhaka or for that matter Bangladesh have only one route through which the affected people can escape Or can they

People may die it they are imable to escape to a place a safety, which in all cases will be the open sky, within a stipulated time of 2.5 minutes. However, it is always desirable to provide for evacuation of the fire-affected part of a building within the shortest possible time. Considering 2.5 minutes as the maximum allowable time for escape, it is calculated that hundreds of innocent people will be trapped for longer periods inside any garments factory, cinema hall shopping centres, etc.



Distraught parents of a garment worker who died in the fire simple safety precautions could have avoided this tragedy.

2. Lack of fire fighting

equipment 3. Out-dated, ill-maintained and inappropriate extinguish-

4. Lack of water in the

vicinity Generally, fire control preparedness should not consider. dependence on Fire Services. However, its facilities may be unavailable due to:

1. Inability to contact Fire Services because (a) the telephone number

may not be known (b) a telephone set may be

unavailable or out of order 2. Fire Services vehicles may find it difficult to approach a building through traffic congestion. In one incident involving an illegal factory in Old Dhaka, the fire engine had to be parked about quarter of a mile from the scene of the accident; the approach lane was too narrow. Occasionally, local people have expressed resentment against the late arrival of the Fire

Services by brick-batting. Some of the more poignant reasons for deaths in recent

fires are: 1. Panic and the subsequent stampede, (as was the case at

Prostor Garments) 2. Smoke, (as was the case at Saraka Garments) and

3. Failure to find an ade-

By even a modest estimate, it is most likely that two to three hundred people will die if there is a large fire inside a cinema hall. In some cinema halls it will take 10 to 15 minutes for all the people to be evacuated through the existing doors, calculating on the factual basis that half of the width of each door in use is kept open. The aftermath will be gruesome if there is a fire in the middle of a show because the main entry is always

Star photo

locked in almost all the halls. The outcome of a fire inside a garments factory will not be any different. Large assembly of workers without fire drill, congestion, insufficient passage space between machinery, unplanned layout not conducive to easy escape, inadequate number and width of doors, absence of alternate Moors, lack of fire-fighting equipment etc. are the principle causes why hundreds will perish in a large garments fac-

tory fire. The current situation existing in most public buildings and factories in Bangladesh will trigger off a predictable sequence of events. It is possible for a fire to ignite inside any of the buildings for that fire to develop into unmanageable proportions, for people to panic (even due to a small

fire extinguishers: dependent on size, volume, organisation of fire), for a large number of space, etc. people to faint owing to the

Overhead duct system to douse water in the event of a fire. *7 Early smoke/heat detec-

enable escape when power is cut off during fire

of reservoir/riser * 11 Assembly Point: where

building. In inspecting existing build-

• 1. addition and/or alter-

*2. number of users has in

4. people are observing

trained to take charge and operate fire-fighting equipment

twice a year

*8. the condition of extinguishers, sprinkler system. hose reels, etc. meet safety requirements. 9. requisite number out-

lets are in operation for timely escape by all persons: 10. passage, corridors,

of furniture, rubbish, etc. * 11. new materials have increased the risk and/or magnitude of fire

* 12. the telephone number of the Fire Services is noted and the telephone system is reliable and a accessible to the statf during any emergency. In conclusion, it can only be

a fire by appropriate design, 2. take sufficient precaupossibility of a fire starting is minimized.

minutes.

4. install requisite firefighting equipment 5. train staff and organize regular fire drills

Unless such organized measures are taken, the management will have none to blame but themselves when indeed a disaster will strike. Depending on the building, the type and location of the fire, it is possible that casualty figures may be high enough to make international headlines. Surely, we should strive to avoid that.

* 6. Sprinkler system

tion and warning systems. * 8. Emergency Lighting: To

* 9. City Traffic: Location of a building, neighbouring land use, traffic behaviour, width and turning radii of roads. over bridge clearance, etc.

· 10 Water requirement availability of water size/type

escapers will assemble to account for every person in a

ings, emphasis should be laid on whether:

ation has been made to the building since receiving planning permission, either structurally or with regards to finish materials, number of exits, size of exits etc.

* 3. accumulation of rubbish

can be ignited That is exactly what hap-

"No Smoking signs 5. in-house staff has been

*6. fire drills involving all the users are held at least

* 7. an assembly point within safe distance, sufficient to accommodate all the users. has been earmarked and displayed as such

lounge, lobby, foyer, are clear

re-emphasized that in order to ensure good fire safety practice every building should take the following measures: 1. restrict the possibility of

tionary measures so that the

3. ensure that every individual can escape unaided to the open air/safety within 2.5

Improving the Livestock for Greater Productivity

by Rashed un Nabi & Dipak Mukherjee

IVESTOCK is the important resource in the agrarian economy of Bangladesh. Although it does not provide employment directly it supports the whole agricultural process on which nearly 85% of our rural population depend for their survival. Cows and bullalos support the critical stage of agriculture. i.e. land preparation and pouliry bulster the poor house holds budget crisis in many

linerestingly, a few number of cattle are raised in commercial or specialised operations while most of the cattle are kept at the farm household in small numbers (Livestock Survey 1987) Nevertheless livestock receives a low unstitutional support compared to agriculture which witnessed many revolutionary changes in the last 2 or 3 decades. On the other hand, livestock sub-sector has drastically declined over the same period. As a result, per capita availability of animal protein from livestock source declined to 1.82 gm from 2.03 gmm over 1977 -87 period.

The major constraints of livestock development includes the absence of renovation of traditional management, low-cost technology and above all, timely extension service to the farmers living in the rural areas.

The System Research Division (SRD) of Bangladesh Livestock Research Institute (BLRI) released its Final Report on Collaborative Livestock Research and Extension Programme between BLRI and Proshika (compiled by Dr Mafizul Islam and Nathu Ram Sarker, 1991 - 1993) recently (published in June 1994). The report contains the findings of the collaborative research projects that dealt with techno-economic aspects of beef fattening, milk cow rearing, goat rearing, improved chicken and duck rearing and disease control of poultry birds.

The report correctly began with the foreword that "orthodox management practices of the farmers" and "limited outreach infrastructural facilities of the extension department" intervalia are the major technical and institutional problems in the livestock sector which need a breakthrough collectively by researchers and development workers at the village level.

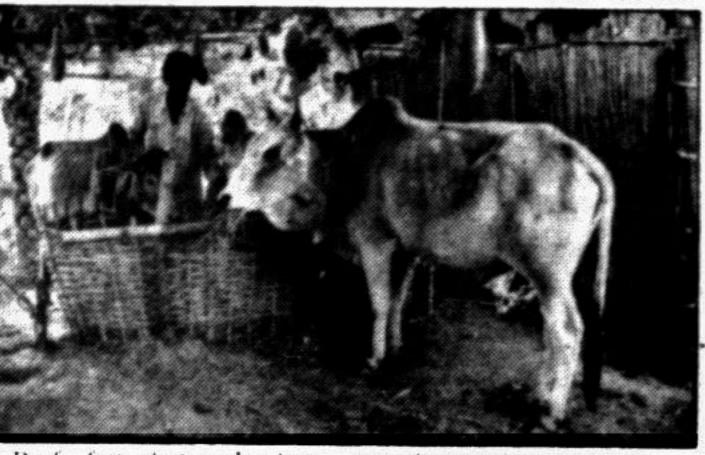
The collaborative experiment between BLRI and Proshika was designed with a view to establishing feedback mechanism between Proshika (and other NGOs) and the research institute; while the former is better equipped to deliver service and disseminate service at the interior areas, the latter can provide information to NGOs Proshika) about the nature of new technologies and identify the areas where the technologies can be adopted. Nine research projects cov-

ering issues of a wide variety

were jointly formulated by BLRI and Proshika. The projects were implemented by laudless or marginal group members of Proshika Livestock personnel of Proshika and BLRI research staff supervised and monitored the projects intensively. The projects are

Beel lattening under improved management, production performance of milking cow under improved feeding and management; goat rearing under stall fed and scavenging condition: poultry bird rearing under different feeding and vaccination and disease con-

Singair centres, another study on stall-fed goat rearing was conducted involving 8 group members of Proshika. Four of them were provided with 5 goats to rear under stall-fed and other 4 with 5 goats each under scavenging condition. The latter was allowed to graze for 7 hours and the former was only 2 hours but given supplementary feeding consisting of concentrate mixture compose of wheat bran, rice polish and oil cake. Weight gained under stall-fed condition was significantly higher than scavenger goats. Goat reared under stall-fed condition provided 75-110% increased income



Beef fattening under improved management study was conducted in Kaliakoir Area Development Centre (ADC) of Proshika in Tangail district. Shakhipur and Mirzapur ADCs in Gazipur, and Singair and Saturia in Manikgoni, taking indigenous cattle of two different age groups (1-2 years and 2-3 years). The research design involved control and study group (designated as supplemented and control). The control animals were fed with urea, molasses and soaked straw and the study animals were kept under farmers' traditional practice. The result showed that feed

and age are two important variables in weight gain of cattle. The cost benefit analysis showed that highest net profit per animal was in Kaliakoir centre (Tk 2064) and lowest in Mirzapur (Tk 830), both for supplemented groups whereas net profit for control animal was generally low. Again cattle of 2-3 age group gave a higher return that 1-2 age group. cows under

Improved Feeding and Management resorted to a similar design in 3 ADCs (Singair and Saturia in Manikgonj and Kaliakoir in Manikganj district). The control animals were fed with foraged in traditional practice and treated animals were given concentrate supplementation. The supplemented group showed a higher milk production; cost-benefit analysis showed that highest net profit was obtained at Singair (Tk 6210) and the lowest is in Kaliakoir (Tk 3195) and yielded by the supplement group, while in the control group highest profit was only Tk 1600.

In Ghior, Saturia and

over the scavenging system. Other research projects on duck rearing successfully explored the rural adaptability of technology adoption. Duck rearing project under scavenging condition revealed a strong seasonality in egg production; egg production had been highest in the 3 paddy harvesting seasons (aus. aman. boro-IRRI). On the other hand supplementary feeding yielded a high growth performances of Khaki Campbell ducklings. Another project on vaccination revealed that regular vaccination of poultry birds can effectively reduce morbidity and mortality of ducks, while proper vacci-

Most of the projects were carried out in the low lying areas of Netrokona district.

nation can check duck cholera

and plague.

The successful completion of these collaborative projects has kindled hope among the group members of Proshika and the BLRI. Proshika now contemplates to replicate the above projects with a high pro-

The project has increased productivity, minimised cost and developed a number of appropriate technologies and management process. The project was proved successful in collaborating between research institute like BLRI and development agency like Proshika in development and transfer of sustainable and location-specific system based technologies for the well-being of poor farmers. Now the responsibilities lie with the BLRI to disseminate the findings to the common villagers at all level and all areas.

The writers are working with Proshika.

purchased a cow at Tk.

HIRTY years ago. we came to Bangladesh as refugees from 'Telia Mora' of Agartala, India. We took shelter in the khas land of the government. My husband had no stable profession. He engaged himself in the work of a carpenter. I had also nothing to do except domestic chores. With the scanty income of my husband the days were unbearable for us. Yet life

Some 4/5 years ago, for the

first time, I heard of ASA

continued

women's groups from one Nur Hossain, an ASA worker, I went to the office and talked to other workers also. Hearing from them I myself took initiative to form a women's group' within a short time. Maddhya Kayotkhali landless women's group No. 1 was formed with 30 poor women. Being organised in a group we went on depositing savings every week and thus acquired the habit of regular savings. The member women became aware of their rights and status. They began to protest against all injustices At the beginning their movement was restrained by their male partners. But now, all such problems are solved through group action. The practice of divorce, dowry, minor marriage, polygamy, etc has been stopped through women's mobilisation. I became able to settle marriage of my three daughters without dowry only because I was involved in the group. It became possible as we learnt good lessons from the development education class. We not only discussed those problems in the group but also tried to find out the way how to increase our family income. To increase income money is required and to fulfil this requirement sav-

> again received Tk 2.000/ from the organisation. Adding the amount saved from the

Towards Self-Reliance

Aasia Begum (40) tells her own tale — from



first time and started a mini previous business with the new poultry in my house. I purcredit amount, limade a capital chased eight hens from the of Tk. 2,500/- and the total farm at Tk 800/-. With the rest amount I invested again in my Tk 200/- I met the expenses poultry business. I purchased for conveyance, buying bam-22 hens at Tk. 2,200/-. The total number of my hens be boos for making the cage, food came 30. During this year I got about 20 eggs daily on average. I sold each egg at the rate of Tk. 2/- and thus at the end of the year my total income came to about Tk. 14.500/... In the whole year my total expendi ture was about Tk. 9,500/ and excluding the expenses Tk 5.000/- remained in my hand deposited Tk 200/ in the group as weekly savings. Moreover, about Tk 2000/ was spent away from my ac Tk. 200/- as savings at the rate count for treatment of my ail of Tk. 4/- a week. That is my ing husband. However, exclud total expenditure was Tk ing all such expenses I pos 2.850/. Excluding all the exsessed a surplus of about Tk 2.800/

I received Tk. 3,000/ as credit for the 3rd time. Now adding to it the surplus amount the total amount in my hand was Tk 5.800/ 1 con sulted with my husband and

4.500/-. This time, suddenly, six of my hens died. From the total 30 hens 24 survived. I again purchased 10 hens with Tk. 1,000/- and the number of my hens became 34. This year the cow gave birth to a calf. The overall condition of my family went on developing with sale of milk and eggs. My cow gives three litres of milk everyday. From it I sell two litres and the rest I keep for consumption of my children. In six months of the last year I earned Tk. 6,000/- from sale of milk. The total expenditure through the whole year for the cow was about Tk 2,000/-. Excluding the expenses the profit was about Tk. 4,000/-. After repayment of all instalments of the previous loan I again received a credit of Tk. 4,000/-. As rearing of milch cow seemed to me more profitable, I purchased another

side through proper utilisation of credit received from ASA. The greatest benefit I derived from my involvement in the group was treatment of my husband's illness. To cure him. I had to spend a considerable amount of money.

I am benefited from every

My income combined with that of my husband ensured our children's education. One of my daughter reads in class IX. Her educational expendi ture is met with my earning I wish that she should continue her studies so that she could get an educated groom. She herself would also be able to do something with her own effort

Besides all these. I maintain a regular personal savings ac cording to my ability As I do not think of remaining depen dent on an organisation for a long time. I want to improve my financial condition I am determined to become self rehant

Food Agency Wins a Last-Minute Reprieve

T a time when a number of United Nations A organisations are fighting for their life against demands for a slimming down of the world body and a hostile United States Congress, the International Fund for Agricultural Development (IFAD) has won a last minute

stay of execution. Two days before its Governing Council meeting in Rome in January, it looked as though IFAD - once hailed as the blueprint for cooperation between industrialised and development countries - would

have to close down. Its biggest contributor, the US was unable to commit itself to a funding figure. This made is impossible to know how much the industrialised countries as a whole would contribute under IFAD's unique tripartite funding formula which gave equal voting powers to industrialised, oil-producing and developing coun-

But the Council managed to thrash out a compromise for the Rome based body, whose

By Andrew Lycett Rome

When oil producing nations were flush with money, the International Fund for Agricultural Development was heralded as an innovative way of financing development. Today the dream has faded, reports Gemini News Service, Washington cannot decide how much to contribute, and the organisation is fighting for its life.

brief is to improve food production in the world's poorest

So IFAD has promises for \$570 million of the \$600 million it needs to take its programme to the end of the decade.

But agreement has been

achieved at a cost. The organisation had to scrap its special voting structure and introduce a new formula that gives weight to its member countries' financial contributions. This inevitably means that the industrialised countries have grabbed more influence for themselves in an organisation which is supposed to safeguard the interest of the poorest of

The change reflects the realities of global economy. Although members of the Organisation of Petroleum Exporting Countries (OPEC) were major players in the world economy when IFAD was started two decades ago, their influence has waned considerably in recent years.

While the Southern bias in the running of IFAD has not been completely lost (developing and OPEC countries together still have a majority on the Governing Council), the Fund now looks more like any other international funding organisation.

And the final conclusion of funding negotiations remains far off because Washington has

still not committed any funds. US delegates at the Governing Council meeting said nice things about the organisation but were tight-lipped about money and the attitude of the new Republican-dominated Congress towards the Fund has yet to be gauged. The logiam was broken only when European countries

guaranteed to provide \$420

million irrespective of what

Washington decides. This is something of a gamble because the mood on Capital Hill is not well-dis-

IFAD, Europe will have to come up with all the \$420 million it has promised. That might be a tall order when most aid budgets across the industrialised world are in decline.

capital. tive about.

posed to small organisations like IFAD, the work of which, right-wing ideologues argue, could be done by other agencies, such as the World Bank. If the US turns its back on

Nevertheless, IFAD 's supporters have plenty to be post

and injection for the hens. Initially I faced difficulty to manage everything Afterwards, I myself learnt ev erything regarding how to take care of the hens. In the whole year I earned about Tk 3.500/ from sale of eggs. For rearing the hens I had to spend about Tk 1,500/-. I repaid Tk 1.150/- through weekly instalments to clear up my credit amount with 15% service charge and also deposited

penses I made a profit of Tk 650/ings is essential. Hence, we After repayment of all the deposit savings in the group instalments of my credit l with a view to building up a

1 got Tk 1 000/ for the