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Generalist-Specialist Dichotomy in Administration: An Outlook on Prokrichi Movement in Bangladesh

A.J. Minhaj Uddin Ahmad*

Abstract

The generalists and specialists are at loggerheads with one another over the settlement of certain issues in service conditions such as the inequality and differential treatment in promotion, pay and status. The present paper has made an attempt to examine the nature and causes of conflict between them and its attendant problems. It also tries to analyse the orthodoxy of the specialists' demands from the politico-administrative perspectives. The findings of the review suggest that the demands of the technocrats have some rational reasoning. But the chance of realising their dream appears to be bleak for two reasons. To start with, the generalists are wary of the specialists' demands for they, if realised, would open the doors of promotion to many key posts from the technocrats thus whittling away their present hegemony in administration. So, the specialists faced a stiff resistance from the members of the BCS (Administration). Aside from that, the ways and means as adopted by the specialists in pursuit of their demands are tantamount to a kind of politics which is in contravention of the Government Servants' Conduct Rules.

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Introduction

The engineers, agriculturists and doctors have formed an association called *Prokrichi* which stands for *Prakaushali, Krishibid* and *Chikitshak*. This association and the Bangladesh Civil Service Coordination Committee have become united to spearhead a movement for achieving a democratic and accountable administration. According to the leaders of the movement, the prevailing administrative system is based on an obsolete colonial structure. The purpose of such a system is to keep the people suppressed by a show of force. But no independent nation can want such an administration (Faisal, 1993, p. 17). In the present system, because of the very structure of the administration, members of the BCS (Administration) Cadre regulate the members of all other cadres. This, in turn, has entrenched hegemony of this group over the other cadres. Apart from the enhancement of the authority and facilities of the administrative cadre, the present system has been found detrimental to the career development of the members of other cadres, especially with respect to their promotion and other related service benefits. On top of that, it is regarded as deterrent to the use of expertise of the professionals working in different organisations.

It is argued that the more is the concentration of power in any particular section or group of the society, the greater is the need for safeguarding its abuse. In Bangladesh the accumulated power concentrated over the years in a particular class of the civil servants remained without democratic controls thus subverting popular government. Consequently the question of accountability to the citizen, a form of democratic control by the citizen as voter and consumer, becomes a central one. The solution is one and one only: The people's representatives (elected through free and fair election not tampered by bureaucrats) should take their rightful place as heads of Ministries/Divisions and of local government institutions and working side by side with the independent judiciary subjects themselves to the legislative control and supervision, administrative self-regulation and citizen control (Hena, 1993, p. 32).

Against this background, Prokrichi and BCS Coordination Committee have formulated a recipe called 17-point charter of demands intending to modernise the administration and they are intent on persuading the government for their acceptance. However, as time goes on, there is growing controversy over the rationale of the prokrichi's charter of demands. In the recent past the administration issued threats against those who are leading the movement. Some were threatened with transfer. All

these steps have eventuated in compounding the inter-cadre rivalry. The present paper tries to have a glimpse of the movement by examining its nature on the basis of the views of the various corners, purporting to assess the orthodoxy of the movement. The discussion in this paper has been divided into four major components : sources of conflict between the generalists and the specialists from historical perspective ; a digest of the prokrichi's seventeen-point charter of demands; rationale of the prokrichi's demands in the light of the views of the different corners; present status of the movement and its impact on the administration; and some tentative observations and suggestions.

Sources of Conflict Between Generalists and Specialists

Though recent years have seen the stirrings of the generalist-specialist controversy by way of demand for accountable administration based on professional functional cadre, the conflict between them is very old. This conflict in the administrative system of Bangladesh dates back to the mid-1940s. With the creation of Pakistan in 1947, this conflict began to escalate into a crisis as an effect of the several factors : hostile attitude of the political leaders, gradual growth and expansion of the nation building departments, social tension and frustration, differential treatment in terms of pay and status and so on.

At this juncture, a brief account of the background of the origin of the public administration in Bangladesh is needed to digest the root of the Generalist-specialist dichotomy. As a matter of fact, the public bureaucracy in this land was colonial in nature. A major characteristic of the colonial administration was an art, not a science. This attitude resulted in the training of higher administrators in becoming the rulers, not administrators in the proper sense of them term. It also resulted in the subordination to an exaggerated degree of technical specialists to the general administrators (Hoque, 1970, p. 7). However, later on there has been a perceptible change in the idea of public administration and it is no longer regarded as a gentlemanly art. Instead, there has been a tendency to consider it as a science needing technical knowledge and expertise. This is mainly ascribed to the technological revolution which embraces all aspects of modern social life (Hoque, 1970, p. 102). Literature on Public administration including the United Nations Studies suggest an upgrading of the technicians and the scientists in the public service and placing them

closer to the decision making process, in view of the technical nature of many such decisions (Hoque, 1970, p. 102).

As Pakistan also inherited an administration which was riddled with the same character - a generalistic bias, it failed to address the fact that public bureaucracy demanded an empirical frame of reference. This generalistic bureaucratic ethos resulted in disparagement of the scientists and experts (Sayeed, 1970, pp. 127-128 and Goodnow, 1964,pp. 112-113). The differentials of salary and status which existed between the generalists and the technical experts created frustration and tension among technical experts and bitter animosity among the services (Braibanti, p. 224 and Hoque, 1970, pp. 102-103). However, from the early 1960s there has been a continuous pressure on the Government for upgrading the status of the specialist cadre. Every service had its own association e.g. Agricultural Service Association, Doctors' Association, Engineers' Association, etc. The last two associations included both officials and non-officials. In the event of serious clashes between generalist administrators and other officers, sometimes these associations also came forward in support of their respective members.

As Bangladesh was a part of Pakistan until its independence in 1971, no wonder that it inherited the same administration and its attendant problems. But in recent years this controversy gained a new momentum. At present there obtain 31 civil cadres in the public bureaucracy of Bangladesh. Out of 31 cadres, all of them except for administrative and economic cadres work in the Departments and Directorates. Members of the administrative cadre control the management of those departments and corporations by virtue of their positions in the Ministries. However, Ministries like Foreign Affairs and Law and Parliamentary Affairs are conducted by members of their own cadres. Because of the very structure of the administration, members of the BCS (Admn.) cadre regulate the members of all other cadres. The members of other cadres have been repeatedly making complaints about the continuous enhancement and preponderance of the authority and facilities of the administrative cadre including its superiority as against the other cadres. The recent demands for right kind of status of the specialists like the engineers, doctors and agriculturists have been added to this long-standing issue. Viewed from this perspective, the generalists versus the specialists conflict in Bangladesh have been recognised as a conflict between

administrative cadre and all other cadres (Kaiser, 1993, p. 33). Moreover, the concerned Ministries failed to prepare the seniority list other than the administrative cadre despite the elapse of more than a decade since the creation of the present cadres in 1980. Consequently the members of all other cadres have been dissatisfied with respect to promotion and other related service benefits (Ibid, p. 33).

Since 1977 the engineers, agriculturists and doctors have been unitedly creating pressure on government for administrative reform including the abolition of all kinds of elitism in the civil service of Bangladesh, the ultimate aim of which is to establish a system giving the precedence of merit, efficiency and technical knowledge over all other issues. The then government declared a reorganised service structure subsequent to the movement of the professionals promising the due status of each cadre and profession. In 1980 the government of Bangladesh declared a unified civil service containing 28 cadres and sub-cadres. In pursuit of the same goal, a Senior Service Pool (SSP) was formed. But nevertheless inter-service conflict has not been averted (Kaiser, 1993, p. 33). In the past, the specialists confined their movement to the demands for pay-rise and the upliftment of their professional status, but this time they keep on insisting the achievement of a democratic and accountable administration for overcoming the crisis in development administration. In pursuit of this goal, they put forward a programme of seventeen-point charter of demands (Ibid, pp. 33-34).

Seventeen-point Demands

At this juncture, it may be worthwhile to present some of the important issues of the seventeen-point charter of demands in order to understand the nature of the professionals' grievances.

(i) The first one is the institutional transfer of authority to elected persons at all levels of the administration by (a) abolishing administrative divisions (territorial), (b) ensuring participation of people in development and (c) making the elected persons the coordinator.

(ii) The second one is to make the Minister-in-Charge the Chief Executive of the ministry to ensure accountability to parliament and for giving institutional shape to democracy by amending the Rules of Business.

(iii) Appointment of officers of functional cadres in all functional ministries from the level of Assistant Secretary to Secretary and also filling up positions at the field level from the members of the functional cadres in order to ensure efficiency.

(iv) Creation of new cadres for specialists working in the ministry in cases where such cadres do not exist.

(v) Minimum quota reservation of 95% of the posts of Prime Minister's office, Cabinet Division and Establishment Ministry for BCS cadres except BCS (Admin.).

(vi) Ensure that (a) the heads of departments/corporations are directly responsible to the Minister and are able to assist the government in policy formulation; (b) they are able to formally participate in policy making process and in formulation of development plans; and (c) they get the highest scales of pay.

(vii) Ensure that (a) scale of pay is the only indicator of rank; (b) each scale of pay may be defined as a grade; (c) irrespective of their positions, the personnel should be known by their grade; and (d) revise the warrant of precedence in that light.

(viii) There cannot be any functional cadre except for the requirements of different ministries. Based on this requirement, BCS (Admin.) cadre should be bifurcated into BCS (land) and BCS (Magistracy) and place them under their own functional ministries.

(ix) The demand is that the Deputy Commissioner should be divested of his responsibility as coordinator of all development activities. The task of coordination should be vested in the elected representatives.

(x) The merger of Secretariat administration with field administration and consequential amendment of the Rules of Business, 1975 and the Secretariat Instruction of 1976.

(xi) The demand is that all sorts of interference by the ministry should be eliminated by limiting the role of ministry level officials to their own sphere of duty.

(xii) Creation of a Ministry of professional Civil Service in place of Ministry of Establishment and setting up of a combined Civil Service College for the professional groups.

(xiii) Expanded opportunities for promotion proportionate to the cadre strength should be created by addition of new posts or reorganising the existing ones.

Rationale of Prokrichi Movement : Views of Different Corners

The growing dichotomy between the generalists and specialists is seen by the various corners from different perspectives. Accordingly those groups have put forth several arguments either supporting the demands of the *prokirchi* leaders or refuting them bluntly. The discussion in the subsequent pages would concentrate on some of those points very briefly. They are: Specialists' views; generalists' views; journalists' views; and the views of the academicians and the researchers. To start with, a few words encapsulating the whole range of arguments may be prefixed to introduction. The *prokrichi* leaders have dewelled too much on the issue justifying their demands. In their arguments there is sufficient indication of direct criticism against the current performance of the generalists. The views of the generalists, by contrast, discount the prokrichi demands making several disparaging remarks. In the words of the generalists, this movement is ostensibly for a democratic and accountable administration but in reality it is designed to orchestrate their self-interest. As a matter of fact, the views of the first two groups contain an atmosphere of recrimination towards each other. The other groups, albeit critical of the present situation and performance of the public bureaucracy, argue for upgrading the status of the specialists by redressing the current wrongs in the administration of Bangladesh. With these few words, a detailed discussion on the arguments of all those groups may be made separately.

Views of the Prokrichi Leaders

The leaders of the *prokrichi* have explained the present situation in order to justify their seventeen-point charter of demands. Some of their arguments are presented here in summarised form.

First, the basis of a democratic nation rests on a variety of institutions, no one of which is in a position to dominate or intimidate the others. When the entrenched power of a single group becomes greater than the power of any feasible combination that might hope to restrain it, authoritarian rule prevails. In the case of Bangladesh, the so-called administrative cadre dominates all the institutions required for democracy. In such a situation, devolution of governmental power is a must for achieving democracy and the first step towards that is the strengthening of local initiative and responsibility and development of representative local government. The next step is the scrapping of the rules of Business in which the Secretaries are the heads of ministries and divisions and Principal Accounting Officer and to establish the Ministers as heads of ministries and Principal Accounting Officers. The only local alternative to the bureaucratic rule of a colonial set of civil servants is a plural society - a society in which there are multiple foci of power and influence (Hena, 1993, p. 32).

Second, the bureaucracy is accused of hindering the growth of accountable and democratic government. It is the bureaucracy, not the politicians, who ruled the country all through. Even under the present changed perspective, the civil servants consider themselves masters and forget that they are servants of people. The country's administration is still a continuation of the autocratic system. The shortcomings of the government are seen to be related to the absence of a system of accountability. The government organisations are not being held properly accountable either financially or for programme performance (Hena, 1993, p. 29).

Third, the constitutional responsibility of Ministers to Parliament and the public covers every action of the department. It is the duty of the civil servants to give the Minister the fullest benefit of the store-house of technical knowledge, wisdom and experience. The higher civil service, therefore, needs to be primarily organised with that end in view based on functional knowledge and expertise so that there is a direct flow of functional knowledge available to him. But in Bangladesh such flow of knowledge is hindered due to two factors: lack of technical knowledge of the civil

servants about the subjects of the ministry where they are placed; and this situation is further compounded by their frequent transfer from one ministry to another one. Accountability, in the sense of electoral process is absent in Bangladesh.(Ibid, p. 30).

Fourth, result-oriented accountable management system is absent. There is no performance criteria for individuals and measures of output and impacts for units throughout the government. Jobs in the government service are not identified with clear-cut responsibilities and they are not commensurate with authority without which accountability is not possible (Ibid. p. 30).

Views of the Generalists

Some members of the BCS (Admn.) cadre have levelled several criticisms against the seventeen-point charter of demands made by the *prokrichi* leaders. In their opinions the seventeen-point demand is a confused conglomeration of several ideas which lack internal consistency. It is designed to buttress the self-interest of its leaders. Moreover, the opponents of the *Prokrichi* regard the movement as purely a trade unionism. As for the accountable democratic administration, they argue that any government which is democratically elected, consistent with the constitutional provisions and the laws framed thereunder is, and has to be, an accountable administration. In a cabinet form of government, it is accountable to the parliament and through the parliament to the national electorate. The outline of such a framework of accountable administration is enshrined in the constitutional provisions further supplemented by (a) parliamentary committees and (b) judicial administration outside the control of the administration (executive organ) and (c) a free press (Anonymous, 1993, p. 26). The demands of the *prokrichi* also lack some conceptual clarity (Muslim, 1993). Aside from that, they made some specific criticisms which are as follows:

(i) As for the abolition of administrative divisions (Territorial), the opponents regard the administrative divisions as supervisory units of regular administration and in some cases development administration. There is no question of their abolition when the number of districts now is 64. The appointed officials in the field act as administrative arm of the central ministries/divisions through relevant directorates/attached officials. They act in accordance with law and under supervision of the relevant ministries headed by an elected Minister (Anonymous, 1993).

(ii) As for the concept of the official head now occupied by the Secretary, it is argued that he has to act under the supervision of the Minister. He cannot ignore the authority of the Minister. Besides this, Secretary provides the continuity of the authority of the state and political change. He also provides the institutional memory for the Ministers of different political affiliations. More importantly, the Secretary in his capacity as the official head of the ministry acts as a shield for the ministerial actions (Ibid).

(iii) The proposal with respect to the appointment of officers of functional cadres in all functional ministries from the level of Assistant Secretary implies the abolition of the age-old Secretariat system by merging policy and implementation functions. This concept is nowhere to be found in the countries of South Asia. It is argued that the Secretariat acts in a global context at macro level while the departments' activities are more narrowly focused. The secretariat at the policy level has to act as an arbiter of competing resources, set standards of performance and see that the standards are met. This vitally important element will be lost if the proposed measure is adopted (Ibid).

(iv) Minimum quota reservation of 95% of the posts for BCS cadres except BCS (Admn.) in all the common units does not have any relevance to the issue of accountability. Instead it is more narrowly focused on self-interest. The so-called theory of representation in the Secretariat came in 1979 with the creation of Senior Service Pool (SSP). About 482 officers were encadred in the pool. But the experience suggests that the functional groups in their own cadres had better opportunities and facilities and as such there was a general lack of interest in entry into SSP (Ibid,).

Views of the Journalists

Thus far, discussion revolves around the perception of the *Prokrichi* leaders and the members of the BCS (Admn.) cadre. At this juncture, the paper would concentrate on how the others look upon the present issue, i.e. the movement of the Prokrichi. Kaiser (1993) perhaps tries to explain the situation neutrally. He argues that though Bangladesh had a strong state machinery for a long time, it could not function for the benefit of the people. Instead, it always worked as savior of the colonial rulers. Out of this realisation, the governments in the past have a lot of efforts in order to reform the administrative system of the country. Over the last 20 years, there have been formed as many as 11 committees and commissions. Now that the recommendations of those committees were never implemented, the situation has not improved. On the other hand, this colonial type of administration gradually expanded to establish its firm grip over the country. This expansion has taken place without any corresponding development of the political control over the administration., At the time of independence of Bangladesh, it has a total of 3 lakh employees and now the number has increased to more than 10 lakh as against 200 political officials in the executive organ of the government. Public representatives working in the Union Parishad and other local bodies are less than 5 thousand. Consequently, by comparison with the public representatives, the bureaucrats have established their hegemony in deciding the national policies and their management. The questions of administrative autocracy and accountability stem from this imbalance between the bureaucrats and the public representatives (Kaiser, 1993, p. 28).

Now a group of professionals who are also the integral part of the administration have raised the issue of accountable administration. The conflict between the *Prokrichi* and the BCS (Admn.) cadre has been referred to as a conflict between the generalist and the specialist. Many are skeptical about the sincerity of the *Prokrichi* movement. It is argued that though the *Prokrichi* movement in its seventeen point demands has covered some basic problems of administration, they have simultaneously outlined some issues that are likely to serve their own purpose. Many suspect that lack of adequate promotion opportunities and dispute over the sharing of authority in administration have, in fact, led to the emergence of the movement by *Prokrichi* and the 26 cadres. The professionals are not only part of the existing bureaucracy but they are also quite efficient in creating many bureaucratic complications in their own spheres. Under the present system the ministry is to formulate policy and the directorate and departments are to implement them. In this

process, the activities of the professionals are also fraught with multitude of irregularities, mismanagement and corruption. It is further maintained that main conflict lies between the administration and the people with respect to the operation of administration. Apart from the bureaucrats, all the professionals (like engineers, doctors and agriculturists) are identified as different from the general public. They are also disinclined to work under the supervision of the public representatives. Looked at from this standpoint, many cast doubt on the sincerity of the professionals. How far they are committed to furthering the cause of accountable administration by shunning their parochialism while working in wider spectrum of administration (Ibid, p. 29).

Findings of a Research on Public Administration

In addition to this, in recent years several studies on the administrative system have been conducted and those studies evince many interesting findings. Report on Public Administration Sector Study in Bangladesh conducted by the UNDP is one of them. Some of the relevant points of that study may be reproduced here in brief. The UN Study team reveals a large number of shortcomings which pervade the administration.

(i) There exists a widespread dissatisfaction with the performance of government among the government officials and representatives of the private sector. The reasons for the poor performance are: apathy, narrow vision, lack of commitment and inexperience in operating within a democratic system of government; unwillingness among the civil servants to give up power to the democratically elected representatives; and uncertainties and tensions about the respective roles of Ministers and the civil servants (UNDP,1993,p. 98).

(ii) Inter-service tensions, which are not a new phenomenon, are a feature of relations between cadres, between different batches recruited into the civil service and between class I officers and others. There exists a widespread dissatisfaction among both encadred and non-encadred civil servants with the cadre system and with the system based on rank-in-person.

(iii) The study shows that promotion is an area of civil service management where there is a clash of interest between the BCS (Administration) and other groups. These

problems appear to be, in part, the result of there being no common promotion policy applying to all groups of the civil service (Ibid, p. 102).

It appears that the findings of the UN Study have many points in common with those of the *Prokrichi* leaders in respect of the administrative inadequacies in Bangladesh.

Present Status of Prokrichi Movement

In pursuit of the seventeen-point charter of demands, the *Prokrichi* leaders are desperately trying to persuade the government by adopting several means. These are : representation before the government, absence from the work, hunger strike, non-cooperation with the members of the BCS (Admin.) cadre and so on. However, there has been a lot of resistance to their demands. The members of the BCS (Admin.) cadre have regarded this movement as violation of the Government Service Rules Conduct. They have also recognised the *Prokrichi* leaders as creators of violence against the government administration and urged upon the government to take disciplinary action against them. Bangladesh Civil Service (Admin.) Association demands legal and exemplary action against the leaders of BCS coordination committee and *Prokrichi* for their provocative activities to cripple the government and administration (The Bangladesh Observer, October 23, 1993). In response to this, the Prokrichi-BCS Central Action Committee protested the demand of the BCS (Admin.) and demanded public trial against them for collaborating in imposing autocratic rule in 1982 destroying national economy and creating discontent and division among the government employees (The Bangladesh Observer, October 24, 1993). As of now, the government has given a lukewarm attention to the demands of the *Prokrichi* movement in that no effective measures are taken by the government in minimising their grievances. Some sporadic conversations between the government at ministerial level and the *Prokrichi* leaders were held in the past without achieving any concrete results. According to the *Prokrichi* leaders, the entire exercise was a futile one as the government gave no positive assurance regarding the implementation of their demands. (The Bangladesh Observer, November 3, 1993) Instead, the government has adopted some punitive measures in order to dilute the movement. For instance, in recent years some of the *Prokrichi* leaders have been

terminated from the service under forced retirement. On top of that, it is alleged that charges of anti-corruption was brought out against some of their leaders intending to foil the movement (The Telegraph, 6 January, 1994; 13 January, 1994). This action against the leaders of Prokrichi - BCS coordination committee has evoked sharp reaction among the non-administrative cadres. They regard the action of retirement as an act of vindictiveness of a vested interest group within the administration. They also term the relevant law as "a black one" and it is being used by a particular cadre against others out of personal grudge (The Telegraph, 7 January, 1994). In the eyes of many people this has served to amply prove how an elected government remains captive in the hands of the civil bureaucrats belonging to BCS (Admin.). It is also argued that such action can not resolve the administrative row. Rather it would compound the issue (Montu, 1994).

In the absence of any concrete measures to resolve the dispute, there have been some damaging effects on the administration of development activities. For one thing, a crisis is looming in the field administration. The specialists have already boycotted the meetings of the coordination committees headed by the Deputy Commissioners and the Thana Nirbahi Officers. An examination of the minutes of the coordination committees at the district and thana levels reveals that this sort of non-cooperation has impinged upon the proper coordination of planning and implementation of development activities. In some cases, generalists are assigned the job of the specialists as makeshift arrangements. In an interview with the officials of the various nation building departments during the author's recent visit to some district and thana headquarters of the Northern region of Bangladesh, it is learnt that this arrangement has complicated further the process of working atmosphere on many counts. First, in the absence of proper knowledge, performance of the work becomes poor from qualitative points of view. Second, resentment among the specialists deepens leading to the further escalation of the animosity and conflict between the generalists and the specialists. Third, as a result of this makeshift arrangement, the field administration becomes a place of social bickering, feeding into a deep cynicism among the specialists. Now, many view their specialisation as a waste of their talents. It is this disenchantment that has planted the seeds for further hostility. Apart from that, many suspect that a considerable amount of foreign aid tends to remain unutilised and what is more, the *Prokrichi* leaders are becoming politicised in order to

achieve their demands (Kaiser, 1993, p. 36 and Faisal, 1993, p., 17). All these facts suggest that there is no semblance of immediate solution to the crisis in the absence of government intervention with some concrete measures. Instead, in all likelihood it would lead to a serious turbulence in the administrative system if things remain unattended.

Observations and Concluding Remarks

In the present paper an attempt has been made to review the nature of inter-cadre rivalry on the basis of the articles and the news as published in the National Dailies and Weeklies. These papers are not purely based on any pragmatic studies. Most of them reflect personal pinions and they tend to be devoid of any objective analysis. So depending on such a review, any attempt to generalise the situation or make any firm conclusion may mislead the readers. Given this limitation, there remains a fair scope for research into the issue. However, some tentative observations may be made to give the readers a glimpse of the problem.

First, there is growing a debate over the seventeen-point charter of demands put forward by the Prokrichi-BCS Coordination Committee leaders. Their points are riddled with conceptual ambiguity in some respects. Moreover, despite their claim for achieving a democratic and accountable system of government through their seventeen-point demands, in reality it appears that they are interested in realising some gains which are connected with their service. Second, the leaders of the *Prokrichi* are adamant in pursuing their programme. As time goes on, their movement gets a new momentum. Apart from some sporadic dialogue with the government at ministerial level, in recent years they have adopted some extreme measures like strike, non-cooperation with the members of BCS (Admin.) cadre, hunger strike, and tendering resignation letters in order to persuade the government. Third, thus far, the movement has received a lukewarm attention from the government. Though in the recent past the prokrichi leaders have met the Ministers for conversation with them, the discussion has failed to achieve any concrete solution to the problem. Inter-cadre rivalry has rather been intensified following the subsequent steps taken by both the government and the Prokrichi leaders. Fourth, what is worse is that the prokrichi leaders are not only becoming violent in achieving their long-cherished goals but also they are becoming politicised(Faisal,1993,p.17).

Some of their demands appear to be genuine. However, there may remain some scope for criticism with regard to their methods and authority in voicing the issues. The question may be raised as to the fairness of the way the *Prokrichi* leaders are urging upon the government to accept their demands. Their statements bear marks of hostility, prejudice and malice against the members of the BCS (Admin.) cadre. Besides, one can also question whether they, being government servants, can pressurise the government into accepting certain ideals which are political in nature.

At this juncture, a brief account of the organisation from political perspective may be needed to digest the nature of present conflict before any verdict is given on the issue. It is argued that there is no separation between administration and politics (Nigro and Nigro, 1973, pp 13-14). Many writers also reject the view of organisation as rational, harmonious, apolitical and normatively integrated, substituting instead an approach to them `areas for daily political action' in which power and influence are mobilised by interest groups to gain control of resources through bargaining and formation of coalitions (Smith, 1988, p. 137). Now what is politics ? The term 'politics' covers a wide spectrum extending all the way from personal partisan manipulation to the ideas of political philosophies concerned with the public good (Dimmock and Dimmock, 1970, p.100). In the words of Wallace S. Sayre, "The exercise of discretionary power, the making of value choice, is a characteristic and increasing function of administrators and bureaucrats; they are thus importantly engaged in politics" (Sayre, 1958). Any participation in the formulation of public policies means, ipso facto, involvement in politics; it is a political act when an administrator recommends legislation and when he makes policy decisions in carrying out a law (Nigro and Nigro, 1973, pp. 13-14). In public administration, politics is a process that affects every aspect of governmental operations, and policy is a continuum, each aspect has an appropriate role to play that are interrelated to allotters (Dimmock and Dimmock, 1970, p. 100). It is in this sense administration is not separate from politics. But in so far as it concerns partisan politics, meaning taking part in the work of political parties, pressure groups and other groups that would influence public opinion for partisan purposes, administration is separate from politics. If judged from this perspective, one may discount the orthodoxy of the *Prokrichi* movement on two grounds.

First, public servant can suggest some ideas in the form of advice before the government and it is the Parliament and the other policy makers working in the

executive organ of the government who can make appropriate decision in this regard. Second, as regards the demand for the introduction of some political change in the form of a democratic and accountable system of government, it may be argued that only the electorate and on its behalf the Parliament can take necessary action on the issue. A public servant cannot create any pressure on the government, So, placing *Prokrichi* movement against the standards of politics in administration as discussed here, it may argued that in spite of all the positive points in favour of the *Prokrichi* leaders in respect of their demands, the ways and measures they have followed appear to be unreasonable. But the other side of the equation is that in the past many reform measures suggesting strategies for redressing the administration were foiled because of the stiff opposition from the generalists (Khan, 1986 and Maniruzzaman, 1980). Any analysis of their resistance to the previous reform measures sheds light on the reason why the specialists are so stubborn in realising their demands. Viewed from this standpoint, the present stubbornness of their stand may be ascribed to the repeated failure of both government and the generalists to take any cognisance of the genuine grievances of the specialists.

Finally, regardless of all the criticisms and weaknesses as found in the demands of the Prokrichi BCS Committee leaders, there is some truth in their programme in that the present administrative system is surrounded by manifold problems from which the existing inter-cadre rivalry, albeit old one, has stemmed and taken a serious turn in the absence of due attention from the government. So, government should be on the lookout for some appropriate measures to settle the issue for the greater interest of the nation.

"Reports on Public Administration Sector Study in Bangladesh" as conducted by the UNDP team made several recommendations to revamp the whole administrative system of Bangladesh. Some of their recommendations appear to be more relevant and practicable in minimising the cleavage between the generalists and specialists. So these may be presented here in brief.

First, some concrete action may be undertaken for a progressive reduction of distinction between cadres, specifically by combining similar cadres into a smaller number of cadres in order to open up more promotional opportunities based on merit especially at the top levels and by harmonising pay systems and conditions of

service. Second, the practice of reservation of posts in ministries for particular cadres may be abolished. Rather there may be a provision of open competition for Secretariat posts from all cadres, based on qualifications and experiences relevant to the post. Third, an attempt should be made to professionalise the civil service through development of an appropriate transfer policy in order to reduce the adverse impact of current transfers on the efficiency of Government Operations. Fourth, position descriptions for all posts in government may be made, beginning with class-I posts, in order to enable personnel to be matched to posts (UNDP, 1993, p. 109). Last but not the least, the government, however, may appoint an independent commission comprising highly capable persons taking from different groups or professions--bureaucrats, politicians, professional researchers and so on--to examine the issue with more objectivity and make recommendations thereof.

References

Abedin, Nazmul, (1973), *Local Administration and Politics in Modernising Societies, Bangladesh and Pakistan*, National Institute of Public Administration, Dhaka.

Anonymous, (1993), "Seventeen-Point Demand : An Analytical Review", *Dhaka Courier*, Issue, 9 Vol. 10, pp. 26-27, 20-21 and 29-30.

Dimmock, M.E. and Dimmock G.O., (1964), *Public Administration*, Oxford and IBH Publishing Co., New Delhi.

Faisal, Mahmud Al, (1993),"A Reformist Bureaucracy ?," *Dhaka Courier*, Issue 35, Vol. 9, p. 17.

Goodnow, Henry Park, (1964) *The Civil Service of Pakistan*, Yale University Press, New Heaven.

Hena, Mohammad Abu, (1993) "Bureaucrat's Views on Prokrichi's Demands Are Blinkered", *Dhaka Courier*, Issues, 16,17,18,19, and 21, Vol. 10.

Hena, M.A., (1993) "Seventeen-Point Charter of Prokrichi-BCS : Accountable Democratic Administration", *The Daily Star*, Dhaka, November, 16, 18 and 19.

Hoque, A.N. Shamsul, (1970) *Administrative Reform in Pakistan*, National Institute of Public Administration, Dhaka.

Kaiser, Ashraf, (1993), "Prokaushali, Krishibid, Chikitshak Andulan: Amlatantrer Angshidaritta, Athaba Natun Rashtrio Behabashtha?" (in Bangla); English Translation: "Movement by Engineers, Agriculturists and Doctors: Share in Bureaucracy or New Management for State?", *Bichitra* (A National Weekly), Issue 24, pp. 28-36.

Khan, M.M. (1985), "Major Administrative Reform and Reorganisation Efforts in Bangladesh: An Overview", *Indian Journal of Public Administration*, 31 (3), pp. 1016-1039.

Maniruzzaman, Talukder, (1980), "Administrative Reforms and Politics Within the Bureaucracy in Bangladesh", Khan, M.M. and Zafarullah, H.M. (ed.), *Politics and Bureaucracy in a New Nation Bangladesh*, Centre for Administrative Studies, Dhaka University, pp. 19-218.

Muslim, Sayed Naquib, (1993) "Bureaucracy - Technocracy Tension: Diagnosis and Prescription", *The Telegraph*, Dhaka, 29 and 31, August.

Muniruzzaman, (1993) "Kederer Judda Proshashaner Berota?" (in Bangla), "Inter - Cadre Rivalry and Crisis in Administration:" (English Translation), *Jai Jai Din (A National Weekly)*, Dhaka, Issue 30, 2nd November, pp. 4-7.

Nigro, F.A. and Nigro, L.G.(1973), *Modern Public Administration*, Harper and Row, New York.

Sarkar, Amalesh, (1993) "Professionals Mount pressure," *The Holiday*, the National Weekend Newspaper, Vol. XXIX, No. 7, Dhaka, September 17.

Sayeed, K.B, (1970) *The Political System of Pakistan*, Houghton Mifflin Company, Boston,

Sayre, Wallace S., "Premises of Public Administration : Past and Emerging", *Public Administration Review*, 18, No. 2, 1958. p. 104.

Smith, B.,C., (1988), *Bureaucracy and Political power*, Wheatsheaf Books, Sussex,

United Nations Development Programme (UNDP) (1993), *Report On Public Administration Sector Study in Bangladesh*, United Nations Department of Support and Management Services,

United Nations, (1961), *Technical Assistance Programme, A Handbook of Public Administration : Current Concepts and Practice With Special Reference to Developing Countries*, United Nations Publication, New York.

The Bangladesh Observer, Dhaka, November 4, 1993.

The Bangladesh Observer, Dhaka, October 24, 1993.

The Bangladesh Observer, Dhaka, October 28, 1993.

The Bangladesh Observer, Dhaka, December 5, 1993.

The Telegraph, Dhaka, January 7, 1994.

The Telegraph, Dhaka, January 8, 1994.

The Telegraph, Dhaka, January 24, 1994.

The Telegraph Dhaka, December 14, 1993.

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Rural Development Through Village Organisation: An Alternative Institutional Strategy for Development

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Abstract

The paper discusses the past efforts in rural development in Bangladesh. Tracing the evolution of rural development programmes vis-a-vis the local government structure from the '60s, it stresses on the apparent contradictions and paradoxes contained in them. The bottlenecks hinder the progress, target achievement of the programmes and consequently development of the country. So, in conclusion, some possible alternative strategies for the future are enumerated with the suggestion for trying out one of the options.

Introduction

The development strategies and consequently the rural development programmes in Bangladesh, particularly from the '60s are ideally, poverty focused and multi-faceted that take into account and deal with the various factors of rural life and living. All these factors are inter-dependent, inter-woven tending to be developing a "symbiotic" relationship with one another. The philosophy behind identification of the factor conditions of rural life and prioritising them has determined the type and nature of rural development programme components, and the organisational / institutional infrastructure in this country. At least, from the beginning of this century the development policies and strategies have undergone changes from time to time, so are the rural development action-programmes. But the prevailing socio-economic conditions in the rural areas have not improved over the years considerably.

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There may be a number of factors at work for this state of affairs, ranging from the nature of the state, global economy, to say, the programme components per se. However, in this paper an attempt has been made to single out and focus on one major factor -- the institutional strategy for development. The discussion concludes with the focus on an alternative, and recommending for trying out its suitability in the form of action research.

Evolution of Strategies for Development vis-a-vis the Local Government Organisation

The development strategy of Bangladesh has a history of its own. The dominant characteristics so far, especially beginning with the '60s, has been a thrust on production employing foreign technology, and of course, foreign resources. The policy documents have talked about loudly, but actually the rural development programmes carried out in the field have almost traditionally failed to give effect to issues of distributional justice and poverty alleviation. (Hossain, et.al., '91; Planning Commission, '77; Khan'90; World Bank '75)

The initial attempts for rural development were sporadic, and usually not organised. The '50s saw the introduction of the V-AID programme particularly in Comilla, Natore, Gaibandha and Tejgaon areas of Bangladesh. Since the advent of the '60s, the country has been experiencing waves of rural development strategies and organisations initiated by different ruling regimes. Ayub Khan in the '60s introduced the "Basic Democracies" system of local government in Bangladesh and Pakistan. He could even celebrate a "decade of development" with all the fun-fair. Mainly physical infrastructure development (like: village roads for facilitating communication, and irrigation canals for increasing agricultural production) efforts through Rural Works Programmes (RWP) and Thana Irrigation Programmes (TIP) were undertaken during this period.

The Thana (Sub-district) level tier of the then prevailing local government system was called Thana Council. Along with the Thana Council a Thana Training and Development Centre (TTDC) was formed as the seat of concerned offices, and for channeling goods and services (including training) to the rural people and the farmers.

Simultaneously experimentation were being carried out to devise a cooperative-based model of organisational infrastructure for the rural areas mainly in the Comilla region. The cooperative structure evolved was later accepted by the government and replicated nationwide in the form of what is called the "two-tier cooperatives" beginning with the '70s. The four components --- RWP,TIP, TTDC and Two-tier Cooperatives -- taken together later came to be known as the "Comilla Model" Consequently, the "Green-revolution" (seed-fertilizer -- irrigation technology) introduced in the country to boost agriculture production could succeed. But, basically the landed - gentry headed by the 40,000 "Basic Democrats" benefited rather than the common masses from these development endeavours.

During the liberation war, and immediately after the emergence of Bangladesh as an independent nation, numerous locally-sponsored and spontaneously initiated rural development works were organised. Some of these attempts were named "Kathi-o-mathi", "Batason Durgapur Swanirvar Development schemes" and others. Of course, then the main thrust was on providing the necessary relief and rehabilitation support for the war-devastated country. These small but significant endeavours for development organised and participated by the people at the grass-root level, however, did not sustain long. A number of reasons could be attributed for this failure, like: lack of a proper and enduring philosophy, operational plan, appropriate organisational infrastructure, political commitment on the part of the government, human and material resources and others.

In the post-liberation Bangladesh, during the Awami League administration, District Governor system was introduced to make the district-level administration accountable to the people's representatives. "Compulsory cooperative" system was attempted to devise a viable organisational network for development. But none of those attempts were given a fair trial. Later, during the regime of Ziaur Rahman, attempts were made by the Presidency to restrengthen the "Swanirvar" (Self-reliant) movement through the introduction of "Gram Sarkar" (Village Government) -- a grass-root level local government tier. But it passed away with the passage of the presidency. During the regime of General H.M. Ershad, that followed the Zia administration, some significant changes were brought about in the local government system of the country within the scheme of "administrative reform / recorganisation"

An important aspect of the changes was the introduction of "Upazila Parishad" (Sub-district Council), which was, in fact, the previous Thana Parishad with enhanced authorities and responsibilities. The scheme of " Upazila Parishad" too, was sponsored by the Presidency as the head of a military regime. It was not the outcome of a gradual evolutionary process of trial and error being tried out at the grass-root level with the people's participation. The "administrative reform / reorganisation" scheme put relatively more stress on production increase and development of physical infrastructure than any other facets of development. Like the preceding ones it, too, followed a static framework and rigid development planning process (like: a nationally applicable "guidelines", even at the grass-root level, the Upazila Parishad). After the fall of the Ershad regime in the face of a popular mass movement, the Upazila Parishad had been abolished rather unceremoniously. The succeeding popularly elected government had set up a Local Government Structure Review Committee (1992) to review and recommend a new local government structure for the country. The Committee's has recommended a two-tier local government system for the country -- Union Parishad and Zila Parishad*. The Committee recommendations also made certain other important provisions like: Gram Shava at the village level, and Thana Development and Coordination Committee at the Thana. Following the acceptance of the recommendations of the Committee by the government, Local Government (Union Parishad) Amendment Act 1993 has been promulgated. Local Government (Zila Parishad) Amendment bill has been placed before the parliament for necessary enactment. Thana Development and coordination Committees have been formed. But a decision about the proposed Gram Shava has been kept in abeyance.

Like the local government system, the rural development sector too underwent significant changes both in orientation and intensity of activities during the period of '70s to '90s. A number of development programmes / projects in the rural areas were being undertaken under the sponsorship of different government and parastatal bodies. The development programmes / projects were mostly funded by foreign donors though some were funded by the government of Bangladesh. Most of these programmes / projects followed either of the two approaches or had an admixture of

* Currently a three-tier Local Government system is being planned for the country --- at District, Thana and Union levels.

both these approaches: Target group and Comprehensive Area Development. Some of those important projects are: (Wood, '80; Hye,'86; BRDB,'95-'96; Planning Commission '84):

- Rural Development Project, Phases 1 and 2;
- Noakhali Integrated Rural Development Project, Phases 1 and 2;
- Chandpur Irrigation Project (CIP);
- Barendra Multipurpose Development Authority (BMDA).

Besides the two dominant approaches, there are several other offshoots. One of the those could be categorised under the heading of Specific Activity Oriented Approach like: Strengthening Population Planning Through Rural Women's Cooperatives of BRDB, Social Forestry in Rural Development by Directorate of Agriculture Extension (DAE)/ Forest Department and other organisations. One other approach could be termed "General Programmes" that incorporates all general aspects of rural development like: Krishak Samabay Samitti (KSS) and Thana Central Cooperative Association (TTCA) of BRDB.

Not all of these rural development programmes follow a comparable policy and implementation strategy, rather most contain built-in contradictions and paradoxes. Most of these development programmes are formulated and implemented based on the wishes of the foreign donors and inter-governmental agencies, like: USAID, DANIDA, NORAD, CIDA, SIDA, ADB, World Bank, IFAD and the like, and not necessarily based on the felt-needs of the rural masses. (Hossain, et.al.'91; pp.21-22). Cooperatives are not necessarily adopted as the "vehicle for development" in these programmes. Even no viable and replicable organisational infrastructure is aimed at for the growth and development of these programmes by their initiators. The personnel concerned with these development programmes tend to work for and by the rural masses rather than with them. Attempts are almost never made to integrate the poor rural masses into the mainstream of development. Future and continuation of these programmes are dependent on funds as and when made available by the foreign donors.

Even if these funds are available regularly and adequately with no tinge of hegemony attached, these will not bring about the desired results in the face of "contradictions and paradoxes" contained in these programmes for rural development. All these efforts and funds will then, in the ultimate analysis, be able to produce a "ghorar dim" (Van Sehendel, '88) only, if not worse.

Recent Trends in Cooperatives and Rural Development Programmes

Cooperatives had been considered to be the "vehicle for development" in the country with varying degrees of importance. Initially, the so-called "traditional cooperatives" were in operation. With the beginning of the '70s two-tier cooperatives along with three other components popularly called "Comilla Model" were introduced. Realising the incongruity existing between these two systems of cooperatives it was then thought and expressed by the policy-formulators and decision-makers that gradually the cooperative system vis-a-vis the general / broad-based development policy for Bangladesh will be brought within a unified structure. But that did never happen. Leaving aside the buit-in conceptual and theoretical contradictions existing within traditional cooperatives itself, BRDB too now is giving rise to multiplicity of cooperative structures and development strategies.

Besides the cooperatives and other organisations, initiated and supported under the auspices of various government and parastatal agencies, the non-government organisations (NGOs) in Bangladesh have now become essential institutions for development in the rural areas. NGOs have gradually shifted from a voluntary and welfare bias towards professionalism and development in approach over the years. These NGOs widely differ both in their areas of operation and size of the organisations.

Nevertheless, they are being increasingly recognised and commended for their roles as partners in development. NGOs like BRAC (Bangladesh Rural Advancement Committee), ASA (Association for Social Advancement), PROSHIKA, Gonoshasthya Kendra, Nijera Kori and others are now well-known both at home and abroad for their overall contributions for development. Many of the foreign / international donors, UN agencies are now pleading for greater role and participation of the NGOs in various development policy formulation and implementation endeavours. These pleadings and recommendations have been gradually accepted by the different governments in Bangladesh, and are being prominently manifested in different policy documents. (Planning Commission,'90, pp. 13-14; Task Forces on Bangladesh'90, pp. 371-386).

But in spite of all these impression and credibility established by the NGOs considering the real world intricacies, lot more needs to be seen and done. The roles and potentials of many of the NGOs have come under scrutiny by the various shades of political and expert groups. For example: their development policies and strategies may be further examined to be made more effective. Generally, their resource-base needs to be gradually expanded to meet the ever increasing demands on them. Moreover, the development roles and participation of GOs and NGOs need to be made more collaborative, corroborative and with still more coordination. The establishment of organisations like: Association of Development Agencies in Bangladesh (ADAB), NGO Affairs Bureau, Palli Karma Sahayahak Foundation and others have only recognised these prime needs but have not yet been able to fulfill these needs.

Options for the Future

How would the development efforts be made more collaborative, corroborative and be better channellised to reach the planned targets ? What would be the appropriate kind of development strategy and the institutional / organisational infrastructure ? These may vary with the varying factor-conditions prevailing even within the geographical territory of Bangladesh. BARD, Comilla carried out two surveys of six villages in different agro-ecological zones of Bangladesh (Solaiman,'90). The aspects to be taken into consideration in the surveys were: sociological, economic, rural administrative, health, nutrition and education, population and family planning, agricultural and technological. The findings have their commonalities in many respects, but they differ from each other and from region to region. For example, modernising influence and development inputs have not reached equitably to all the villages, and consequently some villages remained relatively traditional and poor than others. The relative differences in organisational strength and number between cooperative societies, and traditional "clubs" and other groups varied in the regions surveyed. Will a uniform kind of organisational network be appropriate for the whole of Bangladesh ? These issues and others need to be thoroughly investigated to identify and determine the relevant institutional strategy for development.

To summarise the conclusion of Jones ('79), (Jones,'79; Rahman, '90) there are a number of options before us:

First, "IRDP Optimists" views of a possible new model incorporating all types of villagers but with a greater administrative supervision and new cooperative management structure. But that is not plausible according to Jones' analysis.

Second, some progressive activists support the present production - oriented strategy, taking it to be an essential pre-condition for growth of capitalism in agriculture which would ultimately precipitate to the desired radical changes. This does not seem probable in Bangladesh. Because "..... the world capitalist system has proved capable of structuring its traditional response to a reformist line in dealing with extreme material inequity across the world. The concern for equity expressed by foreign aid agencies during the '60s and '70s, should not, as has been done by some D/P (Differentiation / Polarisation) theorists be dismissed as 'rhetoric'[9] The recent political upheavals in Eastern-Europe will give testimony to that fact. Moreover, not a sense of class-antagonism but a sense of "patron-client" relationship seems to be more prominent in the socio-economic-political fabric of Bangladesh. At least, it could not be proved otherwise so far.

Third, "Grow now, redistribute later" strategy. This has failed to prove its worth.

Fourth, Jones stresses on employment expansion through labour-intensive technologies, and creation of a new institutional infrastructure. Instead of being more specific he suggests that the possible infrastructure may include functional cooperatives of marginal land-owners and bring together landless and near-landless with shared, common interests (professional groups like: fisherman, weavers, blacksmith, and the like). These small functional cooperatives could then be federated into larger cooperatives for credit purposes.

Following Jones' reasoning, we may conceive of an institutional infrastructure flexible enough to be adaptable in the differing agro-ecological zones of the country. It also must be capable of catering to the different, often "competitive but not contradictory," socio-economic and political development needs of the people. We may initiate the process by formulating an action research project that may have two major objectives:

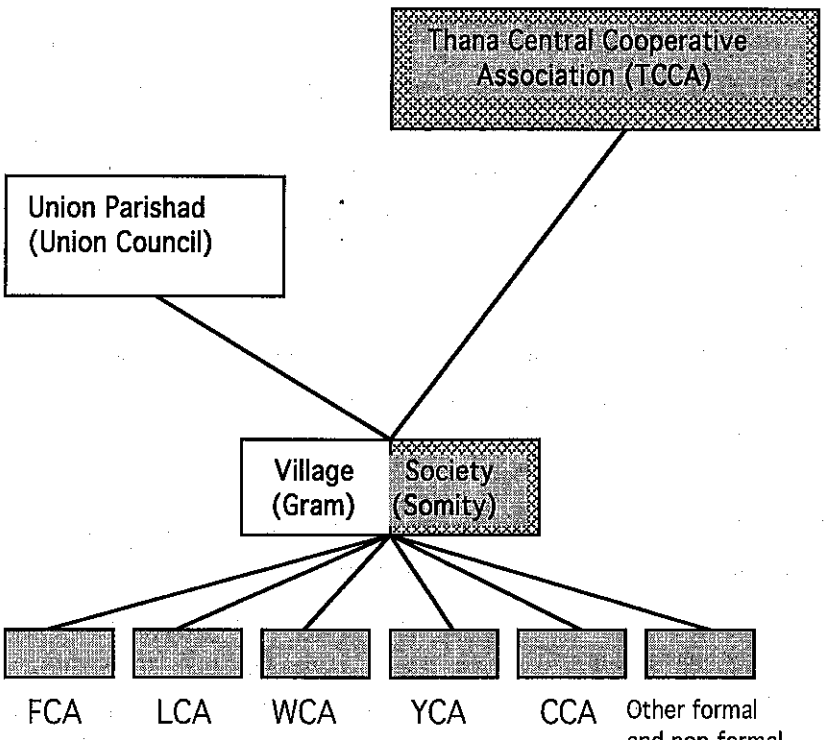
a) Socio-economic development, especially of the rural poor;

b) Representative organisation of the various professional and socio-economic groups of the village population for their sustainable development. Accordingly, the population of a village will be mobilised and organised into several formal and non-formal groups (pre-cooperatives). Consequently, these non-formal groups may seek formal registration, if they like, separately and individually, with any competent authority e.g., Department of Cooperatives, Social Welfare Directorate, Directorate of Women's Affairs, NGO affairs Bureau, and the like. These registered and/or unregistered groups may opt to form a confederation at the village level under the banner of a Gram Samiti (Village Society). The Gram Samiti (GS) may be a registered body. The GS may later establish two-dimensional linkages: first, with the Thana Central Cooperative Association (TCCA), and secondly with the Union Parishad (UP).

The GSs of a given Thana will together constitute a TCCA as its units. The policy governing the nature and affiliation of these TCCAs may be revised radically to meet the dynamics of the needs. The GSs at the same time will replace the existing wards, and form constituting parts of a given UP. This stage of institutional innovation may be reached through processes of consistent dialogues between and among the people and the researchers supported by corresponding structural adjustments (Figure- 1).

The perceived GS will be serving dual purposes. One, socio-economic development -coordinating and facilitating development of each individual professional group/segment of the village. Two, local government functions -- to be the grass-root level tier, and ultimately be linked with UP and Thana Parishad. This may ultimately form a component of a perceived national/regional development plan formulation and implementation framework.

Rural Development Though Village Organisation
Proposed Organisational Infrastructure



FCA - Farmers' Cooperative Association
LCA - Landless' Cooperative Association
WCA- Women's Cooperative Association
YCA - Youth Cooperative Association
CCA - Childrens' Cooperative Association (Unregistered)

Cooperative Association Local Government Body

Suggestive infrastructure may be formed by reforming the current cooperative networks, along with the pre-cooperative networks.

Conclusion

In sum, we might agree with the concluding remarks of a deep tubewell irrigation impact study report which says: "The move toward efficient resource utilisation implies hard work by all concerned in planning and implementation. There is no other way if current absolute poverty is to be reduced and the country to start on a path of broad self-reliance. It is easy to be pessimistic about the prospects and search for easier solutions (or have them imposed from outside); but unless there is an institutional structure and an effective local level planning framework within which irrigation and other developments can be integrated, any development that do occur are unlikely to provide a long-term basis for self-reliance and poverty reduction" (Chisholm, '84, p. 183, emphasis added).

Notes

1. Mahbub Hossain, M.U.Ahmed and M.M. Akash (1991), echoes the views of M. Soliaman, T.R. Bose and T.K.Biswas (1990), that says: "In Bangladesh the Comilla model formed the cornerstone of earlier efforts at rural development. It was replicated throughout the country in 1972 under the name of 'Integrated Rural Development Programme' (IRDP). But it started losing its appeal with the passage of time. As a production oriented model IRDP overemphasised attainment of self-sufficiency in food production had paid inadequate attention to the distribution aspects. Besides implementation of the main scheme, i.e. replication of the two-tier cooperatives and the related activities, IRDP also took up the responsibility of implementing a number of pilot projects which included:

    a) the Population Control and Women's Cooperatives;
    b) the Thana Workshop-cum-Training Centre (1976-1980);
    c) the Storage and Godown Project (1977-79);
    d) the Youth Programme (1977-82).

Bangladesh Planning Commission (1977), Preliminary Thoughts on a Perspective Plan of Bangladesh: 1980 - 2000, says: "In the wake of 1974 flood and famine, Food for Works Programme (FWP) was also initiated to create short-term employment opportunities for the rural poor, IRDP expanded but it came to be dominated by the rural elite. The poor remained outside its organisational fold."

Khan (1990), commenting generally on RWP, FWP and similar programmes notes;

"But the marginality of these programmes, their utter dependence on food aid, and seasonality; and their amenability to the interests of the local elites and consequent leakages vitiate all their positive components. Such programme categories do not represent a satisfactory alternative to assuring the functionally landless a guaranteed share in the income stream from the basic source, that is, land or from other productive resources". Also of relevance may be: World Bank (1975).

2. Geof Wood (1980), has highlighted the razzle - dazzle of some of those development projects, terming those to be following a debatable strategy of development. Also of interest will be Hasnat Abdul Hye (1986). Particularly articles like: "The Model That Was," "Model Unperceived," "Privatising Rural Development," "The Quiet Emergency."

3. Some of the important development projects, having a mix of both target group and comprehensive area-development approaches, completed or being carried out under the aegis of Bangladesh Rural Development Board (BRDB):

   - Rural Development Project-5 (Production and Employment Programme- PEP)
   - Rural Development Project-9 (Production and Employment Programme- PEP)
   - Rural Development Project-12
   - Rural Poverty Alleviation Programme (RPAP)
   - Second Bhola Irrigation Project (BRDB and BWDB jointly)
   - Model Rural Development Project (Homna - Daudkandi)
   - Rural Poor Cooperative Project (2nd phase of North-West Rural Development Project - NWRDP)

There are still other area/programme-based development projects being undertaken by other government or para-statal agencies, like:

- Small Farmers Development Project (SFDP),
- Barind Multipurpose Development Authority (BMDA),
- Chandpur Irrigation Project (CIP),
- Mahuri Irrigation Project (MIP),
- Karnaphuli Irrigation Project (KIP).

This information, though not complete, is gathered from the following major sources:

i) Bangladesh Rural Development Board (BRDB), Annual Report 1995-96 and previous years;
ii) Rural Development and Cooperative Division (Government of Bangladesh), various annual reports.
iii) Bangladesh Planning Commission (1984), Strategy for Rural Development Projects: A Sector Policy Paper.

4. Mahbub Hossain, et.al, (1991), Ibid., overviewing the IRD scenario in this part of the globe, write: "..... in most South Asian Countries (i.e., Bangladesh, India, Pakistan, Nepal, Sri-Lanka) rural development programmes tend to remain donor induced with substantial dependence on external funding. Under the circumstances, since the donor perspectives remain instrumental in shaping IRD programme, the process of rural development inevitably remains insufficiently integrated with the internal dynamics of the socio-economic forces. Needless to point out, this raises doubts about the sustainability of the programmes once the donor support is withdrawn" (P.21). Continuing in the following page, reviewing the general trend of rural development strategies and programme, Hossain et.al., quote Atiq Rahman and say: "In order to reduce rural poverty through ensuring participation of the rural poor in production and proper distribution of income and resources, the overall IRD strategy under went some changes in the 1980s. Among such changes, the shift in emphasis from programme-based and target- oriented IRD Programmes to area based development programmes and administrative decentralisation are considered most significant" (p.22).

5. "Ghorar Dim", as Willem van Schendel (1988), explains, (is a jocular) exclamation commonly used to refer to an obvious incongruity or to deflate an - illusory discovery. It is sometimes used to describe rural development efforts, often aptly so, because the field of rural development is particularly rich in illusory discoveries and incongruities".

References

Bangladesh Planning Commission (1977), *Preliminary Throughts on a Perspective Plan of Bangladesh: 1980-2000*, Planning Commission, Dhaka

Bangladesh Planning Commission (1984), *Strategy for Rural Development Projects : A Sector Policy Paper*, Planning Commission, Dhaka.

Bangladesh Planning Commission (1990), *The Fourth Five Year Plan 1990-95*, Planning Commission, Dhaka.

Bangladesh Rural Development Board (BRDB), (1996), *Annual Report 1995-96 and previous years*, Dhaka.

Chisholm, Nick (1984), Whose Rural Development ? *Socio-economic Changes in DTW Pump-groups in Bogra district,* North-West Bangladesh, SIDA, Dhaka.

Hossain, Mahbub, Ahmed, M.U. and Akash, M.M. (1991), *Rural Development Out look in Asia: A Review of IRD Programmes (Draft)*, CIRDAP, Dhaka.

Hye, Hasnat Abdul (1986), *Dateline Gram Bangla,* BARD, Comilla

Jones, Steve (1979) "A Critical Evaluation of Rural Development Policy in Bangladesh", *the Journal of Social Studies*, No.6, the Centre for Social Studies, Dhaka University, Dhaka.

Khan, A.K.M. Obaidullah (1990), *Creative Development: An Unfinished Saga of Human aspirations in South Asia,* University Press Limited, Dhaka.

Khan, Shakeeb Adnan (1989), *The State and the Village Society: the Political Economy of Agriculture Development in Bangladesh,* University Press Limited, Dhaka.

Rahman, Hossain Zillur (1990), " Not Quite, Not Enough: Institutional Approaches at Rural Development in Bangladesh," *The Journal of Social Studies* No. 47, Centre for Social Studies, Dhaka University, Dhaka.

Planning Commission (1990), *Reports of the Task Forces on Bangladesh: Development Strategies for the 1990s*, Planning Commission, Vol.2, the Role of NGOs.

Solaiman, M. (1990), "Second Survey of Six Villages in Different Agro-ecological Zones", *Six Villages of Bangladesh:*, BARD, Comilla.

Solaiman, M; Bose, T.R. and Biswas, T.K, (1990), *State of the Art IRD in Bangladesh*, BARD, Comilla.

Van Schendel, Willem (1988), "Ghorar Dim" --- "Rural Development in Bangladesh", *The Journal of Social Studies*, No. 39, Centre for Social Studies, Dhaka University, Dhaka.

Wood, Geof (1981), "Rural Development in Bangladesh: Whose Framework ? ", *The Journal of Social Studies,* No.8, Centre for Social Studies Dhaka University, Dhaka.

World Bank (1975), *Rural Development Sector Policy Paper*, Washington D.C., USA.

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Yield and Yield Contributing Characters of Some Exotic Varieties of Potato

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Abstract

Field performance of eight exotic potato varieties along with two recommended varieties were evaluated during 1991-93. About 80% plant emergence were recorded within shortest possible time (25-26 DAP) by Ajiba, Asterix, Binella, Mondial and Soltana. Diseased plant was lower in Obelix (1.0%) and most of the varieties showed lower diseased plant than the recommended varieties. All the varieties except Cosmos (78.3%)produced more than 80% foliage at 60 DAP. Plant height attended maximum in Asterix (57.5cm) and minimum in Arinda (42.7cm) with an average of 49.9cm. Highest number of stem/hill was given by Dianant (4.3) followed by Soltana (3.2), Mondial (3.2), Binella (3.1). Obelix (3.0), Cardinal (2.9) and Ajiba (2.9) Mondial yielded highest tuber (31.63 t/ha) which differed statistically than others. All the varieties except Arinda, Asterix and Cosmos produced more than 20 t/ha tuber. Ajiba, Binella, Mondial, Obelix and Soltana produced marketable yield (89.3% to 92.1%) higher than mean marketable yield. The variety Ajiba, Soltana and Cardinal produced maximum shall, medium and big sized tubers respectively. Considering all the parameter studied., variety Ajiba, Mondial, Binella, Obelix and Soltana showed acceptable performance in comparison to recommended varieties Cardinal and Diamant.

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Introduction

Although potato is the third largest food crop in Bangladesh, but average yield is only 10.9 t/ha which is very low in comparison to other neighbouring countries (Hoque, 1995). The potato growing area in Bangladesh is about 130 thousand hectares producing 1.44 million metric tons (BBS, 1995). Of the total area, 60% is covered by high yielding varieties (Rashid, 1990). The main reason for poor yield of potato in Bangladesh is due to use of planting material of low yield potential. Disease free high yielding variety development is most important to increase potato production (Elias, 1993). Natural conditions of Bangladesh are not ideal of hybridization of potato due to short-day condition here. Hence, introduction and evaluation of exotic potato varieties are done as a regular programme by the Tuber Crops Research Centre (TCRC) of Bangladesh Agricultural Research Institute. Although, the varieties of several countries were tested, the Dutch varieties occupied the absolute majority. Every year 10 to 15 varieties, sometimes more, are introduced from the Netherlands (Anon., 1992). They are then evaluated on the basis of different criteria such as plant morphology, yield, dry matter content, tuber grades, marketable yield, disease incidence, storage behaviour etc. (Rashid et.al. 1987). Selected varieties are then recommended by the National Seed Board (NSB). Hence, an attempt was taken to identify the varieties that possesses maximum desirable characters for commercial cultivation in Bangladesh.

Materials and Methods

The experiment was conducted at the Tuber Crops Research Sub Centre, Bogra during the rabi season of 1990-91 to 1992-93. It was silty loam textured and flood plain soil. The trial included eight exotic Dutch potato varieties viz. Ajiba, Arinda, Asterix, Binella, Cosmos, Mondial, Obelix and Soltana. The recommended varieties which are also Dutch originated viz. Cardinal and Diamant were included as check. The trial was set up in simple Randomized complete Block Design with three replications in every season. Unit plot size was 5.0m x 3.0m. There were 100 tubers per plot with a spacing of 60cm (row to row) x 25cm (plant to plant). Date of planting was November 5, 10 and 15 in 1990-91, 1991-92 and 1992-93, respectively. Well decomposed cow dung at the rate of 10 t./ha was applied as basal dose during land preparation. The land was also uniformly fertilized with Urea 360 kg/ha, TSP 220 kg/ha, MP 270 kg/ha, Gypsum 120 kg/ha, Zinc Sulphate 5 kg/ha. Full dose of

Triple super phosphate, Muniate of potash, Gypsum, Zinc sulphate and half of Urea were applied at the time of planting in the furrow and then properly mixed with soil so that the tuber did not come in contact with the fertilizers. The remaining half of Urea were applied at the time of earthing up. Irrigation, weeding, earthing up and other intercultural operations were done as and when necessary to raising a good crop. Ridomil MZ-72 WP @ 0.2% and Dimecron 100 WSC @ 0.1% were sprayed at 15 days interval as preventive measures of diseases and insect attack. Data on different characters were taken on whole plot basis. Data were analyzed statistically and the differences among treatment means wherever applicable were adjusted with Duncan's Multiple Range Test (Steel and Torrie, 1960).

Results and Discussions

Rate of Emergence

Data on rate of plant emergence and final plant stand of different exotic potato varieties are presented in Table-1. Different variety showed differential responses in rate of plant emergence. At 15 days after planting (DAP) Arinda (4.4%), Binella (5.6%) and Cosmos (6.3%) showed slow emergence in comparison to other varieties. Binells, even at 20 DAP was very slow to emerge (25.0%) which was close to Cardinal (26.3%). The emergence of around 80% plants were recorded with the shortest possible time (25-26 DAP) by Ajiba, Asterix, Binella, Mondial and Soltana (Table-1). After 30 days of planting lowest plant emergence was recorded in cosmos (75.6%) and highest in Mondial (92.9%). This result is similar to those of the studies done by Elias (1993) and Anonymous (1992a). Final plant stand was estimated after 40 days of planting. It was observed that Ajiba, Binella, Mondial and Soltana were very close to emerge in their final stand.

General Plant Characters

Among the general plant characters, percentage of virus infected plant was calculated at 45-50 DAP. It is shown in Table-2 that lowest diseased plant was in the variety Obelix (1.0%) followed by Asterix (1.3%), Ajiba (1.7%) and Mondial (1.9%). The highest diseased plant was recorded in the recommended variety Diamant (3.3%). The mean diseased plant (2.1%) was very close to Arinda (2.1%), Binella (2.0%), Mondial

(1.9%) and Soltana (2.2%). This result differs with the findings of Rasul et.al. (1993). Where they found maximum diseased plant in Ajiba and Mondial. This might be due to the control of aphids by regular spraying in the present experiment as the aphids are the vector of different viruses.

Foliage coverage of the varieties was measured on eye estimation at 45 and 69 days after planting. It varied from 70.3% (Cosmos) to 91.0% (Ajiba) with an average of 80.8%. After 60 days of planting, foliage coverage was also maximum in Ajiba (93.3%) and minimum in Cosmos (78.3%). The varieties which produced more foliage than the recommended varieties are Ajiba, Binella, Mondial, Obelix and Soltana. Foliage coverage is an important point of determining the spacing of a variety. Vigorous and bushy foliage have been observed to be helpful in suppressing weeds. Similar statements have been made by Hossain (1989). From a report of TCRC it has been stated that a coverage of 80% foliage is ideal for catching solar radiation (Anon., 1989). In this study, all the varieties except Cosmos produced more than 80% foliage (Table-2).

Regarding plant height, Asteris produced tallest plant (57.5 cm) which was statistically identical to Cardinal and Diamant but significantly differed with other varieties. The height of Ajiba, Binella, Mondial, Obelix and Soltana were identical to the recommended varieties. The plant height was minimum in Arinda (42.7 cm). This results agree with the findings reported by Elias (1993) and Anonymous (1992).

Significant difference among the varieties in respect of number of stem per hill were observed (Table-2). In the recommended variety Diamant, number of stem per hill was maximum (4.3), which differed significantly with all other varieties. Ajiba, Binella, Mondial, Obelix and Soltana produced similar number of stem per hill. Arinda and Cosmos produced least number of stem per hill. The results are in agreement with the findings reported by Hossain et.al. (1989). Elias (1993) and Anonymous (1993).

Yield, Marketable Yield and Grades of Tubers

Results of yield, marketable yield and grades of tubers obtained from the data of 10 varieties are presented in Table-3. Regarding yield, the varieties showed significant variation. Yield in different varieties ranged from 16.50 t/ha to 31.63 t/ha with an average of 22.50 t/ha. Mondial yielded highest which was statistically different from all other varieties. Elias (1993) also obtained highest yield from Mondial. The variety Soltana produced second highest yield which was statistically similar with the yield obtained from obelix. Obelix produced statistically similar yield with Ajiba. Binella and Diamant. The varieties which produced more than 20.00 ton tuber per hectare include Ajiba, Binella, Mondial, Obelix, Soltana, Cardinal and Diamant, Similar results have also been reported by Rashid et.al. (1987) and Anonymous (1993). Marketable yield ranged from 85.3% to 92.1% with an average of 88.7%. The varieties which produced marketable yield above average were Ajiba (89.3%). Binella (91.1%). Mondial (89.6%), Obelix (90.1%) and Soltana (92.1%). Grades of tubers is an important criteria for selection of varieties. Higher percentages of medium sized (28-55mm) tubers is a desirable character. Ajiba (10.4%) produced maximum small sized tubers. On the other hand, the recommended variety Cardinal (19.6%) produced maximum big sized (>55mm) tubers. The varieties which produced above average (83.7%) medium sized tubers were Ajiba. Asterix, Binella, Mondial, Obelix and Soltana (Table- 3).

Conclusion

Selection of a variety with all the desirable characters is a difficult thing as so many criteria have to be taken into consideration. In fact, it is merely possible to select a variety that excels in all of the desired characters. From the obtained results it is clear that all the variety performed better in some aspects. However, on overall consideration giving emphasis on yield, marketable yield, tuber gardes and also disease incidence, the varieties Ajiba, Binella, Mondial, Obelix and Soltana showed acceptable performance as compared to Cardinal and Diamant.

Table-1: Rate of Plant Emergence and Final Plant Stand of Different Exotic Potato Varieties

Variety	Rate of emergence (%)				Final plant stand (%)
	15 DAP	20 DAP	25 DAP	30 DAP	
Ajiba	29.7	57.7	79.2	89.5	92.2
Arinda	4.4	48.9	72.2	87.8	90.4
Asterix	18.7	48.8	81.1	86.4	88.9
Binella	5.6	25.0	77.8	87.7	91.7
Cosmos	6.3	48.1	70.8	75.6	82.2
Mondial	18.1	51.4	78.7	92.2	93.3
Obelix	18.7	42.9	68.7	80.2	88.9
Soltana	29.9	44.9	78.1	84.4	91.9
Cardinal	15.5	26.3	68.9	83.9	89.2
Diamant	19.0	35.3	73.3	83.3	90.4
Mean	16.6	42.9	74.9	85.1	89.9

Table-2: General Plant Characters of Different Exotic Potato Varieties

Variety	Diseased Plant (%)	Foliage coverage (%)	Plant height(cm) at 60 DAP*	No. of stem/hill at 60 DAP*	Result of DMRT
		45 DAP	60 DAP		
Ajiba	1.7	91.0	93.3	49.7^{bc}	2.9^{bcd}
Arinda	2.1	78.5	82.0	42.7^{d}	2.6^{d}
Asterix	1.3	75.3	81.7	57.5^{a}	2.7^{cd}
Binella	2.0	80.5	88.3	50.2^{bc}	3.1^{bc}
Cosmos	2.9	70.3	78.3	45.1^{cd}	2.6^{d}
Mondial	1.9	80.5	87.3	48.9^{bcd}	3.2^{b}
Obelix	1.0	81.5	88.0	49.9^{bc}	3.0^{bcd}
Soltana	2.2	86.9	90.0	48.9^{bcd}	3.2^{b}
Cardinal	2.7	79.8	87.2	52.5^{ab}	2.9^{bcd}
Diamant	3.3	83.4	85.6	53.6^{ab}	4.3^{a}
Mean	2.1	80.8	86.1	49.9	3.06
CV(%)	-	-	-	7.39	8.52

DAP - Days after planting

* - Average of 10 plants

Note: Treatments having same letters do not differ significantly by DMRT at 5% level.

Table-3: Yield, Marketable Yield and Grades of Tubers of Different Exotic Potato Varieties

Variety	Yield (t/ha)	Marketable yield (%)	Grades of tubers by weight (%)		
			< 28mm	28-55mm	> 55mm
Ajiba	22.33^{cd}	89.3	10.4	86.2	3.4
Arinda	16.50^{e}	88.5	5.7	76.3	18.0
Asterix	17.77^{e}	85.3	7.4	89.8	2.8
Binella	23.87^{cd}	91.1	7.1	88.3	4.6
Cosmos	16.77^{e}	87.6	3.8	82.4	13.8
Mondial	31.63^{e}	89.6	4.0	85.1	10.0
Obelix	24.80^{bc}	90.1	5.7	85.5	8.8
Soltana	27.47^{b}	92.1	4.0	91.0	5.0
Cardinal	21.27^{d}	87.5	5.7	74.7	19.6
Diamant	22.63^{cd}	85.8	5.2	78.0	16.8
Mean	22.50	88.7	6.0	83.7	10.3
CV (%)	8.38	-	-	-	-

Note: Treatments having same letters do not differ significantly by DMRT at 5% level.

References

Anonymous, (1989), *Annual report of TCRC, 1988-89,* Tuber Crops Research Centre, Bangladesh Agricultural Research Institute. Joydebpur, Gazipur.

Anonymous, (1991), *Annual report of TCRC, 1990-91,* Tuber Crops Research Centre, Bangladesh Agricultural Research Institute, Joydebpur, Gazipur.

Anonymous, (1992), *Annual report of TCRC, 1991-92,* Tuber Crops Research Centre, Bangladesh Agricultural Research Institute, Joydebpur, Gazipur.

Anonymous, (1992a), *Annual report of TCRC, 1991-92,* Tuber Crops Research Centre, Bangladesh Agricultural Research Institute, BARI, Bogra.

Anonymous, (1993), *Annual report of TCRC, 1992-93,* Tuber Crops Research Centre, Bangladesh Agricultural Research Institute, Bogra.

BBS, (1995), *Monthly statistical bulletin, January, 1995*, Bangladesh Bureau of Statistics, Dhaka..

Elias, M. 1993, *Research Report on Tuber Crops, 1992-93,* Regional Agricultural Research Station, BARI, Jamalpur.

Hoque, M.A. (1995), *Studies on stability of hybrid TPS families under different agro-ecological conditions of Bangladesh.* (Unpublished M.S, Thesis), Institute of Postgraduate Studies in Agriculture, Gazipur

Hossain, A.E., Rashid, M.A., Sarker, M.H., Kabir, M.H., Elias, M. and Hossain, M.M. (1989), *Evaluation of exotic potato varieties.* (Proceedings of 1st National Tuber Crops Workshop), May 28-30, Tuber Crops Research Centre, BARI, Joydebpur, pp. 38-50.

Hossain, M.M. (1989), "Evaluation of exotic potato varieties" *Annual Report 1988-89* Potato Research Sub-Centre, ARS, BARI, Bogra pp.1-16

Rashid, M.M. (1990), " Improvement of potato seed quality at farmers' level ", *In Seed potato in Bangladesh.* (Proceedings of the International seminar on seed potato), Bangladesh Agricultural Development Corporation, Dhaka, Bangladesh, pp. 106-110

Rashid, M.M., Rashid M.H. and Sarker M.H. (1987), *Yield potential of exotic potato varieties in Bangladesh,* Potato Research Centre;BARI, Joydebpur, Gazipur, pp. 62.

Rasult, M.G., Nahar, M.S., Akter, M.S., Quasem M.A. and Rashid, M.M. (1993), *Yield potential of exotic potato varieties in subsequent generations,* Annals of Bangladesh Agriculture, 3(1): 7-12.

Steel, R.G.D. and Torrie, J.H. (1960), *Principles and procedures of statistic,* Mc Grew Hill Book Co. Inc. New Yourk, USA pp.109

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Participation of Women in Rural Development : An Experience of Comprehensive Village Development Programme

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Abstract

The study intends to see the extent of participation of woman co-operators under the Comprehensive Village Development Programme (CVDP) in terms of membership enrolment, capital accumulation,, attendance in different meetings and training courses, access to credit, representation in the managing committee etc. It appears from the study that participation of women in training courses, adoption of family planning devices, attendance in the annual general meeting of the society and capital formation was found satisfactory. They were also involved in different income generating activities and earning additional income for the family. However, participation of women in the managing committee, in planning and decision making was almost absent. Membership enrollment position of women was also not found encouraging.

Inadequate credit, social and religious norms and illiteracy were main hindrances for women's participation in development efforts. Finally, the author put forward a number of suggestions for increased participation of women in all sphere of activities of the cooperative societies.

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Introduction

Women constitute almost half of the total population of Bangladesh. Thus overall development of the country can not take place without massive participation of women in development efforts. Empirical evidences show that they have little access to employment and income earning opportunities, leadership and decision-making. Along with these, social customs, traditions and norms and other handicaps like illiteracy, lack of institutional support and skill training have kept down women's participation in the main stream of development process. Generally, the rural women remain full time busy with the household works. But they enjoy very limited facilities available in the family. Even, in most cases, they are being deprived of their basic needs and rights. As a result they would not be in a position to contribute enough for their self as well as for the development of the nation.

Gradually it has become evident that sustainable development requires equal and effective participation of women. The UNDP reports (1994) also suggested to make use of the full potentials of women to accelerate development in Bangladesh. Based on this realisation the government of Bangladesh has undertaken a lot of rural development projects with a view to ensuring women's participation in development. These projects aim at socio-economic upliftment of the rural poor, particularly women through providing training and other support for employment and income raising activities, social awareness building and so on.

Rural Development Academy, Bogra has been implementing an action-research project named "Comprehensive Village Development Programme (CVDP)" since 1992. This project is spread over 40 villages of four thanas -- Sherpur (Bogra), Sadullapur (Gaibandha), Mirpur (Kusthia) and Jhenaidah Sadar (Jhenaidah) of Rajshahi and Khulna Divisions. The main objective of the project is to promote overall development of all segments of population of a village, particularly those of small farmers, landless and destitutes including women. All adult men and women of all classes and professions including the youth have the opportunity to become members of the co-operative societies under the project. The project has undertaken a wide varieties of activities like membership enrolment, capital accumulation, credit disbursement, income generation, family planning, tree plantation etc. for both male and female. This study endeavours to examine the participation of women in different activities undertaken by the project.

Objectives

1) To see the extent of participation of woman members in the activities undertaken by CVDP.

2) To identify the constraints for women participation and to suggest ways for strengthening their participation.

Methodology

Study Area and Respondents: There are 40 Comprehensive Village Development Cooperative Societies, one in each village, in four thanas under Rajshahi and Khulna divisions. Of these, one society of Jheniadha Thana became inactive. Three female members from each society, who did not belong to the managing committee, were selected randomly from the active 39 societies as sample of the study. Thus total number of sample stood at 117.

Data collection: The study was based on both the secondary and primary data. Books and reports published on CVDP activities were used as major sources of secondary data. Primary data were collected through structured questionnaire on issues like attendance in the weekly meetings, income, use of credit etc. to supplement and analyse the secondary data. Data were collected by the researcher himself and the Field Assistants of CVDP. In addition, information were gathered through group discussions.

Findings

The major activities of CVDP are: membership enrolment, holding of meetings, arrangement of training courses, capital formation, credit operation, family planning etc. Participation of woman members are judged considering their involvement in all these activities.

Membership Enrolment

Comprehensive Village Development Programme has forty village-based cooperative societies. All the villagers, irrespective of class, sex and profession are eligible for the membership of CVDP society. A total of 3392 members were enrolled in these

societies of which 1206 (35%) were female and 2186 (65%) were male. In other words, female members covered only 15% of the total women of the villages while men 25%. At the time of formation of societies female participation was almost zero. Though in a limited way, CVDP has succeeded to bring the female folks under a common cooperative frame work.

Capital Formation

Capital is key to development and most important instrument for achieving self-reliance. CVDP has given major thrust on capital accumulation through thrift savings so that the societies can undertake income generating activities at their own which, in turn, would help them achieve self-reliance. The capital of the societies stood at Taka 12.96 lakh (Table-1). About one-third of this was accumulated by women cooperators. Their per capita share and savings were found satisfactory compared to the male members.

Table-1 : Capital Formation by Cooperative Society Members

Type of	Number of	Capital (in lakh Taka)				Per capita
Members	members	Share	Savings	Total	Percentage	(in Tk.)
Female	1206	1.67	2.63	4.30	33.2	356
Male	2186	3.45	5.21	8.66	66.8	396
Total	3392	5.12	7.84	12.96	100.0	382

In a query of knowing the basic sources of savings, 88 respondents (75%) mentioned that they accumulated their savings from their own income and hidden fund. Only 29(25%) collected the money from their husbands' earning. It is worth mentioning that a good number of woman co-operators were engaged themselves in income-earning activities. Training and credit might have positive role in this respect.

Decision-making

Female Participation in the Managing Committee

Headed by a Chairperson there is a nine-member Managing Committee in each society. This committee has been playing the key-role in planning, implementing, decision-making and management affairs of the society. The members of this committee are normally elected by general cooperators. It was found that there was no woman co-operators at the management level as Chairperson, Vice-chairperson or Manager. Women occupied only 4% seats as members of the Managing Committee. Thus, participation of woman members in managing the affairs of the society can not be considered significant.

It should be mentioned here that almost all the committees were the First Managing Committee. Initially it was very difficult to involve the women in the society activities because of the social, cultural and religious realities of rural areas. At the moment, the situation has considerably been changed through continuous training, credit operation and other developmental interventions. Hopefully, participation of woman members in the next Managing Committee would increase.

Female Attendance in Different Meetings

Meetings, particularly the weekly meetings are considered as appropriate forum for discussing different issues, motivating general co-operators, collecting share and savings and distribution and realisation of credit. A good number of routine meetings were held at the village and the thana level. Weekly meeting, annual general meeting, managing committee meeting and monthly joint meeting were held at the village level by the societies. Other meetings and conferences like monthly review meeting, annual planning conference, rally etc. were organised at the thana level. These meetings were participated both by the cooperators and the concerned thana level officers. Data show that female attendance in different meetings held at the thana level was lower (19.4%) than that of male. But attendance of the female members in the Annual General Meeting at the society level, where annual budget, statement of expenditure etc. were discussed and approved, was encouraging.

Weekly meeting and attendance their in are very important for the sustenance of CVDP cooperative societies. Information gathered on four meetings of a month show that out of 1948 members attended in those meetings 590 (30.3%) were female and 1358 (69.7%) were male. However, the percentage of attendance would go up to 48.9 for female and came down to 51.1 for male if total number of members were taken into consideration. In any way, the attendance was poor. The respondents put forward as many as seven reasons for poor attendance in the meetings (Table-2). However, the highest number of respondents (40%) mentioned that absence of separate arrangement of meeting for female members was the main cause for low attendance.

Table-2 : Causes of Low Attendance in the Weekly Meetings

Causes	No. of responses	Percentage
No separate arrangement for female	47	40.2
Engagement in household work	41	35.0
Meeting place was away	21	17.0
Money for savings deposit were not in hand	9	7.7
Social and religious barrier	4	3.4
Internal conflict	3	2.6
Outside home	3	2.6

Note: Some respondents mentioned more than one reasons. Percentage drawn on total respondents.

Female Attendance in the Training Courses

Training is the most important component of CVDP and the cooperators were provided different types of skill development training so that they could undertake income generating activities (IGA) of diversified nature. In all, 379 (39% of the total) female cooperators were given training on different courses like Poultry Rearing, Nursery Development, Vegetable and Fruits Production, Family Planning and Mid-wifery, Health, Nutrition and Child Care, Sewing/Tailoring etc. It was found that the number of courses for women were fewer but average attendance per course was higher than that of men (Table-3). Again, the training coverage in relation to total membership of both female and male was 31.4% for female and 24.7% for male.

Table-3 : Participation of Society Members in the Training Courses

Type of participants	Courses held		Trainees attended		Percentage	
	Numbers	%	Numbers	%	Average per course	of the total members
Female	11	37.9	379	38.8	34.5	31.4
Male	16	55.2	539	55.3	33.7	24.7
Mixed	2	6.9	58 *	6.9	29.0	-
Total	29	100.0	976	100.0	33.6	-

* Out of 58 trainees 12 are female.

Access to Credit

Credit is vital for undertaking IGAs, especially for the poor who cannot run the business at their own. CVDP cooperators get credit from two sources -- seed capital and society 's own accumulation generated from share and savings. Generally, members with skill training are preferred for credit. Till date a total of Tk. 18.94 lakh was disbursed to 1220 cooperators of whom 207 were female. They were given Tk. 3.05 lakh (16%) which was considerably less than male (Table-4). Again, only 17% of the female members got credit against 46% of the total male members. However, per head allocation of loan for male and female did not vary much.

Table-4 : Distribution of Credit to Society Members

Sources of loan	Number of loanees			Amount of loan (in lakh Taka)		
	Female	Male	Total	Female	Male	Total
Seed capital	35	172	297	0.71	4.25	4.96
Own capital of the societies	172	841	1013	2.34	11.64	13.98
Total	207 (17%)	1013 (83%)	1220 (100%)	3.05 (16%)	15.89 (84%)	18.94 (100%)

Out of 117 respondents only 52 received credit amounting Tk. 1285 each. As to the query about the sufficiency of credit for undertaking IGAs all the 52 beneficiaries replied in the negative.

Additional Income of Woman Co-operators

Traditionally, the women in Bangladesh are mostly involved in household chores. CVDP has made efforts to break the tradition and succeeded to bring the women in the economic field. After having skill development training the female members had started undertaking relevant IGAs and thereby supplementing their family income. A total of Taka 2.26 lakh was earned by 117 female members per annum through mainly poultry and cattle rearing including vaccination services, tailoring, vegetables and fruit production (Table-5).

Table-5 : Additional Income of the Woman Cooperators

Sources of income	Amount (Taka)	Percentage
Cattle and poultry rearing including vaccination	127210	56.2
Sewing/Tailoring	42700	18.9
Service	30012	13.3
Vegetables and fruit production	19400	8.6
Others	7107	3.0
Total	226429	100.0

Adoption of Family Planning

Family planning is an important component of CVDP. In order to smooth carrying out of family planning activities the project provided training to 80 female cooperators on motivation for adoption of family planning devices, distribution and use of different devices and building linkages with the concerned agencies at the thana and union levels. To renew their knowledge and skill they were also given refreshers courses. In addition, they were advised to procure contraceptives and take necessary guidance from the thana and the union offices of the Department of Family Planning. They were really working as development workers on family planning at the village level.

The development workers were playing important role in raising the adoption rate in the project villages. According to the Bench Mark Survey (1993) the adoption rate in CVDP villages was 59%. At the time of data collection (1995) total eligible couples in CVDP villages were 7,730 of whom 5,244 adopted birth control measures, the adoption rate being 67.86%. Out of 5,244 adopters 4,717 (3897 female) adopted temporary and 527 (420 female) permanent devices, the adoption rate for female being 78%. Thus, the findings show that the project has made considerable success in the field of family planning, and participation of female cooperators towards population control is far above the male cooperators. The respondents were asked whether they were facing any problems in the adoption of family planning devices. They cited illiteracy and religious sentiment as the main barriers towards practicing family planning devices in the rural areas.

Constraints of Women's Participation

Traditional attitudes and social customs are generally considered as the main constraints towards women's participation in different rural development efforts. Massive illiteracy also adversely affects female participation. In this study an attempt has been made to know the opinions of 117 respondents about the constraints of women participation. However, opinions of 96 respondents were received. They mentioned that inadequate credit, social and religious norms and illiteracy were hindrances for women's participation in development efforts. They especially emphasised that their husbands were not satisfied with insufficient loan and encouraged them to fly to NGO programmes where bigger amount could be made available with minimum formalities.

Suggestions for More Women's Participation

Development to be made fruitful and meaningful, equal and active participation of women is imperative. And as such there is need for undertaking effort for increased participation of women in all sphere of development activities. Keeping this in view, suggestions of the respondents towards increased women's participation were sought. Out of 117 respondents only 51 (45.6%) put forward as many as eight suggestions (Table-6). It is interesting to note that all the 51 respondents suggested for giving priority on female members in getting credit. They stated that timely and sufficient

amount of credit might minimise the disagreement of their husbands in joining the society. Secondly, they would not be interested to move to NGO programmes for having cheap credit. Other important suggestions were : arrangement of more training for woman members, regular distribution of dividends, holding of weekly meeting regularly, keeping of accounts properly etc.

Table-6 : Suggestions Given by Respondents for Increases Participation of Woman Members

Suggestions	No. of respondents	Percentage of the total
Female members should be given priority in getting credit	51	43.6
More training should be given	25	21.4
Dividends should be distributed regularly	23	19.6
Holding of regular Weekly meeting	16	13.7
More IGAs should be undertaken for female members	14	11.9
Accounts should be given rightly to the members	14	11.9
More social welfare activities should be taken up	6	5.1
More benefits should be given	6	5.1

Note: Some respondents gave more than one suggestions. Percentage drawn on sample population.

Conclusion

Rural women in Bangladesh are in dark in many ways. They have no right to move freely, they cannot raise their voice both in decision-making and getting benefits, they are mostly engaged in household works which have little recognition in the society. As if they are the birds in a cage that have no way to fly. However, over the years significant changes have taken place in the role of women towards their socio-economic emancipation. And this has become possible because of their closer association with the rural development efforts, especially through cooperative organisation.

CVDP has given equal emphasis on the participation of both men and women in the cooperative society activities like membership enrolment, capital formation, training and education, undertaking IGAs, self-employment and decision-making. It appears from the study that attendance of woman cooperators in the training courses was quite satisfactory. In family planning practices women were well ahead of men. They were also supplementing the family income by undertaking different income generating activities. But involvement of woman cooperators in planning, decision-making and implementation of society activities is negligible. This is mainly because of their insignificant representation in the managing committee. They were also lagging behind in respect of membership enrolment and attendance in the weekly meetings.

Mere identification of women as target people and doling out some benefit for them cannot solve the problems of rural women. They need to be involved in all sphere of activities of the cooperative society. Their social, economic, cultural and political development can hardly be achieved without their participation in the development process.

The extent of participation of woman cooperators can be enhanced by: (i) regular holding of weekly meetings at a convenient place; (ii) imparting more awareness building and skill development training; (iii) increased representation in the Managing Committee; (iv) proper distribution of dividends; and (v) allocation of more credit for undertaking IGAs. If these are done, women's participation in membership enrolment, capital formation, self-employment, income generation and decision -making would certainly be increased which, in turn, will help achieve the goal of CVDP.

References

Bari, Mahbubul A.K.M. (1994), "Rural Women's Development: BRDB's Experience", in *Training for Rural Women in Development,* Ahmed, Ashrafuddin & Ahmed, Tariq (ed), RDA, Bogra, .

Francis, C. (1993) "Rural Development, People's Participation and the Role of NGOs", *Journal of Rural Development,* Vol. 12 (2), NIRD, India .

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Improvement of Existing Farming System Through Holistic Research Approach

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Abstract

Holistic research is a process, not only of technology testing and adoption but of technology generation as farmers' contribute their specialized practical knowledge to the information pool. Considering the approach in mind the discussion in the report is divided into three parts: (1) identification of problems and prospects of small farmers through case study (2) review of location specific technologies for efficient operation on small farmers and (3) interest in sustainable agriculture through the wise management of rural resources along with proven technologies.

By studying double enterprises (e.g. crop and livestock) there were versatile scope to make significant development. In crop sector bumper harvest was ensured by incorporating component packages like T. Aman - Mustard - Boro cropping pattern, using judicious fertilizers with necessary plant protection measures and scientific cultivation practices. Growing mustard in between Aman and Boro season farmers' were benefited Tk. 10,000/- (Ten thousand) per hectare. This extra money they used to buy fertilizers, insecticide for growing Boro crops. preservation of seed for future use.

Excess income from egg production by rearing poultry could be used for the payment of the tuition fees and cloths of the children, hand money to them at Eid and other festivals also.

Above all, holistic research is meaningful and pragmatic to promote farmers livelihood after introduction of improved cropping pattern and poultry rearing approach.

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Introduction

In recent years, policy makers have paying more attention to the problems of small farmers in developing countries with the idea of increasing their production and standard of living. The objectives are twofold: (i) to help those whose welfare is materially below the rest of the society and (ii) to help a country in increasing its agricultural production. With adequate agricultural policies, these two objectives are mutually reinforcing. For example, increased food production gives farm households additional food for consumption and surpluses for sale. Farmers can then use the money for buying items they do not produce and the buyers of farm products benefit from the increased supplies.

In developing countries, farmers with limited resources often do not adopt new technologies because their conditions are not like those where the technologies were developed, they do not have resources to purchase the required inputs, the technologies do not apply to the crops grown or the livestock, poultry, fish raised on their farms or the way they operate and or they do not know about the new technologies. For whatever reason, development of new technologies sometimes leaves small farmers worse-off than before. This happens when large farmers adopt new technologies and small farmers do not (Shaner et.al. 1982).

But conditions are changing. Recently, more national and international research organizations are directing their attention towards the conditions and problems of small farmers. As a result, small farmers and their environment is better understood; more research work is applied to solving small farmer's problem and the extension service works with better technologies (FAO, 1983). An approach now being applied more widely to make research relevant for small farmers is called Holistic Research Approach. When Crop, Livestock, Poultry, Fisheries, Agro-forestry, Home garden that means all the enterprises or whatever the enterprises farmers have collectively approach to a farm family rather than individual sub-systems to different farm families for the improvement of poor farmers and increase agricultural production called Holistic Research Approach (Rahman et al. 1989).

Agro-climatic Condition

The site is situated about 16 kilometers North East of Jessore town and on the Jessore-Narail high way. Geographically site is located about 23^0 11' N latitude and 89^0 11' E longitude. Major Agro-ecological Zone (AEZ) is 11 of High Ganges River Flood plain and topographical unit is dominated by highland and medium high land occupying about 60% and 38% respectively and 2% area is under medium low land. The extent of the high, medium high and medium low land of greater Jessore district is about 44%, 30% and 18% respectively. The maximum rainfall is concentrated during June to September. About 70% rainfall occurs within this period. The annual precipitation (average of 14 years) is 1652 mm. The mean maximum temperature is highest (34.71^0 C) in April and the mean minimum temperature is lowest (11.86^0 C) in January. The total annual evaporation is 1183 mm of which the highest evaporation is about 153 mm occur in April and lowest of 61 mm in the month of January. Day length, 13.6 hours occurs in the month of June and 10.7 hours in December. The weather is suitable for growing almost all kinds of crops. Upland Aus rice/jute are grown in high and medium high land in early kharif season. Most of the high lands remain fallow in late kharif season and then rabi crops are grown in rainfed situation. In medium high land, T. aman is grown in late kharif season after aus or jute under rainfed situation. At present T. Aman-Boro is the major cropping pattern in medium high lands under irrigated condition (Anonymous, 1989-90).

Materials and Methods

In selecting farmers from the Farming system research site, Bagherpara, Jessore firstly, a complete set of questionnaires were developed including properties, assets and liabilities, family members, earning members, education, labour utilization, crop, livestock, poultry, fisheries, homestead utilization etc. After developing questionnaire a group discussion was held among the scientists and field staff and came into conclusion that 20 farm families would be under case study. The following criteria were considered for selecting the farmers :

- small land holdings (0.51 - 1.0 ha)
- have primary education
- have 6-8 family members
- be young and energetic

- agriculture would be main profession
- have some common enterprises mostly exist in that locality
- willing to increase family income

At the end of the case study and compilation of the data 18 farmers were nominated as cooperator farmers. Among them 12 farmers would be intervened and other 6 were control farmers. Criteria for choosing the small farmers are as follows:

- have own land, homestead, livestock, poultry etc.
- capacity to supply input
- capacity to finance
- scope for intervention in different sectors.

The aims and objectives of choosing small farmers were discussed in a group meeting including scientists, field staff and incumbents. Long term experiments and monitoring would be continued, data collection would be done every after 7 days. Little subsidy would be given in livestock and crop cultivation.

Results and Discussion

The pre-requisite for approaching holistic research is to know the package of technologies containing farm enterprises which mostly deals with. The technologies should be developed according to location specific farm oriented environment. So, there would be little chance to fail to adopt. In accordance, some proven technologies were introduced and tested with the cooperator farmers. The technologies are:

- introduction of mustard in between T. Aman-Boro pattern (T. Aman-Mustard-Boro)
- introduction of Green Manure/kanti mung bean in Fallow- T.Aman-Boro pattern (Dhaincha/Kanti - T. Aman-Boro).
- introduction of improved management practices, fertilizer dose etc.
- introduction of biological control method of pests
- establishment of Dhaincha in T.Aman rice field for seed and fuel production without extra engagement of land
- introduction of Fayoumi poultry breed both for scavenging and partial rationing.

Research managed tests provide by the FSR team with an excellent means for evaluating how new technologies fit into the farmers system and how farmers react to the proposed changes. The changes relate to a wide range of possibilities covering new cropping and poultry management practices and changes in resource use. For best results farmers need to manage these tests using resources normally available to them and without excessive interference. Once the farmers understand the purpose of the tests and the essential elements for conducting them, the team member serve mainly as adviser. In fact, the way farmers alter the tests, together with their reasons, are important test results. Such information can be the basis for modifying the technologies and identifying opportunities for further research.

Profitability Analysis Between Research Managed and Farmer's Managed Trial

In farming system research site, Bagherpara, Jessore most of the farmers followed fallow-T.Aman-Boro pattern in their medium high land (Table-2) but it was found that Dhaincha - T. Aman-Mustard-Boro pattern as profitable and soil health enrichment pattern which is fitted round the year. The variety Dhincha, BR11, Tori-7 and Ratna were used in the pattern. In fitting mustard and Dhaincha in the pattern, experimentation in farmer's fields ensures that technologies were formulated under farmer's conditions. So, cooperator farmers accepted and practised the pattern easily whereas control farmers were not. As a result, full benefit obtained by the cooperator farmers and control farmers abstained from this result.

From table-3, it was found that cultivation cost of mustard was Tk. 5037/ha, among them fertilizer cost, seed cost and plowing costs were Tk. 3037/-, Tk. 200/- and Tk. 1800/- respectively. Average grain yield was 900 kg/ha. Gross return was Tk. 14625/ha and return over seed, fertilizer and plowing cost was Tk. 9588/ha. Ratio of gross return over fertilizer cost was 4. 82 and over seed, fertilizer and ploughing cost was 2.90.

From table-4, it was evident that cost of cultivation and return more or less same both for research managed trial and farmers' trial. Cost of cultivation, gross return, return over cultivation cost and ratio of gross return over fertilizer cost and cultivation costs were

Tk. 9976/ha, Tk. 33733/ha, Tk. 23757/ha, Tk. 10.67/Tk. and Tk. 3.88/Tk. respectively form research managed trial where as in farmers trial all cost benefits were Tk. 9737/ha, Tk. 32959/ha, Tk. 23222/ha, Tk. 10.78/Tk. and Tk. 3.38/Tk. respectively. The main difference between research managed and farmers' trial were fertilizer application and insecticide application, other costs e.g. plowing, irrigation were same. Maximum farmers using fertilizer dose as an individual crop basis rather than pattern basis. They are very much favoured to nitrogen application even above recommended dose but phosphorus and potash below the recommendation. The farmers are biased to apply farmyard manure rather than green manure. Seed cost of green manure is an over burden to them. Though seed production technology is in their hand still crisis arises at seeding time.

From Table-5, it was clear that research managed trial used GM growing Dhaincha in Aus season and subsequently fertilizer application was less in Aman season mostly P, K, S & Zn. Insecticide cost in RMT (Research managed trial) was lower than FT (Farmers' trial) due to growing Dhaincha as perching. Dhaincha also produced fuel and seed for future use. The benefits of growing Dhaincha are two folds (i) yield increase and (ii) soil enrichment. In RMT Gross return, return over cultivation cost, ratio of gross return over fertilizer cost and cultivation costs all were higher than FT.

From Table-6, it was found that under scavenging condition poultry rearing was a profitable business. Since in Scavenging condition ration cost was minimum so, benefit was noticeable. Egg production per hen per year was very low. The main cause of this low egg production was ration. High yielding breed is very much sensitive to balanced ration and given more production. Per Fayoumi per year egg production was 46 only even from low production than indigenous one. In egg production Fayoumi breed responded later than native one of the same age. So, high yielding breed reared with complete or 50% balanced ration production would be more and benefit would be reflected over family income.

Interaction

Introduction of newly developed pattern (Sesbania aculeata-BR11-Tori7-Ratna) instead of traditional pattern (Fallow-BR11-Ratna) farmers' were benefitted in different way. Growing mustard in between Aman and Boro season farmers' were miraculously benefitted about Tk. 10,000 per hectare. This extra money they used to buy fertilizer, insecticide for growing Boro crop. Preservation of seed for future use and current mustard oil for home consumption might be possible. The by-products such as oil cake and crop residues could be used for fertilizing crop and cooking at home respectively.

Growing dhaincha in Kharif-I season, land could be enriched in organic matter and 60 kg N/ha could be less used for the following crop. When Dhaincha was grown in Aman crop it was used as perching for biological control of pests, in addition to seed and fuel production without extra engagement of land.

Excess income from egg production could be used for the payment of the tuition fees and cloths of the children, hand money to them at Eid and other festivals also.

Table-1: Short Case Study Report

Sl.no.	Observations	Cooperator Farmer	Control Farmer
1.	Family size	7.0	6.0
2.	Age	39.44 (32-45)	33.2 (22-40)
3.	Age at marriage	21 (16-29)	20.4 (10-26)
4.	Age at mundane	25 (17-35)	18.8 (10-30)
5.	Education	IV (Nil-X)	V (Nil - IX)
6.	Family composition:		
	a) Minor	3.0 (15 years)	3.0
	b) Adult (i) Male	2.18 (15-60)	1.4
	(ii) Female	1.15 (15-60)	1.4
	c) Old	0.18 (> 60)	0.2
7.	Farm size : (decimal)		
	a) Homestead	30.27	26.4
	b) Owned	108.18	134.2
	c) Leased in	60.36	52.4
	d) Other (orchard, pond etc.)	19.18	10.6
8.	Livestock inventory		
	a) Cattle	1.36	2.6
	b) Goat	3.09	0.6
	c) Chicken	11.91	7.2
	d) Duck	1.27	2.0
9.	Average value of Livestock	6095.00	8238.00

Contd.

Sl. no.	Observations	Cooperator Farmer					Control Farmer				
10.	Major pattern										
	a) High land	Aus/Jute-Fallow-Lentil + Mustard Aus/Jute-Fallow-Chickpea Colocasia-Rabi crops					Aus/Jute-Fallow-Lentil + Mustard Aus/Jute-Fallow Chickpea+ Coriander				
	b) Medium high land	Fallow-T.Aman-Chickpea+Mustard Jute-T.Aman-Chickpea Fallow- T. Aman-Boro					Fallow-T.Aman -Boro Fallow- T.Aman-Chickpea				
	c) Medium low land	T. Aman-Boro					T. Aman -Boro				
11.	Fertilizer use (kg/ha)	N	P2O5	K2O	S	Zn	N	P2O5	K2O	S	Zn
	Rice (Local)	50	25	20	15	0	50	25	20	15	0
	Rice (HYV)	115	60	20	20	5	115	60	20	20	5
	Jute	23	55	20	-	-	23	55	20	-	-
	Wheat	45	55	15	-	-	45	55	15	-	-
	Potato	80	55	30	-	-	80	55	30	-	-
	Mukhikachu	80	90	30	-	-	80	90	30	-	-
	Mustard	-	-	-	-	-	-	-	-	-	-
	Lentil	-	-	-	-	-	-	-	-	-	-
	Chickpea	-	-	-	-	-	-	-	-	-	-

Contd.

Sl. no.	Observations	Cooperator Farmer	Control Farmer
12.	Seed rate (kg/ha)		
	Aus (local)	120	120
	Aman (HYV)	70	70
	Boro (HYV)	70	70
	Jute	6	6
	Wheat	140	140
	Potato	1200	1200
	Mukhikachu	1000	1000
	Mustard	8	8
	Lentil	30	30
	Chickpea	40	40
13.	Sowing time		
	Aus (local)	April 25 - May 10	
	Aman (HYV)	June 25 - August 15	
	Boro (HYV)	January 7 - Feb. 10	
	Jute	April 25 - May 15	
	Wheat	Nov. 15 - Dec, 15	Same as Cooperator Farmers
	Potato	Nov. 15 - Dec, 15	
	Mukhikachu	March 15 - April 15	
	Mustard	Oct. 25 - Nov. 15	
	Lentil	Oct. 25 - Nov. 15	
	Chickpea	Nov. 15 - Dec. 20	

Contd.

Sl. no.	Observations	Cooperator farmer	Control farmer
14.	Harvesting time		
	Aus (local)	July 25 - Aug. 30	
	Aman (HYV)	Oct. 25 - Dec. 25	
	Boro (HYV)	April 15 - May 25	
	Jute	Aug. 15 - Aug. 30	
	Wheat	Feb. 25 - March 15	Same as cooperator
	Potato	Feb. 15 - March 10	farmers
	Mukhikachu	Sept. 10 - Oct. 10	
	Mustard	January 25 - Feb. 25	
	Lentil	March 10 - March 20	
	Chickpea	March 15 - March 30	
15.	Yield (t/ha)		
	Aus (local)	1.50 - 2.28	
	Aman (HYV)	4.9 - 5.9	
	Boro (HYV)	3.8 - 5.5	
	Jute	1.5 - 1.67	
	Wheat	2.28 - 3.05	Same as cooperator
	Potato	10 - 15	farmers
	Mukhikachu	11.8 - 15.8	
	Mustard	0.400 - 0.600	
	Lentil	0.600 - 0.800	
	Chickpea	0.500 - 1.000	
16.	Loan of the farmer	1364.00	1440.00

Table-2 : Available and Proven Technologies from FSR Site, Jessore

Available technologies	Farmers' technologies	Research technologies
Pattern in medium high land	Fallow-T.Aman-Boro	Dhaincha-T.Aman-Mustard-Boro
Variety introduction	Fallow-BR11-Ratua	Seabania aculeata - BR11-Tori 7 - Ratna
Crop duration (days)	85 - 130 - 110	45 - 120 - 75 - 110
Month	Late April to Mid July / Mid July to Nov. / Nov. to 3rd w. April	May to mid Jun. / June to Oct. / Nov. to 3rd w. Jan. / Jan. to Mid May
Improved management Seedlings/hill Spacing	 7-8 seedlings/hill 10 x 10 cm, 15 x 10 cm	 3-4 seedlings / hill 20 x 15 cm. spacing
Dhaincha introduction in fallow period	Fallow (poor in OM)	Rich in OM
N-application	100-120 kg N/ha	Application of 30-60 kg N per hectare along with GM produced superior grain yield to that with application of 80-120 kg N/ha without GM.
P-application	P-application in every crop	60 kg P_2O_5 /ha application in GM and no need to apply in next rice crop and after following rice crop apply only 50% of the recommended dose.
K-application	K-application in every crop	Soil rich in K (0.4me/100g soil) and once K2O is applied @ 40 kg/ha, no need to apply in next crop and apply 50% of the recommended dose after 2nd crop.
Perching method	No perching method is followed rather application of pesticides and cost involved.	Perching method is followed and relief of pesticide cost.
Technical establishment of Dhaincha for seed and fuel production	No	4 x 4m Dhaincha transplanting in T. Aman rice field for 160 kg extra fuel and 50 kg seed production which will minimize the seed crisis without extra engagement of land and sufficient to cover one hectare area for GM.

OM = Organic Matter
GM = Green Manure
N = Nitrogen
P = Phosphorus
K = Potassium

Table-3 : Cost Analysis of Mustard (Tori-7) Cultivation (1991-92)

Sl no.	Items	Cooperator farmer	Control farmer
1.	Average plot size (M^2)	1200 (0.12 ha)	No mustard cultivation
2.	Fertilizer application (kg/ha)		
	a. Nitrogen	80	
	b. Phosphate	75	
	c. Potash	45	
	d. Sulfur	20	
	e. Zinc	4	
3.	Average fertilizer cost (Tk./ha)	3037.00	
4.	Average plowing cost (Tk./ha)	1800.00	
5.	Average seed cost (Tk./ha)	200.00	
6.	Average grain yield (kg/ha)	900	
7.	Gross return (Tk./ha)	14625.00	
8.	Return over plowing, seed and fertilizer cost (Tk./ha)	9588.00	
9.	Ratio of gross return over fertilizer cost (Tk./Tk.)	4.82	
10.	Ratio of gross return over seed fertilizer & plowing cost (Tk/Tk.)	2.90	

Price of mustard and fertilizers:

Mustard Tk. 650/- md. (40 kg = 1 md)

N Tk. 12.12/kg (Urea Tk. 5.50/kg.)

P_2O_5 Tk. 14.10/kg (TSP Tk. 6.50/kg)

K_2O Tk. 9.18/kg (MP Tk. 5.50/kg)

S Tk. 13.89/kg (Gypsum Tk. 2.50/kg)

Zn Tk. 77.84/kg ($ZnSO_4$ Tk. 28.00/kg)

Table-4 : Cost Analysis of Boro (Ratna) Cultivation (1991-92)

SI no.	Items	Research managed trial	Farmers' trial
1.	Average plot size (M^2)	743	891
2.	Fertilizer application (kg/ha)		
	a. Nitrogen	100	125
	b. Phosphate	60	47
	c. Potash	40	25
	d. Sulfur	20	20
	e. Zinc	3.8	3
3.	Average fertilizer cost (Tk./ha)	3162	3058
4.	Average plowing cost (Tk./ha)	1200	1200
5.	Average irrigation cost (Tk./ha)	5000	5000
6.	Average insecticide cost (Tk./ha)	614	479
7.	Average grain yield (kg/ha)	5197	5102
8.	Average straw yield (kg/ha)	4754	4273
9.	Gross return (Tk/ha)	33733	32959
10.	Return over plowing, irrigation fertilizer and insecticide cost (Tk/ha.)	23757	23222
11	Ratio of gross return over fertilizer cost (Tk./Tk.)	10.67	10.78
12.	Ratio of gross return over plowing, irrigation, fertilizer and insecticide cost (Tk./Tk.)	3.38	3.38

Price of paddy and fertilizers:

Paddy - Tk. 6.125/kg
Straw - Tk. 0.40/kg

N-Tk. 12.21/kg (Urea Tk. 5.50/kg)
P_2O_5 - Tk. 15.19/kg (TSP Tk. 7.00/kg)
K_2O - Tk. 10.02/kg (MP Tk. 6.00/kg)
S - Tk. 16.68/kg (Gypsum Tk. 2.50/kg
Zn - Tk. 77.84/kg ($ZnSO_4$ Tk. 28.00/kg)

Table-5 : Cost analysis of GM and T. Aman (BR11) cultivation, 1992

Sl no.	Items	Research managed trial	Farmers' trial
	Kharif-I		
1.	Average plot size (M^2)	1200 (0.12 ha)	1200 (0.12 ha)
2.	Dhaincha seed (kg/ha)	50	No GM
3.	Phosphate (kg/ha)	60	cultivation
4.	Plowing cost (Tk./ha)	600	
5.	Seed cost (Tk./ha)	550	
6.	Fertilizer cost (Tk./ha)	911	
	Total cost	2061	
	Kharif-II		
7.	Fertilizer application (kg/ha)		
	a. Nitrogen	60	94
	b. Phosphate	-	50
	c. Potash	20	4
	d. Sulfur	18	7
	e. Zinc	4	-
8.	Average fertilizer cost (Tk./ha)	1545	2064
9.	Average plowing cost (Tk./ha)	600	1200
10	Average insecticide cost (Tk./ha)	213	480
11.	Average paddy yield (kg/ha)	4085	2980
12	Average straw yield (kg/ha)	5315	4659
13	Average fuel (Dhaincha) yield (kg/ha)	170	-
14	Average seed (Dhaincha) yield (kg/ha)	53	-
15	Gross return (Tk./ha)	27847	20116
16	Return over plowing, seed fertilizer and insecticide cost (Tk/ha.)	23428	16372
17	Ratio of gross return over fertilizer cost (Tk./Tk.)	11.34	9.75
18	Ratio of gross return over plowing, seed fertilizer and insecticide cost (Tk./Tk.)	6.30	5.37

Price of paddy seed, Dhaincha and fertilizers:

Paddy Tk. 6.125/kg.
Straw Tk. 0.40/kg
Dhaincha Seed Tk. 10.00/kg
Dhaincha stick Tk. 1.00/kg

N Tk. 12.21/kg (Urea Tk. 5.50/kg)
P_2O_5 Tk. 15.19/kg (TSP Tk. 7.00/kg)
K_2O Tk. 10.02/kg (MP Tk. 6.00/kg)
S Tk. 16.68/kg (Gypsum Tk. 2.50/kg)
Zn Tk. 77.84/kg ($ZnSO_4$ Tk. 28.00/kg)

Table-6 : Cost Analysis of Egg Production

Items	Number/Quantity
No. of cooperator farmers	10
Cock (Fayoumi) supplied	20
Hen (Fayoumi) supplied	60
Survived cock	5
Survived Hen	29
Egg production in 6 months	678
Egg projection/Hen/6 months	23
Egg production/Hen/year	46
Egg production/6 hens/year	276
Price of eggs (Tk.)	552
Cost of ration (Tk. 0.10/Hen/day)/year (Tk)	219
Benefit (Tk/year)	333
BCR	1.52

BCR = Benefit Cost Ratio

References

Annonymous, (1989-90), *Annual Report on Farming Systems Research Project,* Bagherpara, Jessore.

FAO, (1983), *Small Farmers Development Manual*, Vol. 1, FAO No. RAFE 36.

Rahman, M.M. (1985), " Farming System Research" *Proceedings of the National Symposium of Agricultural Research* (A key note paper presented in the symposium Titled " Ten Years of Agricultural Research in Bangladesh "), BARC, Dhaka.

Shaner, W.W., P.F. Phiulipp and W.R. Schmehl, (1982), *Farming System Research and Development Guidelines for Developing Countries*, West Views Press, USA.

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সমন্বিত বালাই ব্যবস্থাপনাঃ রাসায়নিক কীটনাশকের বিকল্প

এম, খোরশেদ আলম*

বস্তুসার

কৃষি উন্নয়নে কীটনাশকের ভূমিকা সুনির্দিষ্ট ভাবে পরিমাপ করা কষ্টকর। কেননা কীটনাশক কৃষি উৎপাদনকে সরাসরি বৃদ্ধি করতে পারে না। তবে কীটপতঙ্গের আক্রমণ রোধ বা হ্রাস করে। ফলশ্রুতিতে উৎপাদন বৃদ্ধি পায়। বিগত বৎসরগুলোতে উন্নয়নশীল দেশসমূহে সরকার রাসায়নিক কীটনাশকের ব্যবহারকে প্রভুতভাবে উৎসাহিত করেছে। বহুজাতিক উৎপাদনকারী প্রতিষ্ঠান এবং সাহায্যদাতা সংস্থাসমূহের প্রেরণায় কীটনাশকের চাহিদা ও ব্যবহার ব্যাপকহারে বৃদ্ধি পেয়েছে। বাংলাদেশে কীটনাশকের ব্যবহার ১৯৭৯ সালে শুরু হলেও ১৯৭৪ সাল পর্যন্ত বিনা মূল্যে বিতরণ করা হয়। ১৯৭৯ সাল পর্যন্ত ভর্তুকিকৃত মূল্যে এবং পরবর্তীতে পূর্ণমূল্যে বিক্রি শুরু হয়। বর্তমানে আধুনিক কৃষি ব্যবস্থায় কীটনাশকের ব্যবহার অপরিহার্য্য। বিশেষতঃ উচ্চফলনশীল ধানের চাষাবাদে যথাসময়ে কীটনাশক প্রয়োগ না করলে কৃষককে সমূহ ক্ষতির সম্মুখীন হতে হয় ।

খাদ্য শস্যের উৎপাদন বৃদ্ধির জন্য কীটনাশকের আবশ্যকতা স্বীকার করে নিয়েও বিজ্ঞানীরা বলেছেন, অপরিমিত ও বাছবিচারহীন কীটনাশকের প্রয়োগ আমাদের পরিবেশ, মানব জীবন এবং স্বাস্থের অপূরণীয় ক্ষতি সাধন করে। বর্তমানে বিশ্বজুড়ে বিজ্ঞানী, পরিবেশকর্মী এবং গবেষকগণ এ মর্মে অধিবাচন করেছেন যে, রাসায়নিক কীটনাশকের অনেক বিকল্প রয়েছে। পৃথিবীব্যাপী গবেষণা এবং পরীক্ষা--নিরীক্ষা চলছে শস্যের উৎপাদনকে প্রভাবিত না করে এবং ভোক্তার খাদ্য মূল্য কিঞ্চিৎ বৃদ্ধি ঘটিয়ে কিভাবে কীটনাশকের ব্যবহার উল্লেখযোগ্য মাত্রায় হ্রাস অথবা প্রত্যাহার করা সম্ভব এশিয়ার অনেক দেশেও পরীক্ষায় এটা প্রমাণিত হয়েছে যে, রাসায়নিক কীটনাশকের উপর নির্ভরশীলতা হ্রাস করে কৃষক জীব বৈচিত্র্য সংরক্ষণ, উৎপাদন বৃদ্ধি এবং কৃষির টেকসই প্রবৃদ্ধি নিশ্চিত করতে পারে। সমন্বিত বালাই ব্যবস্থাপনা, জেনেটিক ইঞ্জিনিয়ারিং, শস্য চক্রাকার, জীব কৌশল এবং জৈব কৃষি পদ্ধতি সব কিছু গবেষণা এবং পরীক্ষা–নিরীক্ষায় আশার সঞ্চার করেছে। বাংলাদেশেও এখন কেবল মাত্র রাসায়নিক কীটনাশক ছাড়াও বালাই দমনে সমন্বিত পদ্ধতি'কে গুরুত্ব প্রদান করা হচ্ছে। এ পদ্ধতিতে একাধিক কৌশলের আশ্রয় গ্রহণ করা হয়ে থাকে, যেমন ঃ প্রাকৃতিক পদ্ধতি, সরাসরি দমন, জৈব প্রাকৃতিক ব্যবস্থা, কৃষিতাত্ত্বিক চর্চা, সীমিত মাত্রায় রাসায়নিক পদার্থ প্রয়োগ ইত্যাদি। এ উদ্দ্যোগ সীমিত পরিসরে পরিচালিত হলেও এর সাফল্য আশাব্যঞ্জক। আমাদের দেশে আই পি এম ব্যবহার সংক্রান্ত সমীক্ষায় দেখা গিয়েছে যে, বিকল্প কৃষি পদ্ধতি শুধু কষ্ট–ইফেকটিভই নয়, একই সংগে পরিবেশ, স্বাস্থ্য ও প্রাকৃতিক সম্পদের সহায়ক। আমরা আশা করতে পারি এ প্রচেষ্টা একদিন পরিবেশ–অনুকূল, কৃষক–অনুকূল কৃষি ফার্মিং ও নিরাপদ খাদ্য উৎপাদন ব্যবস্থা নিশ্চিত করবে।

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ভূমিকা

আধুনিক কৃষি ব্যবস্থায় রাসায়নিক কীটনাশকের ব্যবহার অপরিহার্য্য । ১৯৬০ এর দশকে উফশী (উচ্চ ফলনশীল) প্রযুক্তির উৎপাদন হিসাবে কীটনাশকের আভির্ভাব ঘটে । খাদ্য উৎপাদন বৃদ্ধিরনামে উন্নয়নশীল দেশসমূহের জাতীয় সরকারসমূহ কীটনাশকের ব্যাপক ভিত্তিক বিস্তারের প্রেরণা যুগিয়েছে । আন্তর্জাতিক সাহায্যদাতা সংস্থা সমূহও প্রায়শই বহুজাতিক কীটনাশক উৎপাদনকারী প্রতিষ্ঠান সমূহের সহায়তায় উফশী প্রযুক্তির নামে কীটনাশকের ব্যবহারকে অনুপ্রাণিত করেছে (মার্টিন, ১৯৯৩) । তাঁদের শক্ত চাপের মুখে, কৃষির উৎপাদনশীলতা বৃদ্ধি নিশ্চিত করার জন্য বিভিন্ন ধরণের কীটনাশকের উল্লেখযোগ্য পরিমান আমদানী ও ব্যবহার অপরিহার্য হয়ে পড়ে । বৎসরের একাধিক শস্য নির্ভর নিবীড় ধানের চাষাবাদ ধানে-কেন্দ্রিক কীট-পতঙ্গের বিস্তার ঘটায় । শুরুতে আধুনিক ধানের জাত নাইট্রোজেন সংবেদনশীল এবং উল্লেখযোগ্য ভাবে উচ্চ ফলনশীল ছিল । কিন্তু তাদের কতিপয় গুরুত্বপূর্ণ সীমাবদ্ধতা রয়েছে । অধিকাংশ ক্ষেত্রেই গতানুগতিক জাতের তুলনায় উচ্চ ফলনশীল ধানের জাত বালাই দমনে কম সহনশীল । এর ফলে কৃষকরা অধিক পরিমানে কীটনাশক ব্যবহারে বাধ্য হয় । কীটনাশকের ক্রমবর্ধমানবৃদ্ধির পাশাপাশি ক্রমশ: এটি দৃশ্যগোচর হতে থাকে যে, কীট-পতঙ্গের বিস্তার রোধে এ রাসায়নিক কৌশল অপর্যাপ্ত। বালাই এর কারণে ক্ষতির পরিমান হ্রাসে এখন রাসায়নিক কীটনাশকের ব্যবহার অপরিহার্য ।

বাংলাদেশে কীটনাশকের ব্যবহার

বাংলাদেশে কীটনাশকের ব্যবহারের আবশ্যকতা এর উচ্চ ফলনশীল নির্ভর কৃষি ব্যবস্থার নিরীখেই আবির্ভূত হয়েছে । বালাই এবং রোগ ব্যধির কারণে মোট উৎপাদিত শস্যের ১০-১৫ শতাংশ নষ্ট হয় এবং ধারণা করা হয় এ মুহূর্তে কীটনাশকের ব্যবহার প্রত্যাহার করে নেওয়া হলে এ ক্ষতির পরিমান ৩০ শতাংশ অথবা তার বেশী হবে (ইওক, ১৯৯২)। বর্তমানে বাংলাদেশে ১০-১৫ শতাংশ কৃষক কীটনাশক ব্যবহার করে এবং মোট আবাদী জমির ৭.৬ শতাংশ উদ্ভিদ সংরক্ষণ ব্যবস্থার আওতাভূক্ত (ইওক, ১৯৯১) ।

বিগত দু'দশকে বাংলাদেশে কীটনাশকের ব্যবহার এবং সরকারের কীটনাশক নীতিতে ব্যাপক পরিবর্তন সাধিত হয়েছে । যদিও কীটনাশকের বাণিজ্যিক ব্যবহার শুরু স্বাধীনতা-উত্তর কালে । ১৯৭১-৭৫ সময়কালে সরকারের কীটনাশক নীতির আওতায় বিনামূল্যে তা বিতরণ করা হয় । ১৯৭৫-৭৯ সময়কালে কীটনাশক ভর্তুকিকৃত মূল্যে বিক্রি হয়েছে । ১৯৭৯ সালে কীটনাশকের বিতরণ সরকারী নিয়ন্ত্রণ মুক্ত করে তা বেসরকারীকরণ কর হয় এবং ১৯৮৯-৯০ সাল নাগাদ কীটনাশকের আমদানী ও বাণিজ্যের উপর সকল ধরণের সরকারী বিধি নিষেধ প্রত্যাহার করে নেয়া হয় (ঘীখ, ১৯৯১)।

বাংলাদেশে কীটনাশকের এক ক্রমবর্ধিষ্ণু বাজার বর্তমান । বিগত দশ বৎসরে কীটনাশকের ব্যবহার উল্লেখযোগ্য হারে বৃদ্ধি পেয়েছে, ১৯৮৪-৮৫ সালের ৩০১৮ মেট্রিক টন হতে ১৯৮৯-৯০ সালের ৬২৫১ মেট্রিক টনে উন্নিত হয় (সারণী-১ দ্রষ্টব্য) বর্তমানে বাংলাদেশে প্রায় ৭০০০ মেট্রিক টন বিভিন্ন ধরনের কীটনাশক প্রতি বৎসর ব্যবহৃত হয় । বর্তমান ব্যবহারের উপর ভিত্তি করে, পেষ্টিসাইড এসোসিয়েশন অব বাংলাদেশ এর প্রাক্কলন অনুসারে ১৯৯৫-৯৬ সালে কীটনাশকের ব্যবহার দাঁড়াবে ১২০০০ মেট্রিক টন । নিম্নের সারণী থেকে দেখা যায় যে, সময়ের পরিসরে দেশে কীটনাশকের আমদানী এবং ব্যবহার উভয়ই বৃদ্ধি পেয়েছে ।

সারণী - ১ ঃ কীটনাশকের আমদানী ও ব্যবহার

বৎসর	আমদানী (টন)	ব্যবহার (টন)
১৯৮৪-১৯৮৫	৩৫৩০	৩০১৮
১৯৮৫-১৯৮৬	২১২০	৩০৬৩
১৯৮৬-১৯৮৭	২৬২৭	৩৯৫৩
১৯৮৭-১৯৮৮	৪৭৭৮	৪১৯৩
১৯৮৮-১৯৮৯	৫৮০০	৫২৫০
১৯৮৯-১৯৯০	৬৭৫০	৬২৫১

সূত্র ঃ অর্থনৈতিক সমীক্ষা, ১৯৯০-৯১

কীটনাশকের বিচক্ষণ ব্যবহার ফসলের উৎপাদন একটি নির্দিষ্ট পর্যায় পর্যন্ত বৃদ্ধি করতে পারে । কিন্তু অভিজ্ঞতার আলোকে দেখা গিয়েছে যে, কীটনাশক ব্যবহারের কারণে শস্যের উৎপাদন বৃদ্ধি স্থীতিশীল নহে, উৎপাদন অব্যাহত রাখার জন্য ক্রমাগত ভাবে বর্ধিত হারে কীটনাশক প্রয়োগের প্রয়োজন হয়ে পড়ে ।

আমাদের দেশের অধিকাংশ কৃষকই কীটনাশক ব্যবহার করে অবিচক্ষণতার সাথে । তাঁরা তাঁদের ফসলের ক্ষেতে বালাই দৃষ্টিগোচর হওয়ার সঙ্গে সঙ্গে অথবা সংক্রামণ ব্যাপক ও গুরুতর হয়ে উঠলে কীটনাশক প্রয়োগ করে । কীটনাশকের যথেচ্ছ ও অবিচক্ষণ প্রয়োগ বালাই এবং প্রাকৃতিক উপকারী পোকা-মাকড় উভয়কেই ধ্বংশ করে । প্রাকৃতিক শত্রুকে ধ্বংশের ফলে বিভিন্ন বালাইয়ের বিস্তার ঘটেছে এবং ফলশ্রুতিতে কৃষকরা ব্যাপক ক্ষতির সম্মুখীন হচ্ছে । অধিকন্ত কীটনাশক মাৎস্য সম্পদ (মাছ, ব্যাঙ, চিংড়ি ইত্যাদি) ধ্বংশ করে যা স্থানীয় খাদ্য এবং সেই সংগে খাদ্য নিরাপত্তার গুরুত্বপূর্ণ উপাদান ।

বাংলাদেশের প্রার্চুয্যময় মৎস্য প্রজাতি দেশের অন্যতম গুরুত্বপূর্ণ বৈচিত্রপূর্ণ জীব সম্পদের পরিচয় বহন করে । আমাদের অভ্যন্তরীণ ভূমি ও উপকূল এলাকায় ৫০০ এর অধিক মাছের প্রজাতি বাস (চৌধুরী ও হারুণ, ১৯৯১) । শুধু গ্রামীণ জনগণই নয়, শহরের জনগণও আমাদের ধান ক্ষেত, নদী-নালা,পুকুর, দিঘী ইত্যাদির মৎস্য সম্পদ থেকে আহরিত প্রাণীজ প্রোটিনের উপর চিরাচরিত ভাবে নির্ভরশীল । গতানুগতিক খাদ্যের আবশ্যিক অংশ হচ্ছে মাছ এবং আমাদের প্রাণীজ প্রোটিনেরও প্রধান উৎস্য হচ্ছে মাছ । এটি আমাদের ৮০ শতাংশ প্রাণীজ প্রোটিনের যোগান দেয় (খণ্ডই কমঢটহ, ১৯৯৩) । যুগ যুগ ধরে চলে আসা একটি প্রবাদ বাক্য হচ্ছে "মাছে ভাতে বাঙ্গালী" ।

কিন্তু আমাদের নদী,পুকুর ও ধান-ক্ষেত হতে মৎস্য সম্পদের বৈচিত্রপূর্ণ সমাহার দিনকে দিন উজাড় হয়ে যাচ্ছে, যেহেতু এগুলো কীটনাশকের প্রতি দারুণভাবে সংবেদনশীল । বাংলাদেশে রাসায়নিক কীটনাশক ও সারের ব্যবহার জলজ দূষণের অন্যতম গুরুত্বপূর্ণ কারণ । ডিডিটি, এনড্রিন, ডাইএলড্রিন, লিনডেন প্রভৃতি কীটনাশক মাছ ও আন্যান্য জলজ প্রাণীর জন্য অতিমাত্রায় বিষাক্ত । জলজ সম্পদের উপর কীটনাশকের প্রভাব সম্পর্কিত ব্যাপক কোন সমীক্ষা না হলেও, মৎস্য সম্পদের কৃষি-রাসায়নিক বিষাক্ততা সম্পর্কিত আভিযোগ প্রায়শই পত্র পত্রিকায় দৃষ্টিগোচর হয় । সিডার অর্থায়নে এবং কৃষি মন্ত্রণালয়ের আওতায় বাস্তবায়িত " কানাডা-বাংলাদেশ কৃষি খাত সমীক্ষা (এএসটি)" শীর্ষক প্রকল্পের আওতায় বাংলাদেশে কীটনাশকের ব্যবহার সম্পর্কিত সীমিত পরিসরে একটি সমীক্ষা পরিচালিত হয়েছিল (অলটেরী, ১৯৯৩) । উক্ত সমীক্ষায় দেখা গিয়েছে যে, পানির গণউৎস্য (যেমন - পুকুর,নদী,খাল-বিল ইত্যাদি, কৃষকরা ক্ষেতে কীটনাশক ব্যবহারের পর পরই তাঁদের শরীর, সংক্রমিত পোশাক-পরিচ্ছদ এবং যন্ত্রপাতি ধোয়ার কাজে বাছবিচারহীন ভাবে ব্যবহার করছে ।

উপযুক্ত মাত্রায় এবং সঠিক সময়ে প্রয়োগ সম্পর্কিত জ্ঞানের অভাবে কৃষকদের বাছবিচারহীন ভাবে কীটনাশক ব্যবহার বর্তমানে অন্যতম প্রধান উদ্বেগের বিষয় হয়ে দাঁড়িয়েছে । এএসটি'র সমীক্ষায় দেখা গিয়েছে যে, ৯৮ শতাংশ নমুনাকৃষকের কীটনাশকের ব্যবহারের উপর কোন প্রশিক্ষণ নেই । কীটনাশক ব্যবহারকারী এবং তার সংগে সম্পর্কিত ব্যক্তিবর্গের জন্যও এটি বিপদজনক । কীটনাশক নাড়াচাড়ার সময় কৃষক অথবা বিক্রেতা কেহই প্রতিরক্ষামূলক পোষাক এবং নিরাপত্তামূলক ব্যবস্থা গ্রহণ করে না । কৃষক পর্যায়ে কীটনাশকের নিরাপদ সংরক্ষণ একেবারে নেই বললেই চলে । ৪৬.৬ শতাংশ নমুনা কৃষক কীটনাশক রাখে সন্তানদের নাগালের মধ্যে এবং কীটনাশকের ব্যবহৃত কনটেইনারসমূহ নিরাপদে বিনষ্ট করে না । প্রায় ৮৩ শতাংশ কৃষক ব্যবহৃত কনটেইনারসমূহ নষ্ট করে ফেলে না । অধিকাংশ বিক্রেতার দোকানেই কীটনাশক সংরক্ষণের পর্যাপ্ত ব্যবস্থা নেই । এএসটির সমীক্ষায় একটি মারাত্মক তথ্য বেরিয়ে এসেছে, তা হল ২৯ শতাংশ দোকানে কীটনাশকের পাশাপাশি খাদ্য সামগ্রীও বিক্রি হয় ।

দেশের কীটনাশক রেগুলেশন অনুযায়ী অত্যন্ত ঝুঁকিপূর্ণ ও বিপদজনক কীটনাশকের ব্যবহার নিষিদ্ধ । কিন্তু এ ধরণের কীটনাশক ব্যাপকভাবে ব্যবহৃত হচ্ছে । " ডার্টি ডজন" খ্যাত কীটনাশক ইউরোপ ও আমেরিকার দেশসমূহে নিষিদ্ধ হলেও আমাদের দেশে বিশেষ করে সীমান্ত এলাকার জেলাগুলিতে ব্যাপকভাবে ব্যবহৃত হচ্ছে । এ ধরনের কীটনাশক ব্যবহার করায় কৃষকরা ফসলের ব্যাপক ক্ষতির সম্মুখীন হচ্ছে । হিলবিশ, থায়োডিন, থাইরাল প্রভৃতি চোরাচালানকৃত কীটনাশক খুবই বিষাক্ত । এগুলো এতই সক্রিয় যে ক্ষেতের উপকারী পতংগকে পর্যন্ত ধ্বংশ করে । এ ধরণের অতি বিষাক্ত কীটনাশক আমাদের দেশের জন্য আদৌ উপযোগী নয়, যেখানে অধিকাংশ কৃষক অশিক্ষিত এবং ক্ষেতে কীটনাশক ব্যবহারের সময় অতি সামান্যই সর্তকতা অবলম্বন করে থাকে ।

ফল-মূল ও শাক সবজীতে কীটনাশক প্রয়োগ নিয়ন্ত্রণের অভাবে বিষাক্ত অথবা দীর্ঘকাল কার্য্যকরী ধরনের কীটনাশক প্রয়োগ করা হয়ে থাকে । অজ্ঞতার কারণে, কীটনাশক প্রয়োগের পর কৃষক পর্যবেক্ষণকালীন সময়টুকুও অপেক্ষা করতে চায় না । এ ধরনের বাছবিচারহীন কীটনাশকের ব্যবহার শাক-সবজীতে বিষাক্ত অবশেষের পুঞ্জীভবন ঘটায় যা অবশেষে মানব শরীরে নানা ধরনের জটিলতার সৃষ্টি করে । সম্প্রতি মার্কিন যুক্তরাষ্ট্র ভিত্তিক

ন্যাশনাল একাডেমী অব সাইন্স (এন এ এস) কর্তৃক প্রকাশিত এক সমীক্ষা প্রতিবেদনে (খুঁউ, ১৯৯২) বলা হয়েছে যে, শিশুদের উপর আরও ব্যপক ক্ষতিকর প্রভাব ফেলতে পারে । এটিতে আরও বলা হয়েছে যে, অধিকাংশ কীটনাশক-নিরাপত্তা সংক্রান্ত সমীক্ষা পরিচালিত হয়েছে লিঙ্গগত ভাবে পরিণত প্রাণীর উপর এবং শিশুদের ক্যানসার, স্নায়ু এবং প্রতিরোধক্ষমতা ধ্বংশের মত দীর্ঘ মেয়াদী ঝুঁকির বিষয় গুলিকে ব্যাপক ভাবে অবমূল্যায়ন করা হয়েছে । এন এ এস প্রতিবেদনে এভাবে সমাপ্তিই টানা হয়েছে । "Compare to late-in-life exposure, exposure to pesticides early in life can lead to a greater risk of Chronic effects that are expressed only after long latency periods have elapsed. Such effects include Cancer, neuron developmental impairment and immune dysfunction" । কীটনাশকের বিক্রয়, প্যাকেজিং প্রয়োগ এবং নিষ্ক্রিয়করণ হচ্ছে আর একটি সমস্যা । সুতরাং নিরাপদ ও যথাযথ সংরক্ষণ, খালি কনটেইনারের নিষ্ক্রিয়করণ এবং সংক্রামিত পোষাক পরিচ্ছদ ও যন্ত্রপাতি পরিষ্কার গৃহস্থ পর্যায়ে নিশ্চিত করতে হবে।

এখন পর্যন্ত আমরা মানবিক স্বাস্থ্য, খাদ্য ও পরিবেশের উপর কীটনাশকের প্রভাব সম্পর্কে খুব সামান্যই অবগত হতে পেরেছি। সুতরাং বিশ্বের অন্যান্য দেশের কীটনাশকের উপর অতিমাত্রায় নির্ভরশীলতার বিপদ সম্পর্কিত অভিজ্ঞতা থেকে আমাদের শিক্ষা গ্রহণ করা উচিৎ ।

কীটনাশকের বিকল্প

বর্তমানে বিশ্বজুড়ে বিজ্ঞানী ও গবেষকরা রাসায়নিক কীটনাশকের বিকল্প অনুসন্ধানে ব্যাপৃত । কৃষক পর্যায়ে কীটনাশকের বিকল্প দিনকে দিন সহজলভ্য হচ্ছে । বর্তমানে রাসায়নিক কীটনাশকের উপর অতিমাত্রায় নির্ভরশীলতার অনেক বিকল্প পন্থা রয়েছে । সবচেয়ে কার্য্যকরী পন্থা হচ্ছে সমন্বিত বালাই ব্যবস্থাপনা যা কীট-পতঙ্গের প্রাকৃতিক শত্রুর উপর নির্ভরশীল । এ প্রক্রিয়ায় মাকড়শা, লেডি বার্ড বিটল, লম্বা শুর উরচুঙ্গা, ড্যামসেল ফ্লাই, ড্রাগন, ওয়াটার ব, প্রভৃতি কীট-পতঙ্গ সংরক্ষণ এবং উন্নতর কৃষি কৌশল প্রয়োগ করা হয়ে থাকে ।

আইপিএম কেবলমাত্র চূড়ান্ত প্রয়োজনে নুন্যতম মাত্রায় কীটনাশকের সহায়তায় জৈবিক নিয়ন্ত্রণের মাধ্যমে কীট পতঙ্গ ও রোগ বালাই নিয়ন্ত্রণের উপর গুরুত্বারোপ করে । উপরন্ত আইপিএম শস্যের জন্য ক্ষতিকর কীট পতঙ্গ ধ্বংসকারী প্রিডেটর ও প্যারাসাইটের সংরক্ষণ এবং বালাই সহনশীল শস্যের জাতের উন্নয়নের উপর গুরুত্বারোপ করে।

তৃতীয় বিশ্বের উন্নয়নশীল দেশসমূহে রাসায়নিকের অনেক বিকল্প বিদ্যমান এবং আরও অধিক প্রযুক্তি উদ্ভাবিত হচ্ছে । এ প্রযুক্তি সমূহের সম্প্রসারণ ঘটছে না, যেহেতু এগুলো বহুজাতিক কৃষি ভিত্তিক ব্যবসায় শিল্পের কাছে ততটা মুনফামুখী নয় । চিলির এগ্রো-ইকোলজিষ্ট এ, অলটেরী ল্যাটিন আমেরিকায় এক অত্যন্ত উপযোগী প্রযুক্তির সন্ধান পেয়েছেন (রামস্বামী ও অন্যরা, ১৯৯২) । একই জমিতে একসঙ্গে দুটি ফসলের চাষাবাদ করলে একটি শস্য উপকারী পতঙ্গকে আকৃষ্ট করে যা অন্য শস্যের অনিষ্টকারী পতঙ্গকে ধ্বংস করে অথবা ক্ষেত থেকে তাড়িয়ে দেয় ।

বিজ্ঞানী এবং গবেষকগণ ক্রমান্বয়ে তাঁদের অনুসন্ধানী দৃষ্টি অধিকতর পরিবেশ সহায়ক এবং কৃষক সহায়ক কৃষি ফার্মিং এর প্রতি নিবদ্ধ করছেন । সমন্বিত বালাই ব্যবস্থাপনা, জীব প্রকৌশল, শস্য পর্যায়ক্রম, জৈবিক নিয়ন্ত্রণ কৌশল এবং অর্গানিক ফার্মিং ইত্যাদি সবই কিছু কিছু গবেষণা এবং পরীক্ষণে আশার সঞ্চার করেছে । এটি এখন প্রমাণিত যে, রাসায়নিক কীটনাশকের উপর নির্ভরশীলতা হ্রাসের মাধ্যমে কৃষক এখন জীব বৈচিত্র সংরক্ষণ, শস্যের উৎপাদন বৃদ্ধি এবং কৃষির টেকসই প্রযুক্তি নিশ্চিত করতে পারে । আমরা আশা করতে পারি আগামীতে এ উদ্যোগ আমাদের জন্য এক নিরাপদ খাদ্য উৎপাদন ব্যবস্থা নিশ্চিত করবে ।

আইপিএম এর সাফল্যের ইতিহাস

১৯৯২ সালে ব্রাজিলের রিওডি জেনেরোতে অনুষ্ঠিত সম্মেলনে আইপিএম এর বিষয়টি আলোচিত হয়েছিল । সম্মেলনের এ্যাকশান প্লান এজেন্ডা–২১ এর অধ্যায় চৌদ্দতে বলা হয়েছে , "Integrated Pest Management, which combines biological control, host Plant resistance and appropriate farming practices and minimizes the use of pesticides, in the best option for the future, as it guarantees yields, reduce costs, is environmentally friendly and contributes to the sustainability of agriculture (UNDP, 1992)
আইপিএম এক সক্রিয় শস্য সংরক্ষণ পদ্ধতি যার উদ্দেশ্য হচ্ছে বালাইয়ের কারণে ক্ষতি হ্রাস, বালাই দমনে বিনিয়োগের প্রত্যার্পন সর্ব্বোচ্চ করা এবং পরিবেশগত ক্ষতি সর্বনিম্ন করা ।

সাম্প্রতিককালে অনেক দেশের সরকারের নিকট আইপিএম একটি প্রধান আগ্রহের ক্ষেত্রে পরিণত হয়েছে এবং এর উন্নয়নে অনেক নীতি কৌশল গৃহীত হয়েছে । ১৯৯২ এর জানুয়ারীতে ভিয়েতনামে ২০টি কীটনাশক নিষিদ্ধ এবং আরও ১৪টি নিয়ন্ত্রিত (আমদানীর পরিমান হ্রাস এবং ক্রমান্বয়ে সম্পূর্ণ প্রত্যাহার) করা হয় । ইতিমধ্যে ইন্দোনেশিয়ার জাতীয় আইপিএম কার্য্যক্রম দক্ষিণ পূর্ব এশিয়ায় এক মডেল হিসাবে পরিগণিত হয়েছে । ১৯৮৬ এর শেষ নাগাদ, ইন্দোনেশিয়ায় ধানের ব্রাউন প্লান্টহোপার পোকার আক্রমণ ব্যাপক আকারে দেখা দেয় যা দেশটির ধানে স্বয়ংসম্পূর্ণতা অর্জনের পরিকল্পনাকে হুমকীর সম্মুখীন করে তোলে । সে সময় ইন্দোনেশিয়ার এক প্রেসিডেন্টশিয়াল ডিক্রির মাধ্যমে আইপিএম নীতি গ্রহণ করে এবং ধানে ব্যবহৃত ৬৬টি কীটনাশকের মধ্যে ৫৭টি –ই নিষিদ্ধ ঘোষণা করে । তখন থেকে ইন্দোনেশিয়ায় কীটনাশক এর বার্ষিক উৎপাদন ৬০% এর বেশী হ্রাস পায় । ধানের বার্ষিক উৎপাদন বৃদ্ধি পায় ১০.৪ শতাংশ এবং একর প্রতি ধানের উৎপাদন বৃদ্ধি পায় ১০.১ শতাংশ ।

৯টি দক্ষিণ ও দক্ষিণ পূর্ব এশিয়ান দেশে কীটনাশক ব্যবহার সংক্রান্ত আন্তঃদেশীয় কার্য্যক্রম এর উপর ১৯৯০–৯১ সালে এক মূল্যায়ন পরিচালিত হয়েছিল । উক্ত মূল্যায়ন প্রতিবেদনে দেখা যায় যে, কৃষক পর্যায়ে আইপিএম প্রশিক্ষণের পর কীটনাশকের ব্যবহার ৫০ শতাংশ হ্রাস পেয়েছে । বিভিন্ন দেশে কীটনাশক প্রত্যাহারজনিত কারণে অর্থের সাশ্রয় ঘটেছে প্রতি হেক্টরে ৩–২৫ মার্কিন ডলার ।

দক্ষিণ ও দক্ষিণ পূর্ব এশিয়ার দেশসমূহে প্রশিক্ষণ প্রাপ্ত ও প্রশিক্ষণহীন কৃষকদের মাঝে কীটনাশকের প্রয়োগ, খরচ ও উৎপাদনের মধ্যে তুলনামূলক চিত্র সারণী–২ তে দেখা যেতে পারে ।

সারণী-২ঃ দক্ষিণ ও দক্ষিণ পূর্ব এশিয়ার দেশসমূহে আইপিএম প্রশিক্ষণ প্রাপ্ত ও প্রশিক্ষণহীন কৃষকদের মাঝে কীটনাশকের প্রয়োগ, গড় খরচ ও উৎপাদনের মধ্যে তুলনামূলক চিত্র

দেশ	কীটনাশক প্রয়োগের সংখ্যা		কীটনাশক বাবদ গড় খরচ		গড় উৎপাদন	
	আইপিএম প্রশিক্ষণ প্রাপ্ত কৃষক	প্রশিক্ষণহীন কৃষক	আইপিএম প্রশিক্ষণ প্রাপ্ত কৃষক	প্রশিক্ষণহীন কৃষক	আইপিএম প্রশিক্ষণ প্রাপ্ত কৃষক	প্রশিক্ষণহীন কৃষক
বাংলাদেশ	–	–	১৪৭ টাঃ / হেক্টর (৪.২ ডলার/ হেক্টর)	৬৬১ টাঃ / হেক্টর (১৮.৯ ডলার/ হেক্টর)	৪.৩ টন/হেক্টর	৩.৬৪টন/ হেক্টর [১]
চীন	২.৭৯/ মৌসুম	৩.৫০/ মৌসুম	৯২.২৫ ইউন/হেক্টর (১৭.১ ডলার/ হেক্টর)	১৩৮ ইউন/হেক্টর (২৫.৬ ডলার/ হেক্টর)	৬৩৭০ কেজি/হেক্টর	৫.৯২টন/ হিক্টর [২]
ভারত	০.৮/ মৌসুম	২.৪/ মৌসুম	১৬৩.৫ রুপি / হেক্টর (৯.১ ডলার/ হেক্টর)	৪৪৭.৯ রুপি / হেক্টর (২৪.৯ ডলার/ হেক্টর)	৫৪৭৬ কেজি/হেক্টর	৫.১৩টন/ হেক্টর [৩]
ইন্দোনেশিয়া	০.৮/ মৌসুম	২.২/ মৌসুম	৭৩৪৯ রুপি / হেক্টর (৩.৭ ডলার/ হেক্টর)	১৫৩০৭ রুপি / হেক্টর (৭.৭ ডলার/ হেক্টর)	৬.৬ টন/হেক্টর	৬.৩টন/ হেক্টর [৪]
ফিলিপাইন	১ / মৌসুম	২ / মৌসুম	৩৬৩.১ পেসো / শস্য (১৩.৪ ডলার / শস্য)	৭০৫.১ পেসো / শস্য (২৬.১ ডলার /শস্য)	৪৬০৮ কেজি/হেক্টর	৮.২৪টন/ হেক্টর [৫]
শ্রীলংকা	০.৭ / মৌসুম	২.৭/ মৌসুম	২১০.৪৩ রুপি/ হেক্টর (৫.৩ ডলার/হেক্টর)	৬৯৩.১৭ রুপি/ হেক্টর (১৭.৩ ডলার/হেক্টর)	৩৩৩৩ কেজি/হেক্টর	২.৭৩টন/ হেক্টর [৬]
ভিয়েতনাম	–	–	১৫২.৩৫৩ ডং / হেক্টর (১৭.৯২ ডলার/হেক্টর)	২২৮,৮৮৩ ডং /হেক্টর (২৬.৯৩ ডলার/হেক্টর)	৪১২১ কেজি/হেক্টর	৪.১২টন/ হেক্টর [৭]

নোটঃ

১) ১৯৯০–৯১ সালের গড় উৎপাদন
২) ১৯৮৯ সালের গড় উৎপাদন
৩) ১৯৯০ সালের গড় উৎপাদন
৪) ১৯৮৮ সালের গড় উৎপাদন
৫) ১৯৯১ সালের গড় উৎপাদন

উপরের সারণী থেকে দেখা যায় যে, কৃষক বিকল্প পদ্ধতি গ্রহণ সাপেক্ষে কীটনাশক ব্যবহারের মাত্রা উল্লেখযোগ্য পরিমানে হ্রাস করতে পারে । শ্রীলংকার ক্ষেত্রে প্রতি মৌসুমে কীটনাশকের প্রয়োগের সংখ্যা ২.৭ থেকে গ্রাস পেয়ে ০.৮ এ দাঁড়িয়েছে । এটি যা নির্দেশ করে তা হচ্ছে গ্রামীণ পরিবেশে বিষাক্ত রাসায়নিকের ব্যাপক ভিত্তিক হ্রাস

০.৮ এ দাঁড়িয়েছে । এটি যা নির্দেশ করে তা হচ্ছে গ্রামীণ পরিবেশে বিষাক্ত রাসায়নিকের ব্যাপক ভিত্তিক হ্রাস সম্ভব । সমন্বিত বালাই নিয়ন্ত্রণ ব্যবস্থা কেবলমাত্র যে কৃষকের ক্ষতির পরিমাণ হ্রাস করবে তাই-ই নয়, বরং কৃষককে আর্থিক সাশ্রয় দিবে যা সে অন্যত্র ব্যয় করতে পারে ।

সমন্বিত বালাই ব্যবস্থাপনাঃ বাংলাদেশের অভিজ্ঞতা

" ইন্টার কান্ট্রি প্রোগ্রাম ফর দি ডেভেলপমেন্ট এন্ড এ্যাপ্লিকেশন অব ইন্টিগ্রেটেড পেষ্ট কন্ট্রোল ইন রাইস প্রোয়িং কান্ট্রিজ ইন সাউথ ইষ্ট এশিয়া" শীর্ষক একটি আঞ্চলিক প্রকল্পকয়েকটি দক্ষিণ এবং দক্ষিণ পূর্ব এশিয়ার দেশে বাস্তবায়িত হচ্ছে । যদিও প্রকল্পটি ১৯৮০ সালে শুরু হয়েছে, বাংলাদেশ এ প্রকল্পের দ্বিতীয় পর্যায়ে জুলাই, ১৯৮৭ সাল থেকে অংশ গ্রহণ করেছে । বর্তমানে এ প্রকল্পে বাংলাদেশ, ইন্দোনেশিয়া, মালয়েশিয়া, ফিলিপাইন, শ্রীলংকা, ভিয়েতনাম, কম্বোডিয়া, চীন, ভারত, লাওস ও থাইল্যান্ড অংশগ্রহণ করেছে । এ প্রকল্পে নেদারল্যান্ড ও অষ্ট্রেলিয়া অর্থায়ন করছে । জাতিসংঘের খাদ্য ও কৃষি সংস্থা এ প্রকল্প বাস্তবায়নে কারিগরী সহায়তা প্রদান করছে । এ প্রকল্পের সদর দপ্তর ফিলিপাইনের ম্যানিলায় এবং বাংলাদেশে এর কার্য্যক্রম পরিচালিত হচ্ছে কৃষি মন্ত্রণালয়ের আওতাধীন কৃষি সম্প্রসারণ অধিদপ্তর কর্তৃক । এ প্রকল্পের মুখ্য উদ্দেশ্য হচ্ছে সদস্য দেশসমূহের মধ্যে বিশেষজ্ঞ ও তথ্যের আদান প্রদানে সহায়তা করা, মাঠ পর্যায়ে আইপিএম উৎপাদনের সম্প্রসারণ ও পরীক্ষণে সহায়তা প্রদান, উপযুক্ত নীতি নির্দ্ধারণ,কার্য্যকরী ব্যবস্থাপনা কাঠামোর ডিজাইন ও জাতীয় প্রকল্প প্রণয়নে সদস্য দেশসমূহের সংশ্লিষ্ট প্রতিষ্ঠানসমূহের সক্ষমতা বৃদ্ধিকরণ এবং মাষ্টার ট্রেইনারদের প্রশিক্ষণ প্রদান । প্রকল্প কার্যক্রমের আওতায় বাংলাদেশের বিভিন্ন থানায় এ পর্যন্ত কৃষক এনজিও কর্মী ও কৃষি সম্প্রসারণ কর্মীদের প্রশিক্ষণের জন্য ৬৪টি ফিল্ড স্কুল স্থাপিত হয়েছে । এ প্রক্রিয়ায় এ পর্যন্ত ২০,০০০ এর অধিক লোককে প্রশিক্ষণ দেওয়া হয়েছে । বাংলাদেশে এ প্রকল্পের কার্য্যক্রম মূলত নির্দিষ্ট এলাকায় আইপিএম প্রদর্শনীর আয়োজন এবং সংশ্লিষ্টদের প্রশিক্ষণের মধ্যে সীমাবদ্ধ রয়েছে । প্রতিটি ফিল্ড স্কুল ৫০ জন ধান চাষীকে তাঁদের নিজস্ব ধান ক্ষেতে আইপিএম এর উপর ১৯৯২ সালে দুটি শস্য মৌসুমে (বোরো ও টি আমন) প্রায়োগিক প্রশিক্ষণ দেয়া হয় । আইপিএম প্রশিক্ষণের পূর্বে প্রতিটি স্কুলে ৫০ জন আইপিএম কৃষকদের সাক্ষাৎকার গ্রহণের মাধ্যমে এক বেঞ্চমার্ক সার্ভে অনুষ্ঠিত হয় । আইপিএম প্রশিক্ষণ গ্রহণের পর পুনরায় কৃষকদের সাক্ষাৎকার গ্রহণ করা হয় । বেঞ্চমার্ক তথ্য এবং ১৯৯২ সালে বোরো মৌসুমে প্রাপ্ত তথ্যের ভিত্তিতে আইপিএম প্রশিক্ষণ গ্রহণেরপূর্বে ও পরে কৃষকদের তুলনামূলক অবস্থার পর্যবেক্ষণ করা হয় । এছাড়া, আইপিএম কার্য্যক্রমবিহীন প্লটের মধ্যে এক তুলনামূলক পর্যবেক্ষণে একই সময়ে আইপিএম প্রশিক্ষণের প্রভাব কি তাও দেখা যায় । ৫৯টি ফিল্ড স্কুলের* সর্বমোট ২৯৫০ কৃষক এক শস্য মৌসুমে কীটনাশক বাবদ গড়ে প্রতি হেক্টরে ৮৮২ টাকা ব্যয় করে । প্রশিক্ষণ গ্রহণের পর তারা হেক্টর প্রতি মাত্রা ৯৮ টাকা ব্যয় করে, আইপিএম এর দক্ষতায় তারা কীটনাশকের ব্যবহার ৮৯ শতাংশ হ্রাস করতে সক্ষম হয়েছে ।

আইপিএম প্রশিক্ষণের পূর্বে প্রতি একরে কৃষকগণ ৩.৫৫ টন ধান উৎপাদন করত, প্রশিক্ষণের পরে তাঁরা হেক্টর প্রতি ৪.৭৯ টন ধান উৎপাদন করতে সক্ষম হয় । এক্ষেত্রে হেক্টর প্রতি ১.২৪ টন অর্থাৎ ৩৫ শতাংশ উৎপাদন বৃদ্ধি পেয়েছে । এটি কেবলমাত্র যে আইপিএম এর কারণে হয়েছে তা নয়, বরং এর সংগে যুক্ত রয়েছে উচ্চফলনশীল

* এ পর্যন্ত ৬৪টি আইপিএম ফিল্ড স্কুল প্রতিষ্ঠিত হলেও, তথ্য সংগ্রহীত হয়েছে ৫৯টি স্কুল থেকে । এর মধ্যে ২৭টি পুরাতন (১৯৮৯-৯০ সালে প্রতিষ্ঠিত) এবং ৩৭টি নতুন (১৯৯১-৯২ সালে প্রতিষ্ঠিত) স্কুল ।

জাতের চাষাবাদ, সঠিক চাষ প্রযুক্তি ও আগাছা নিয়ন্ত্রণ, সঠিক মাত্রা ও উপযুক্ত সময়ে রাসায়নিক সার ও কীটনাশকের প্রয়োগ । আইপিএম এর এ সাফল্য আশাব্যঞ্জক হলেও এখন অবধি এ কার্য্যক্রম মোট আবাদকৃত জমির এক ক্ষুদ্র অংশ এবং সীমিত সংখ্যক কৃষকের মাঝে সীমাবদ্ধ রয়েছে । এএসটি এর পূর্বোক্ত সমীক্ষা থেকে প্রতীয়মান হয় যে, ৮০ শতাংশ এর বেশী নমুনা কৃষক আইপিএম সম্পর্কে কিছুই জানেনা এবং তাঁদের মধ্যে মাত্র ২ শতাংশ যান্ত্রিক বালাই নিয়ন্ত্রণ পদ্ধতি ব্যবহার করে ।

আইপিএম এর যুগপৎ ভাবে ধানের সংগে মাছের সম্মিলিত চাষাবাদ সম্ভব । পর্যবেক্ষণে দেখা গিয়েছে যে, কীটনাশকের ব্যবহার প্রত্যাহার অথবা বীষহীন কীটনাশকের সীমিত প্রয়োগের ফলে ধান ক্ষেতে মাছের বাণিজ্যিক চাষাবাদ সম্ভব । বাংলাদেশের কোন কোন এলাকায় বর্তমানে ধানের পাশাপাশি বিভিন্ন প্রজাতির মাছের চাষও হচ্ছে।

উপসংহার

ইউএনসিইউ'র এজেন্ডা–২১ এ আইপিএম কার্য্যক্রমরে উদ্দেশ্য এভাবে বর্ণনা করা হয়েছে ঃ

" (a) Not latter than the year 2000, to improve and implement plant protection and animal health services, including mechanisms to control the distribution and use of pesticides, and to implement the International code of conduct on the Distribution and use of pesticides;

(b) To improve and implement programmes to put integrated pest management practices within the reach of farmers through farmer networks, extension services and research institutions;

(c) Not later than the year 1998, to establish operation and interactive networks among farmers, researchers and extension services to promote and develop integrated pest management."

এজেন্ডা ২১ এর সংগে সামঞ্জস্য রেখে এখন আমাদের নিজস্ব জাতীয় নীতিমালা ও কর্ম–কৌশল প্রণয়ন করা উচিৎ যা কীটনাশকের নিরাপদ ও উপযুক্ত প্রয়োগ নিশ্চিত করবে । বাংলাদেশ জাতিসংঘের কৃষি ও খাদ্য সংস্থার " ইন্টারন্যাশনাল কোড অব কন্ডাক্ট অন দি ডিষ্ট্রিবিউশন এন্ড ইউজ অব পেষ্টিসাইডস" এর অন্যতম স্বাক্ষরদাতা হলেও, কীটনাশকের ব্যবহার ও বন্টন সংক্রান্ত বিষয়ে সামান্যই অগ্রগতি অর্জন করতে পেরেছে । এ বোর্ডের নীতিমালা অনুসরণ করতে হলে আমাদেরকে তুলনামূলক ভাবে কম বিষাক্ত কীটনাশকের ব্যবহারে কৃষকদেরকে উৎসাহিত করা উচিৎ যাতে তাঁরা এর ক্ষতিকর প্রভাব থেকে রক্ষা পায়।

আমাদের দেশে মানব স্বাস্থ্য ও পরিবেশের উপর কীটনাশকের ক্ষতিকর প্রভাব সম্পর্কে আমরা খুব কমই জানি । এ সম্পর্কিত বেজ লাইন তথ্য খুবই অপর্যাপ্ত । সুতরাং অবিলম্বে বাংলাদেশে কীটনাশকের ব্যবহারের পরিবেশগত প্রভাব নিরুপন হওয়া প্রয়োজন ।