Impact of Management Training on Family Planning and Health Services Performance in Rural Bangladesh

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Abstract
This study assessed the impact of management training in the performance of managers from agencies in Bangladesh delivering primary healthcare services. Data were collected through in-depth interviews, focus-group discussions, and structured observations of field activities and staff meetings and from clinic records. The study was carried out in eight upazilas of Bangladesh from February to June 1999. Results of the study showed that all managers introduced the action plan prepared during training. The clinic records registered increased contraceptive acceptance rate and immunization coverage in most study areas. The proportion of clinical contraceptive method users and clients for management of side-effects increased in all the study areas. The managers claimed that lack of funds and insufficient support from their respective supervisors affected their capacity to implement the action plan. Results of the study suggest that the training course alone is not sufficient to ensure implementation of action plan at the operational level. Follow-up interventions, including structural adjustments, are needed to implement the action plan.

Key words: Primary healthcare; Training; Health personnel; Health services; Performance evaluation;

Introduction
Teamwork is one of the cornerstones of primary healthcare (1). Lack of “basic management skills” among health teams at the implementation level is one of the main constraints to provide primary healthcare (PHC) in developing countries (2). Current initiatives to implement a minimum package of cost-effective public health measures and clinical interventions aiming at improving health conditions in low-income countries also need to increase efficiency, decentralize the decision-making process, and train health staff in areas, such as management, policy, and planning (3). Literature on health reforms also emphasizes the need to strengthen the capacity of the Ministry of Health at the central and at the district level, and improve supervision and administrative leadership (4-9).

The need to foster teamwork and to ensure collaboration among health staff is particularly relevant to Bangladesh where health services have been traditionally delivered through vertical programmes working in isolation and resulting in duplications of services and inefficiency (10).

In Bangladesh, till now, the health system for delivering PHC services has been organized from an Upazila Health Complex (UHC), a hospital with 30 beds and 8 doctors, serving a population of about 300,000. Each UHC has on an average 10 clinics at the community level, named Health and Family Welfare Centers (H&FWC), and staffed by paramedics who also organize satellite clinics at the village level. The male field workers organize immunization sessions in the villages, while the female field workers deliver health education and supplies of contraceptives at the domiciliary level. The Directorate of Health Services manages part of this system, while the Directorate of Family Planning
responsible for activities relating to the management of most community-level clinics and outreach distribution of contraceptives. As part of its ongoing sector reform scheme, Bangladesh has planned to integrate service-delivery at the upazila level and below, strengthen teamwork, foster needed attitudinal changes, and develop competence of health managers at the upazila level to enable them to prepare annual plans for implementing and monitoring of the delivery of the Essential Services Package (ESP)\(^1\). Health staff are also required to establish coordination mechanisms with other stakeholders, such as community leaders, NGOs, and grassroots groups\(^{(11)}\).

The Rural Service Delivery Partnership (RSDP) of the Pathfinder International is a part of the National Integrated Population and Health Programme (NIPHP). The RSDP complements the government efforts to increase the accessibility and use of ESP by rural families in the context of the NIPHP\(^{(12)}\).

To complement the competence-building process, a training programme was designed and conducted in selected upazilas of rural Bangladesh by the RSDP as part of its generalized support to the government in ESP service-delivery.

**Training Design**

The RSDP collaborated with the University of North Carolina (UNC) at Chapel Hill, USA to conduct a 3-month training course for the upazila managers of health and family-planning programmes of the government and the managers of local NGOs supported by the RSDP in 16 upazilas.

The training course was organized during January–June 1998 in two batches to improve the management and performance of ESP service-delivery at the upazila level. ESP performance was broadly defined as increased use of services, improvement in their quality, and inculcation of team behaviour among health, family planning, GoB and NGO personnel. The participants of the training course included the GoB managers in charge of Health Care, Family Planning Services, and MCH Services in each upazila and the programme manager from the RSDP-supported NGO delivering ESP services in the area.

The training design was based on a series of interconnected theories which are: (a) since humans are the only active agents in any system, any effort to improve productivity needs to be focused on them, (b) humans are not machines, and they do not produce anything on command, they produce because they are motivated from within, (c) motivation is not totally a rational process; it contains a fair amount of emotionalism. Further, the rational and emotional personalities of individuals are interactive, (d) to improve productivity, it is necessary to influence both rational and emotional personalities of individuals, (e) while rational personality is driven largely by calculation of risks and rewards, emotional personality is governed by personal values and perceptions of staff, and (f) since rational and emotional selves are interactive, any effort to achieve improvement in productivity should address both of these simultaneously.

The training accomplished two tasks: (a) the trainees learnt a set of fairly sophisticated, usable and relevant techniques of analysis for decision-making, and were also taught how to apply this know-how to their own situation; and (b) use of a variety of activities, including exercise, simulation and role modeling, to bring about the changes in their mind-

\(^1\) The ESP, adopted in 1997, includes high-impact services for child and reproductive health, communicable disease control activities, behaviour change communication, and care for common ailments.
set that ESP services are important, their current state is less than satisfactory, they are largely responsible for the current state and they need to take a leadership role to improve these services (13).

To ensure that the changes achieved in the knowledge and mindset of trainees are translated into well-defined actions to achieve desired improvements, the course participants were expected to develop and subsequently implement a one-year action plan to improve the performance of ESP (14).

The action plan included the following components:
(a) Baseline and goals relating to 29 performance indicators for reproductive health and child health services, quality improvement, teamwork, and other health services based on the NIPHP priorities.
(b) Main activities to achieve the goals in 12 months after training, including setting up of a system for rating after reviewing performance at appropriate levels, and displaying monthly achievement of paramedics and field staff in each clinic in relation to the goals set in the action plan.¹
(c) Persons responsible for each of these activities.

An integral part of the course was a 12-month follow-up plan managed by the RSDP and a committee appointed by the Ministry of Health and Family Welfare. Each upazila team was expected to submit monthly reports highlighting achievements, progress, and impediments. These reports were to be reviewed by the follow-up committee, necessary actions would be taken by the committee, and feedback would be given to the concerned teams.

The purpose of this study was to assess the impact of the training and introduction of the action plan in the performance of managers and staff in selected upazilas. The key hypothesis was that, after the training, the managers, supported by the follow-up committee, should be able to implement all the assignments included in the course and their team activities increase, and that the overall performance of the different upazilas should also improve.

Methods and Materials
Eight upazilas were purposively selected from five divisions (Dhaka, Chittagong, Sylhet, Rajshahi, and Khulna) from high and low performing areas of Bangladesh for the study. Five of the eight upazilas were selected from study areas. The five upazilas were: Kamalganj, Zakiganj, Kuliarchar, Gobindagonj, and Debigonj. For comparison purposes, the service statistics from three other upazilas (Banshkhali, Keshobpur, and Sitakunda) were also analyzed. The methods used for collecting information were:

(a) In-depth interviews with the trained managers and union-level supervisors² for various services included in the ESP;

¹ The Open System of Performance Rating is described in page 9.
² The union-level supervisors included Assistant Health Inspectors (AHI), Family Planning Inspectors (FPI), Family Welfare Visitors (FWV), Medical Assistants (MA), and Sub-Assistant Community Medical Officers (SACMO).
(b) Observations of field activities and meetings at the upazila and union levels;
(c) Focus-group discussions (FGD) with field workers; and,
(d) Analysis of secondary data from the minutes of the meetings, registers, and reports.

Observation checklists, open-ended questionnaires and focus-group discussion guidelines were developed and pre-tested. A team, consisting of five trained researchers, visited each upazila once a month for at least a week from February to June 1999. During these visits, the researchers met the trained managers and union-level supervisors, and observed the field activities, clinic activities, and regular staff meetings. Two focus-group discussion sessions (with 8 to 10 participants) were conducted in each upazila. The focus-group discussions considered issues relating to implementation of the action plan. All sessions were recorded using a tape with prior consent of the participants.

The study measured the impact of the training and introduction of the action plan on the volume of service outputs by reviewing the reports of the family planning and immunization services in the selected upazilas. Indicators of these two areas (family planning and immunization) are commonly used as criteria for defining the performance of health services in Bangladesh. The records reviewed referred to the “base-month” (previous month of implementation of the action plan), “mid-month” (six months after the implementation), and “end-month” (last month of the follow-up period).

Results

Introduction of Action Plan

One upazila team organized a special staff-briefing session on the action plan. The other teams briefed their respective staff members at their regular monthly staff meetings. Findings revealed that the trained managers organized half an hour to one hour orientation sessions with field staff in 87 percent of the meetings held during follow up period at upazila and H&FWC levels. The main contents of the orientation sessions were: (a) components of action plan, (b) staff motivational aspects, (c) team behaviour among health, family planning, the government and NGO personnel, (d) use of ESP services and (e) improvement of ESP service quality. The field staff reported that these briefing sessions had only given them a limited insight into the upazila action plan and their own role in its implementation.

Approximately 85 percent of 162 union-level supervisors interviewed and all the FGD participants were aware of the upazila action plan. The trained managers claimed that they could not organize the orientation sessions properly due to lack of funds to meet expenditures, such as cost of materials and refreshments.

Health staff members from two upazilas were given a memorandum about the targets included in their action plan. Most union-level supervisors and all of the FGD participants did not know how the targets were set and how to achieve their targets. Despite the orientation and written instructions, the field staff seemed to have inadequate knowledge about their targets and did not consider the action plan part of their routine activities. In fact, the field staff in all the five upazilas complained of unrealistic targets and too many indicators to monitor.
**Staff Perceptions on the Effects of the Action Plan**

In response to a question whether the training helped improve programme performance, the field staff reported the following changes after training:

- Forty one paramedics (84 percent of total) interviewed reported that the number of patients had increased in their clinics;
- About 73 percent of the paramedics, 81 percent of union level supervisors interviewed and almost all the FGD participants reported that supervision from upazila managers increased. They added that the upazila managers were very supportive during their supervisory visits and acted as trouble shooters in the field which was never done by the managers before this training;
- Almost all the FGD participants, 71 percent of union level supervisors and all the paramedics interviewed stated that the upazila managers became more careful on record keeping and reporting systems. They added that after training the managers analyzed reported performance very critically, gave feedback and instructed field staff to carry out recording and reporting carefully which resulted in a decrease of under and over reporting in the upazilas;
- Almost all the FGD participants and 69 percent of the paramedics interviewed reported that there were more referrals among staff from the government’s health and family planning sectors;
- Almost all the union level supervisors and paramedics interviewed reported that there was a greater coordination with NGOs that led to a more realistic workload;
- Most of the FGD participants reported that there was integration of child immunization services with outreach services for family planning, which helped the field staff spend more time in motivational work; and,
- Almost all (97%) of the paramedics interviewed reported that medicine supplies were more regular in their clinics.

**Family planning services**

Service statistics registered a positive change in the performance of the clinics after the training and introduction of the action plan. The number of acceptors of contraceptive methods and the use of child immunization services both increased.

Table 1 shows that the contraceptive acceptance rate\(^1\) increased in all the five study upazilas at the end-month. In most upazilas, the percentage of users of clinical contraceptive methods, such as IUD, injectable, and sterilization also increased after the training. There was a slight increase in the number of users of IUDs at the end-month compared to the base-month in Kamalganj, Zakiganj, and Gobindagonj upazilas. The percentage of injectable users increased in all the five areas during the study period. The table also shows that, although the CAR increased in two of the three comparison upazilas, the percentage of users of clinical contraceptive methods decreased in all the upazilas at the end-month.

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\(^1\) Contraceptive acceptance rate (CAR)- as measured by Management Information System of the Directorate of Family Planning, Ministry of Health and Family Welfare.
Table 1 Reported family-planning performance before and after the training and the implementation of action plans in the study and comparison areas.

<table>
<thead>
<tr>
<th>Upazila</th>
<th>Contraceptive acceptance rate (CAR)</th>
<th>Clinical method users (%)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base-month</td>
<td>Mid-month</td>
<td>End-month</td>
</tr>
<tr>
<td>Kamalganj</td>
<td>62</td>
<td>63</td>
<td>66</td>
</tr>
<tr>
<td>Zakiganj</td>
<td>56</td>
<td>56</td>
<td>59</td>
</tr>
<tr>
<td>Kuliarchar</td>
<td>60</td>
<td>61</td>
<td>63</td>
</tr>
<tr>
<td>Gobindagonj</td>
<td>59</td>
<td>65</td>
<td>66</td>
</tr>
<tr>
<td>Debigonj</td>
<td>68</td>
<td>70</td>
<td>71</td>
</tr>
<tr>
<td>Banshkhali</td>
<td>55</td>
<td>56</td>
<td>54</td>
</tr>
<tr>
<td>Keshobpur</td>
<td>68</td>
<td>69</td>
<td>69</td>
</tr>
<tr>
<td>Sitakunda</td>
<td>61</td>
<td>60</td>
<td>62</td>
</tr>
</tbody>
</table>

Source: Service statistics (15).

Figure 1 shows the number of clients attending the clinics in the study and comparison areas for the management of side-effects associated with the use of contraceptives over the study period. The figure shows that the number increased sharply after the action plans were introduced in the study areas while the trend of management of side-effects was downward in the comparison areas both before and after the training. The total number of clients for the management of side-effects included the patients who visited the clinics staffed by paramedics and were recorded as having complaints of side-effects due to the use of family-planning methods. The figure shows the average number of side-effects managed in 5 study and 3 comparison upazilas.
Figure 1 Trend of side-effects management in H&FWCs before (July-December 1997) and after (July-December 1998) training both in study and comparison areas.

**Study vs. comparison areas (before training)**

<table>
<thead>
<tr>
<th>Upazila</th>
<th>BCG Base-month</th>
<th>BCG Mid-month</th>
<th>BCG End-month</th>
<th>DPT3 Base-month</th>
<th>DPT3 Mid-month</th>
<th>DPT3 End-month</th>
<th>Measles Base-month</th>
<th>Measles Mid-month</th>
<th>Measles End-month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kamalganj</td>
<td>98</td>
<td>92</td>
<td>97</td>
<td>79</td>
<td>96</td>
<td>97</td>
<td>92</td>
<td>97</td>
<td>99</td>
</tr>
<tr>
<td>Zakiganj</td>
<td>89</td>
<td>93</td>
<td>97</td>
<td>87</td>
<td>79</td>
<td>92</td>
<td>77</td>
<td>94</td>
<td>98</td>
</tr>
<tr>
<td>Kuliarchar</td>
<td>88</td>
<td>91</td>
<td>97</td>
<td>82</td>
<td>95</td>
<td>99</td>
<td>79</td>
<td>90</td>
<td>92</td>
</tr>
<tr>
<td>Gobindagonj</td>
<td>82</td>
<td>84</td>
<td>92</td>
<td>96</td>
<td>87</td>
<td>96</td>
<td>96</td>
<td>98</td>
<td>98</td>
</tr>
<tr>
<td>Debigonj</td>
<td>72</td>
<td>99</td>
<td>99</td>
<td>81</td>
<td>99</td>
<td>99</td>
<td>99</td>
<td>88</td>
<td>93</td>
</tr>
<tr>
<td>Banshkhali</td>
<td>89</td>
<td>75</td>
<td>73</td>
<td>93</td>
<td>92</td>
<td>90</td>
<td>97</td>
<td>90</td>
<td>79</td>
</tr>
<tr>
<td>Keshobpur</td>
<td>98</td>
<td>68</td>
<td>63</td>
<td>83</td>
<td>75</td>
<td>69</td>
<td>78</td>
<td>92</td>
<td>53</td>
</tr>
<tr>
<td>Sitakunda</td>
<td>88</td>
<td>85</td>
<td>85</td>
<td>97</td>
<td>97</td>
<td>80</td>
<td>94</td>
<td>94</td>
<td>78</td>
</tr>
</tbody>
</table>

*Source: Service statistics (16).*

**Child immunization services**

The child immunization coverage increased after the training as compared to before training in most study upazilas (Table 2).

**Table 2** Reported child immunization coverage before and after training and implementation of the action plan in the study and comparison areas.

<table>
<thead>
<tr>
<th>Upazila</th>
<th>BCG</th>
<th>DPT3</th>
<th>Measles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base-month</td>
<td>Mid-month</td>
<td>End-month</td>
</tr>
<tr>
<td>Kamalganj</td>
<td>98</td>
<td>92</td>
<td>97</td>
</tr>
<tr>
<td>Zakiganj</td>
<td>89</td>
<td>93</td>
<td>97</td>
</tr>
<tr>
<td>Kuliarchar</td>
<td>88</td>
<td>91</td>
<td>97</td>
</tr>
<tr>
<td>Gobindagonj</td>
<td>82</td>
<td>84</td>
<td>92</td>
</tr>
<tr>
<td>Debigonj</td>
<td>72</td>
<td>99</td>
<td>99</td>
</tr>
<tr>
<td>Banshkhali</td>
<td>89</td>
<td>75</td>
<td>73</td>
</tr>
<tr>
<td>Keshobpur</td>
<td>98</td>
<td>68</td>
<td>63</td>
</tr>
<tr>
<td>Sitakunda</td>
<td>88</td>
<td>85</td>
<td>85</td>
</tr>
</tbody>
</table>

*Source: Service statistics (17).*
Table 2 shows the increase in reported coverage of BCG immunization in Zakiganj, Kuliarchar, Gobindagonj, and Debigonj at the end-month. A major increase was observed in DPT3 coverage in Kamalganj, Zakiganj, Kuliarchar and Debigonj after the training. The measles coverage increased in all the study upazilas, except Debigonj, at the end-month of implementation of the action plan. The table also shows that the child immunization coverage as a whole decreased in the three comparison upazilas at the end-month. The factors that affected the increase in the performance after the training in the study upazilas were: (a) introduction of on-going training sessions at staff meetings, (b) the upazila managers insisted that the field staff become committed to and achieve their set targets after the training, (c) the upazila managers increased their supervision, and (d) logistics supply became regular.

The trained managers were expected to introduce a system for regular display of a rating corresponding to the performance attained by the paramedics and the field workers at the clinic and community levels on boards at the clinics. The system was known as Open System Performance Rating. The introduction of the Open System Performance Rating was delayed, and the display boards were not regularly maintained. Nevertheless, two-thirds of the managers and supervisors reported that the system motivated the field staff and enabled them to compare their performance with that of staff in other areas. At the focus-group discussion the field staff also commented that the system helped them achieve their targets.

**Effects on Team Management Processes**

The trained upazila managers were expected to adopt a team approach, resulting in greater coordination, joint supervision of service-delivery activities, and joint preparation of the special ESP performance reports supplied as part of the training. But all the envisaged changes did not take place as expected.

**Supervision**

Joint supervisory visits were carried out mainly focusing on special activities, such as organization of the National Immunization Days and special campaigns to promote sterilizations. The managers continued their practice of separate supervision of the clinics and field activities.

**Reporting**

The trained managers of all the upazilas introduced the reporting format for the field workers and supervisors distributed during the training course. The field workers and supervisors felt that the new performance-reporting system was a duplication and it demanded additional time for record-keeping and reporting. Practice of joint preparation of performance reports was rare in all the upazilas.

**Coordination and monitoring meetings**

One of the main activities of the action plan was to ensure the holding of statutory coordination and monitoring meetings at all levels. Except the monthly salary-day meetings at the upazila level, all other meetings were not regularly held. Attendance of trained managers in salary day meetings was at 93 percent while attendance was 76 percent at other meetings.
The research team reviewed and analyzed the minutes of the staff meetings held in the five upazilas before (July–December 1997) and after the training (July–December 1998). Table 3 presents the evidence of some improvement in terms of organization of the meetings and the range of topics discussed.

Collaboration between NGOs and the government agencies increased in all the five upazilas. NGO personnel participated in most meetings and other government and NGO joint activities. One upazila (Kamalganj) did an excellent job in this regard. The officials and staff of the government and NGO of the upazila developed joint plans and organized coordination committee meetings. The role of concerned NGOs was prominent in organizing joint activities in the upazila.

Table 3  Topics covered and meetings held jointly before and after training.

<table>
<thead>
<tr>
<th>Activity/topic covered</th>
<th>Before training/ July-December’ 1997, # Upazila (n=22)</th>
<th>After training/ July-December’ 1998, # Upazila (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agenda prepared</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Minutes of previous meeting reviewed</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Action plan reviewed</td>
<td>NA</td>
<td>4</td>
</tr>
<tr>
<td>Performance reviewed</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Field problems discussed</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Decisions initiated</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Decisions implemented</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Held jointly</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

NA = Not applicable

Source: Meeting minutes

The table shows that after the training the managers prepared agenda for their meetings, reviewed the minutes of previous meetings, reviewed performance, discussed field problems, initiated the implementation of decisions, and organized joint meetings more frequently than before the training.

Reported Factors Affecting the Implementation of the Action Plan

The staff identified the following factors that impeded the implementation of the action plan:

1. Insufficient coordination among the trained managers;
2. Absence of formal instructions from higher level to implement the action plan or deliver the ESP;
3. Inadequate follow–up procedures from higher level;
4. Inadequate orientation for the field staff; and,
5. Transfer of the trained staff to other upazilas.
Discussion, Conclusions and Recommendations

Although the service statistics showed that the programme performance improved after training, in the absence of community-based data, this impact of the training and the introduction of the action plan cannot be properly assessed. On the one hand, reports from service statistics vary widely in their accuracy. In addition, the timeframe of one year is rather limited, and major changes would not be expected to occur in such a short period. Nevertheless, data from the comparison areas show the status of family planning and immunization in the absence of a training programme. Increases in the rate of contraceptive acceptance in the intervention areas were not apparent in the comparison upazilas. The reports also showed a decreasing trend in the performance of the upazilas with trained managers in later months. Thus, the impact of the training may have been short-lived, and may be followed by a gradual loss of interest on the implementation of action plans particularly in the absence of follow-up and facilitation activities from higher levels. Therefore, greater emphasis needs to be put on those aspects of the course that deal with ensuring that the government formal orders and instructions are distributed and circulated to the trained managers and their immediate supervisors. This applies not only to the introduction of action plans but also to the implementation of policies and strategies for service-delivery, such as ESP.

The findings showed that the staff at all levels reported positive attitudes toward the performance rating system. The field staff claimed that the system motivated them as it enabled them to compare their respective local performance. This is an area that needs further attention. The motivation of the health workers, particularly during periods marked by the introduction of far-reaching health sector reforms, did not receive adequate attention, and many initiatives to improve health worker motivation have been designed and implemented with no adequate justification (18).

The staff members also reported that their orientation on the implementation process of the action plan was not sufficient. This may be due to the fact that there were gaps in knowledge of the targets and goals in the action plan and also in the understanding of the strategies to attain these goals. The findings showed that the managers followed different implementation strategies after the training. This in itself is not bad, and perhaps local initiatives are needed to ensure implementation of action plans in widely different environments and conditions. Nonetheless, there is a need for providing guidelines and manuals that can support the trained managers in orienting their staff and implementing the action plans.

The question of involving staff in identifying the goals and setting of targets deserves some attention. Apparently, all the managers had set their targets without involving their field staff. But working areas and catchment populations varied widely. Ostensibly, this combination of different workloads coupled with the lack of involvement in target setting led to some field workers being able to attain their targets, while others could not because the targets set for them were not realistic.

Joint supervisory visits were not always feasible and nor was the practice of joint ESP reporting introduced in any upazila. Other conflicting priorities got in the way of attending meetings to prepare joint reports. On the other hand, the fact that most managers did initiate the practice of integrating health and family-planning services by merging the paramedic outreach clinics with the male field workers’ immunization sites was indicative of increased coordination. At the same time, there was documented evidence that the
meetings held at the upazila and union levels were more systematic during the implementation of action plans than before the training. The issue of coordination, particularly between the NGOs and the government agencies, is of significant importance. The study produced some evidence that this collaboration was more effective in areas in which the organization of coordination committee meetings was high on the agenda of the NGOs themselves. In other words, it was dependent on the NGO’s own interest to coordinate activities with the government.

The findings showed the implementation of the action plan was affected due to lack of follow-up from the district and national-level supervisors. The future training programmes should, therefore, give prior attention on involvement of responsible persons from higher levels to follow-up monitoring and review of the implementation process of the action plans. The field staff reported that too many indicators used in the current action plan also affected its implementation. This suggests to use less (most relevant) indicators in future training programmes.

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- Medical research organizations: Karolinska Institute, National Institutes of Health, New England Medical Centre, National Vaccine Programme Office, Northfield Laboratories, Procter and Gamble, Rhone-Poulenc Rorer, and Walter Reed Army Institute for Research-USA;
- Universities: Johns Hopkins University, London School of Hygiene & Tropical Medicine, University of Alabama at Birmingham, University of Göteborg, University of California at Davis, University of Maryland, University of Newcastle, University of Pennsylvania, and University of Virginia; and,
- Others: Arab Gulf Fund, Futures Group, International Oil Companies (Cairn Energy PLC, Occidental, Shell, Unocal), John Snow Inc., Pathfinder, UCB Osmotics Ltd., and Wander AG.
References