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An Evaluation for Practical Action of the Practical Answers Project 2007-8

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Annex

Executive Summary

1. The Technical Enquiry Service (TES) of Practical Action (PA) (and of its predecessor, ITDG) dates back to 1966. DFID-UK, having supported the TES for over 30 years, evaluated it in 2006. The evaluation was positive and found it 'hard to imagine many other development projects that could provide such good value for money'. However, the evaluation also concluded that there is much more potential in the service that can be unlocked with better learning and management.

2. The Practical Answers (PAN) project (August 2007-December 2008) was PA's managerial response to the evaluation and was designed as a learning-while-doing effort to give direction to the future of the TES (renamed as PAN).

3. This evaluation, which was seen as a part of the learning process, was conducted by Mr. Rathindra N. Roy, an independent consultant and facilitator working in the areas of learning, strategic thinking and change.

4. The evaluation was conducted in a *formative spirit* that is backward looking and forward looking at the same time and that aimed more at understanding the actors and factors behind what worked well and what didn't, rather than judging in a normative way achievements and shortcomings. The focus of the evaluation was primarily on helping the stakeholders of PAN project to improve the performance and impact of their efforts by providing opportunities to collectively reflect on what worked well and why, what could have been done better and how, and what could be learnt in order to give direction to the future.

5. The findings of this evaluation are in some cases limited because time and resource constraints required a rapid approach and limited the number of projects that could be visited. The monitoring systems and the databases used by the projects for various reasons did not generate the kind and quality of information to enable learning. The logical framework did not specify the expected outcomes relating to impact and the project's design and implementation did not provide for methodologies and metrics to measure or score the impacts. Assessing efficiency in terms of costs and time was also difficult because accounting systems did not track costs and inputs along enquiry episodes nor was it easy to find similar efforts to find benchmarks to test against.

6. The actual achievements of the project was derived from the Quarterly Reports and triangulated with discussions and observations. The evaluation included visits to projects in Bangladesh Sri Lanka and the Sudan. Discussions with and scrutiny of the quarterly reports of projects in the other countries that were not visited found that this limited sample is indeed quite representative of all the projects.

7. The project set out to achieve three outputs, two of which related to learning while the third was the delivery of the TES. Four generic activities, which each country project elaborated based on its needs, were used to achieve the three outputs. The learning aspects of the project were embedded in its activities and were guided by eight evaluative questions relating to the market for technical information and the impact of the service on wellbeing and livelihoods of the poor.

8. The purpose of the exercise in assessing the achievements was to clearly and systematically show the progression from the logical framework to the country activity plans and finally to the quarterly reports, which reported on the achievements. The evaluation assessed the degree of achievement by separating activities in which the expectation were met, those in which obstacles and problems prevented achieving the expectations and those in which expectations were exceeded.

9. The evaluation found that the PAN project was accountable to its mandate. The achievements of the activities of the PAN projects visited are impressive because by and large the projects managed to achieve the results they had set out to and achieved beyond expectations in several cases. The only obvious lack of achievement was in the development of the monitoring system and the database and in using it to learn.

10. The project was originally designed for an 18 month period from August 2007 to December 2008, a surprisingly short period for a learning effort that required projects to deliver a service and in addition develop and execute a monitoring system and a database and use it to learn in highly complex socio-cultural and economic systems. The short period was also problematic because the project was looking for measurable impact on livelihoods and wellbeing or poverty alleviation an outcome with many degrees of separation from the act receiving technical information.

11. Project managers had to do a balancing act and often running a technical enquiry service (an effort that they were familiar with and which had the momentum of several years moving it forward with clear and measurable results of numbers of enquiries to be answered) often won over developing a learning system and using it to learn, which was something very new in which they had limited knowledge and competencies.

12. Knowing and measuring impact are important and necessary for the project at two levels. The technical information was supposed to have an impact on the poor enquirer's wellbeing and livelihoods. Assessing this impact was necessary to hold the project accountable to its goal. And, if one had to try out different interventions and processes to learn which improve the performance and impact of the TES then the only way to do so would be to work back from 'good' impacts and seek evidence in correlation.

13. The projects lacked methods and mechanisms to measure impact, a difficult task in the best of times, particularly if the impact has to be attributed to knowledge transfer. Therefore, the projects fell back on recording anecdotal information of impacts. A lot of anecdotal information exists to show that the information was reasonably user-friendly and that it led to awareness. Enquirers felt that the information had helped them to take better and more informed decisions and choices. People were able to use the knowledge to solve some of their problems, adopt technologies and even adapt some. It helped them to trouble shoot and overcome problems in existing technologies. They narrated how the information had reduced costs or increased incomes or improved wellbeing. There were even claims that the information and the interaction had given them a better understanding of their problems and their causes. Some even said that they felt empowered by the process. Good impact and obviously lots of it, and it would have been possible to conclude

that the PAN project's efforts were relevant, effective and efficient, had the evidence existed to support the conclusion.

14. In spite of all these constraints all the projects learned and used their learning to adapt and modify their interventions and processes in order improve. They learned using their experience and instincts and in many cases their adaptations resulted in improvements. Unfortunately, the evidence is not available to support what is known instinctively. Here again the evaluation faced a dilemma: of seeing learning and adaptive changes taking place and not being able to give credit to the projects because they lacked the evidence to support their learning and actions.

15. The evaluation restricted itself to estimating the relevance, effectiveness and efficiency, where possible, of the activities that the projects undertook as most of the activities did have reasonably specific results that they were attempting to achieve. The activities were generally relevant to very relevant to the objectives that the activities were attempting to contribute to. The efforts were relatively effective, and in some cases more so than others, in achieving the results that the activities set out to. Efficiency as already pointed out was difficult to estimate because of a lack of data and benchmarks.

16. The staff of the PAN projects showed themselves to be committed and capable and have functioned admirably, innovating and learning by instinct, with not much recourse to advice, coaching and mentoring. Their achievements in undertaking the activities are impressive. We have only anecdotal evidence of impact of the TES and but it is positive.

17. Given the similarities in the situations of the 2006 evaluation and the 2009 evaluation, it would be unfair not to conclude, exactly as they did, that it is still hard to imagine many other development projects that could provide such good value for money. The demand for the TES is there and is as yet unmet, because every time it was publicized or made more accessible the numbers of enquiries increased. In an increasingly complex world, confronted with rapid and often difficult to predict changes, access to technological knowledge and a technological attitude could make the difference between adaptation and development on the one hand and deterioration and collapse on the other. The potential of the Practical Answers project and the need for its services requires that the project be continued and serious efforts be made grow it into a learning organization that improves the service and its impact.

18. In each country the PAN project developed and evolved slightly differently, depending on and evolving out of its particular context, history, needs and abilities. While they all broadly attempted to achieve the same objectives, local conditions, opportunities and innovations enabled some projects to perform better in some areas or, at least, show that they have the potential to excel in some areas. Such variations are indicators of performance and provide opportunities to other projects to learn from these and adopt or adapt what others have done to their own conditions.

19. The PAN project generated a lot of useful learning:

- Practical Answers can and does add a lot a value to Practical Action. Giving poor people access to technical knowledge is making a difference to their wellbeing and livelihoods, even if hard evidence is still lacking. There seems

to be an unmet need for the service. Practical Answers is embedded in Practical Action and what 'positions' PAN in the minds of people is the Practical Action 'BRAND'.

- Knowledge objects currently seem to be of three types in PAN repositories: Type 1 deals with short, attractive, relatively-less technical materials used to explain issues to enquirers and nudge them towards choosing and adopting particular technologies and information. Type 2 objects deal with technical knowledge or know-how to transfer a technology. They are nor very easily usable directly by enquirers and may require technical people to help them. Type 3 is knowledge that PAN is generating from its learning, on how to do things better… a sort of 'meta' knowledge. Type 2 objects are abundant while Type 1 and 3 are as yet scarce.
- The type and nature of the enquiries will determine the type and nature of knowledge required and that in turn will guide the way in which knowledge should be codified and stored. Knowledge has to be codified, stored and managed, not as traditional documents but in 'fragments' or parts of documents that can be stitched together on demand to create particular knowledge objects. This requires a very different kind of codification system, more like those used in relational semantic search engines.
- Websites have large potential to reach out to people, enable them to access information and work together but are presently constrained because of poor Internet penetration in rural areas.
- Innovations like local knowledge centres and extension workers as infomediaries add value and need to be adapted to local conditions and replicated and upscaled. Partnerships for knowledge access and knowledge delivery seem viable and possible if the relationship is mutually beneficial to both parties and partners have the necessary technical competencies.
- PAN is focusing on taking knowledge out to people and little has been done to capture people's knowledge and innovations and make the flow two-way.
- The monitoring system and database that the PAN projects developed to track, monitor and learn from their efforts was an improvement over those in the past but failed to generate the quality and type of information useful for learning.
- PAN projects need to consider partnerships with mobile telephone service providers to converge Internet and mobile telephone platforms to benefit the TES, the learning system and better bridge across the first mile.
- PAN needs to evolve from being a collection of national projects to being a Global Project with many national contexts. The challenges PAN faces requires putting research to use and using action research to learn, which will require partnerships with researchers and research organizations. Practical Answers' most valuable asset is its human resource.

20. The first step of the way forward should be to stand still and reflect on where Practical Answers really wants to go and why, how it should get there and with whom else. The key ingredients of the way forward would be PA and PAN players working together with a good facilitator to:

- Work out a strategy and some guiding principles (or values) to navigate into the future.
- Develop a good business plan for the next three years.
- Develop adaptive management based on a management learning system that includes a good impact assessment methodologies and metrics.

- Enable PA-UK to give the PAN projects direction organically, while being a part of the system It would require PA-UK to take on a handholding, mentoring, coaching role, enabling and facilitating country projects in their efforts.
- Enable PAN-researcher-research organization partnerships because the challenges PAN faces are complex and so are the learning and adaptive management skills required moving forward. PAN and for that matter PA do not have the competencies required to do justice to these challenges. PAN needs researchers and research organizations to partner with who could help in determining the research questions, designing action research efforts and helping with analysis.
- Build on the strengths that have emerged over the last year and half and bet on the winners like the technically trained extension worker as infomediary, attached to village technology centres offering inputs and services.
- Develop and strengthen knowledge resource centres capable of dealing with fragments of knowledge in a variety of media, retrieve knowledge using relational semantic search engines and make connections that facilitate innovation and insight and look less like libraries of documents or electronic databases that are not user friendly.
- Develop and strengthen communication not only of knowledge but also of accompaniments and feedback, by starting with the nature of the problem and what needs to be communicated and then deciding on the most convivial formats, mediums and technologies available.
- Invest in staff and enable them to build capacity and competencies because the future of PAN will be determined by the quality, competence and commitment of the people in Practical Action and Practical Answers.

1. Background & Introduction

1. This evaluation of the Practical Answers (PAN) project of Practical Action (PA) set out to achieve two objectives. First and foremost, the evaluation was seen as a component of the learning process and, therefore, reviewed the process of learning and the learning that emerged. Secondly, the evaluation attempted an assessment of the outcomes and impact of the PAN project in the period August 2007 to December 2008.

2. The evaluation was undertaken by Mr. Rathindra N. Roy, an independent consultant and facilitator in the fields of learning, strategic thinking and transformation. The Terms of Reference of the Evaluation is in Annex 1. The evaluation was conducted during the first two months of 2009 and involved short visits to PAN projects in Bangladesh, Sri Lanka and the Sudan and contact with projects in Kenya, Nepal and Peru using VOIP telephony, telephones and e-mails.

3. PA, which was earlier known as the Intermediate Technology Development Group (ITDG), has had a Technical Enquiry Service (TES) since 1966. In 2006, having supported the TES for over 30 years, the Department for International Development of UK (DFID) evaluated the TES. The evaluation found it 'hard to imagine many other development projects that could provide such good value for money'. The evaluation, however, also concluded that there is much more potential in the service that can be unlocked with better learning and management. The evaluation recommended a strong learning component based on an improved monitoring and data collection system.

4. The PAN project (August 2007 to December 2008) was PA's managerial response to the evaluation and was designed as a learning-while-doing effort to give direction to the future of the TES (now renamed as Practical Answers). The project set out to undertake experiments with different technologies and follow-up mechanisms. It was agreed that resources would be diverted to learning about the functioning of knowledge exchanges, while relieving the technical enquiry service of the pressure to respond to high numbers of queries.

5. PAN (and its predecessor, TES) is based on the theory of action that access to small-scale technologies can contribute to people's efforts to overcome their poverty. If people receive information on small-scale technologies they can make changes that will improve their livelihoods. PAN, therefore, focuses on providing knowledge or actionable information, about technologies that poor people can use and apply.

2. Evaluation Methodology

6. The TOR saw the evaluation as a component of the learning process. It also wanted the evaluation to be summative and attempt an objective assessment of the outcomes and achievements of the project as set out in its logical framework. Given the time constraint on the evaluation process the TOR specified that the evaluation should use PAN's own documented arguments and evidence of its achievements as its primary sources.

7. The evaluation was conducted in a *formative spirit* that is backward looking and forward looking at the same time and that aimed more at understanding the actors and factors behind what worked well and what didn't, rather than judging in a normative way achievements and shortcomings. It builds on the Self-Assessment model that goes beyond measuring the results of an organization's programs, products, and services but integrates these results with the techniques of formative assessment with the aim of improving performance.

8. The focus of the evaluation was primarily on helping the stakeholders of PAN project (Project Managers and Staff, Customers/Beneficiaries, Implementation Partners, Programme Managers, and Funding Agencies) to improve the performance and impact of their efforts by providing opportunities to collectively reflect on what worked well and why, what could have been done better and how, and what could be learnt in order to give direction to the future. It was hoped that the appreciative inquiry and learning process would also provide an 'objective' assessment of the relevance, efficiency, effectiveness and impact of the project.

9. The particular methods used were facilitated discussions with PA and PAN staff and stakeholders collectively, one-on-one discussions and small group discussions and field visits. In general, adhering to the spirit of appreciative enquiry, the discussions were guided and structured around the following evaluative questions:

> 1. What did your projects set out to achieve, what are the processes and actions that you used to achieve those results, and what were the outcomes?
> 2. What worked well, and why?
> 3. What could have been done better, and how?
> 4. What were the surprises that you encountered along the way in terms of problems, changing and new needs, and changing circumstances to name a few, and how did you cope? Did you change directions, innovate or just ignore the surprises and move on?
> 5. With the benefit of hindsight if some one asked you to repeat the project again what would you do differently, and why?
> 6. And lastly, where do you see the kinds of efforts you are involved in going in the future?

10. The evaluation was developed along several distinct moments:

1. Review and careful study of secondary information received from PAN, UK and the PAN Projects. The documentation received and referred to is listed in Annex 5.
2. Development and sharing a framework and some indicative questions to guide the evaluation & guidelines for projects on preparing for the evaluation. The evaluation framework and indicative questions are in Annex 2-1.

3. The projects in the three countries to be visited (Bangladesh, Sri Lanka & the Sudan), selected in consultation with PA-UK, partly keeping in mind how representative they were of the projects and partly considering the logistics, given the constraints of time and carbon footprint, were then communicated with and sent letters highlighting the evaluative questions and suggesting how best the visits could be planned. This letter is in Annex 2-2.
4. Visits were undertaken to Bangladesh, Sri Lanka and the Sudan. At the end of each country visit, based on the discussions held and the information gathered, detailed queries were sent to the projects to fill gaps in understanding of their achievements and learning and the projects responded to these by e-mail and clarifications, if any, were done by telephone. The information requests sent to Bangladesh, Sri Lanka and the Sudan projects are in Annex 2-3, 2-4 & 2-5.
5. The projects in countries not visited (Kenya, Nepal & Peru) were sent letters by e-mail with indicative questions around which discussions would be held with them either by telephone or VOIP telephony. The letter guiding the discussions is in Annex 2-6.
6. Interim discussions on findings and learning were held with Robert Cartridge, Niel Noble and Zbigniew Mikolajuk of PA, UK periodically to keep them apprised of progress and direction.
7. The information gathered, the learning from the visits and discussions and the consultant's observations were analyzed and synthesized into a draft report, which was submitted to PA, UK.
8. The final report was prepared after receiving and where necessary incorporating the comments and suggestions from PA, UK.

11. The timeline of the evaluation is in Annex 3. The people met in the countries visited are listed in Annex 4 and the people who were contacted in countries not visited are listed in Annex 4a.

12. The findings of the evaluation are in some cases limited, due to time constraints that required a rapid approach and due to shortcomings in information available. The constraints in time were partly overcome by the fact that the consultant was very familiar with the development context in the three countries visited. The problems with non-availability of information to base learning on were of a more serious nature.

13. Central to the design of the PAN project was the development and execution of a monitoring system and database that would track enquirers, queries, answers, accompaniments and feedback on impacts. The monitoring systems and databases developed were inappropriate and often did not generate the kind and quality of information necessary to generate learning, though they did track activities of the technical enquiry system and the numbers of queries and actions in response to them. The logical framework of the project did not specify the expected outcomes relating to impact and the project design and implementation did not provide for a methodology or the metrics to measure or, at least, score the impacts. The evidence gathered by the projects on impacts was considerable and detailed, but anecdotal in nature.

14. The socio-economic status of the enquirers was often not ascertained and recorded. The enquiries in many cases were not analyzed to understand the nature of

the questions and the expectations of the enquirers. And, finally, the monitoring system and database often did not provide the means to link the enquiries to the enquirer's socio-economic status, the enquirer's expectations, the accompaniments provided, in addition to the knowledge. All this made it almost impossible to measure or score impacts and relate them back to the characteristics of the enquirer and the inputs provided, in order to extract learning about how to improve the performance of the service or to enhance the impacts.

15. It was also difficult to assess efficiency in terms of costs or time partly because the accounting system did not track costs and inputs along enquiry episodes and nor were there easy to find similar situations to find benchmarks to test against.

3. The Achievements of Practical Answers Project

16. The Terms of Reference required the use of the PAN project's own documented arguments and evidence of its achievements as its primary sources. The actual achievements of the PAN project during the August 2007 to December 2008 period were consolidated from the Quarterly Reports that each of the country projects produced and sent to Practical Answers, UK where it was consolidated into a global quarterly report. The achievements were triangulated with discussions with PAN project staff and Practical Action staff in each country visited by the consultant and observations of the consultant during visits to Bangladesh, Sri Lanka and the Sudan. **While this may seem like an incomplete picture of the achievements of a project that functioned from nine countries including the UK, the evaluation concluded that it is indeed a very representative picture, when seen along with the achievements reported in quarterly reports of the countries not visited by the consultant.** The detail and the variety from the non-visited countries' projects were not included in the assessment because they could not be triangulated.

17. The project design document of PAN and its logical framework specifies the **Super Goal** of the project as "Dissemination of sustainable appropriate technology contributes to poverty alleviation". The **Goal** is "Information on technology is available and used for poverty alleviation purposes by development practitioners". The project's **Purpose** is "An improved, sustainable Technical Information Service".

18. The project set out to achieve three Outputs:

1. Practical Action has improved understanding of the demand for technical information for poverty reduction and the effectiveness of different marketing approaches.
2. Practical Action has greater understanding of the impact of technical information provision.
3. Practical Action will continue to deliver an ever-improving Technical Information Service with a measurable impact on poverty.

It is important to note that two of the three outputs relate to learning partly by continuing to deliver an ever-improving Technical Information Service and partly by undertaking action research, which may include experiments and testing innovations.

19. The overall design and the logical framework proposed four generic activities to achieve the three outputs. Each country project of PAN developed and elaborated these generic activities based on its own history, the context in which it functioned and the nature of the problems it faced and the needs it set out to address. The activity plans for each country PAN project were appended to the logical framework and acted as the guiding document for the PAN project.

20. The four generic activities to achieve the three outputs of the project are:

1. Activities across 8 country offices, which help us to understand the market for technical information.
2. Activities across 8 countries, which will contribute to understanding the impact of technical information.

3. Activities to facilitate learning. A) Improved Monitoring & Database, B) (appointment of a) Knowledge Manager, C) Evaluation, D) International Team Meeting, and E) DFID Workshop.
4. Activities to deliver an ever-improving Technical Information Service from 8 country offices with a measurable impact on poverty.

21. The learning aspect of the project was embedded in its activities and was guided by eight evaluative questions that had to be reported upon in the reports generated quarterly. The eight evaluative questions are:

1. What the limits are of our knowledge and whom can we work most effectively with to fill gaps and how we should work with them?
2. How a technical information service can become more sustainable?
3. What sort of marketing most effectively promotes the service and increases its impact on poverty?
4. What is the demand for technical information and the gaps in supply?
5. How web-based materials can have a greater impact?
6. Which of our client groups have the most impact on poverty?
7. What forms of accompaniments are most effective, what are the costs and benefits of accompaniment and what are the capacity building needs to provide high-impact accompaniments?
8. How do we need to organize ourselves internally to best increase our impact?

22. The purpose of this exercise in assessing the achievements was to clearly and systematically show the progression from the logical framework of Practical Answers, which gave direction to a generic activity list that in turn was developed into activity plans for each country project, which set out in detail what needs to be achieved and finally to the quarterly progress reports, which reported on the achievements. More detailed analyses of the achievements of three country projects in Bangladesh, Sri Lanka and the Sudan are included in the brief country reports of projects visited in Annex 6, 7 & 8.

23. The overall analysis of the achievements of the PAN project took the activities of the PAN projects in Bangladesh, Sri Lanka and the Sudan, clustered them broadly into 8 activities (that comfortably encompass all the activities undertaken in these three countries) and assessed the degree of achievement of each activity by classifying them into three categories:

1. Those in which planned expectations were met;
2. Those in which problems and obstacles prevented PAN projects from achieving the planned expectations within the allotted time; and
3. Those in which planned expectations were exceeded in the allotted time.

24. Overall, it was found that the PAN project was accountable to its mandate by completing a majority of the activities it planned to undertake, in order to achieve the results that would add up to the three outputs, in spite of problems, obstacles and delays encountered.

Table 1: Achievements of Results as per Activity Plans of PAN projects in Bangladesh, Sri Lanka and the Sudan

Nr.	Generic Activities	Particular Country Activities Included	PANBGD	PANSRL	PANSUD
1	Answering Technical Queries	BGD 1, BGD 2, SRL 1 & SUD 1			
2	Develop Local/Village-Level Knowledge Centres	BGD 3, SRL 3, SUD 2 & SUD 3			
3	Develop Website	SRL 2 & SRL 6	N.A.		N.A.
4	Use Other Media to Channel Information and Promote the Technical Enquiry Service	SRL 4 & SUD 4	N.A.		
5	Build Partnerships to Improve Knowledge Access	BGD 3, SRL 1 & SUD 6			
6	Build Partnerships to Gather Enquiries & Disseminate Knowledge	BGD 3, SRL 5 & SUD 6			
7	Offer New Services: New Technology Development & Promoting Indigenous Innovations	SUD 5	N.A.	N.A.	
8	Develop Improved Database and Learning System for Technical Enquiry Service	Implied Activity of BGD, SRL & SUD to enable learning.			

 Planned expectations were met.

 Problems & Obstacles prevented achieving planned expectations.

 Planned expectations were exceeded

25. It is important to note that the PAN projects completed a majority of the activities it had planned for. The logical framework and its generic activity plan had specified quantitative results to be achieved only in the case of one activity, namely the number of enquiries the projects should answer during the project period. In the other activities the results were the completion of the activities, like setting up village centres or completing processes, like training and not what these achieved.

26. By December 2008, with three months left in the extended project period all the projects (except Nepal, which started operations late) had exceeded the number of enquiries answered substantially. In some cases the building of partnerships to develop local/village level information/knowledge centres, to improve knowledge access and to gather enquiries and to disseminate knowledge faced occasional problems primarily in finding partners who were not only interested but had the technical capacity, the knowledge resources and the technical support outreach in the areas of operation. Website development was undertaken in two activities in Sri Lanka. One of the activities, which developed websites in English, Sinhala and Tamil achieved and even exceeded expectations. The other activity related to extending the effort into India and Pakistan in Urdu and Oriya ran into problems more related to partnership and other external concerns beyond the control of the project. If all this is looked at in the context that the actual project period under consideration was barely over a year, some of it lost in start-up and mobilization, the achievements of the PAN projects impressive indeed.

27. The only activity category, across all the countries, which did not achieve all that it set out to achieve was the development and execution of improved monitoring and database systems to facilitate learning. The shortcomings were in the design of the systems that did not generate the quality of information necessary for learning, even though all the countries had in place monitoring systems and database systems. This is dealt with in more detail elsewhere in the report.

4. Assessment of the Performance of the Practical Answers Project

28. The PAN project, which was PA's managerial response to the evaluation, set out to understand how it could have an improved, more sustainable technical enquiry service. The design of the project was driven by PA's long-term vision. PA aims of being a leading knowledge authority and being the first port of call for development practitioners and the poor, seeking information about technologies that could make a difference to their wellbeing and livelihoods. It saw it self as a network rather than a hierarchy. It wanted learning and knowledge to flow both ways, enriching people and the TES. It wanted to go beyond its capabilities by accessing multiple sources of knowledge through partnerships, thus acting as a knowledge broker and an assuror of quality for information from other sources.

29. The purpose of the PAN project was to get a thorough understanding of how to deliver a better and more sustainable TES and to use this understanding to prepare a three-year business plan to take the project forward.

30. The project design had three inter-related elements built into it to improve the delivery of knowledge and impact on poverty. It proposed a human interface, the 'infomediary' to act as an enabler, receiving enquiries and facilitating the delivery of knowledge. It further proposed that the knowledge to be generated and delivered be 'contextualized' to the enquirer, the enquiry and their specific context. Lastly it proposed transfer and application of technical knowledge and its impact would be improved by providing 'accompaniments' to the knowledge. The design did not specify particular interventions or the processes that the interventions involve; leaving it to the country projects to let their circumstances and needs determine these.

31. The project was originally designed for an 18 month period from August 2007 to December 2008, a surprisingly short period for a learning effort that required projects to deliver a service and in addition develop and execute a monitoring system and a database and use it to learn in highly complex socio-cultural and economic systems. The short period was also problematic because the project was looking for measurable impact on livelihoods and wellbeing or poverty alleviation an outcome with many degrees of separation from the act receiving technical information.

32. Project managers had to do a balancing act and often running a technical enquiry service (an effort that they were familiar with and which had the momentum of several years moving it forward with clear and measurable results of numbers of enquiries to be answered) often won over developing a learning system and using it to learn, which was something very new in which they had limited knowledge and competencies. In the event the learning effort suffered.

33. Knowing and measuring impact are important and necessary for the project at two levels. The technical information was supposed to have an impact on the poor enquirer's wellbeing and livelihoods. Assessing this impact was necessary to hold the project accountable to its goal. And, if one had to try out different interventions and processes to learn which improve the performance and impact of the TES then the only way to do so would be to work back from 'good' impacts and seek evidence in correlation.

34. The project's logframe did not specify the expected impacts or even the precursor outcomes. The projects lacked methods and mechanisms to measure impact, a difficult task in the best of times, particularly if the impact has to be attributed to knowledge transfer. Therefore, the projects fell back on recording anecdotal information of impacts. A lot of anecdotal information exists to show that the information was reasonably user-friendly and that it led to awareness. Enquirers felt that the information had helped them to take better and more informed decisions and choices. People were able to use the knowledge to solve some of their problems, adopt technologies and even adapt some. It helped them to trouble shoot and overcome problems in existing technologies. They narrated how the information had reduced costs or increased incomes or improved wellbeing. There were even claims that the information and the interaction had given them a better understanding of their problems and their causes. Some even said that they felt empowered by the process. Good impact and obviously lots of it, and it would have been possible to conclude that the PAN project's efforts were relevant, effective and efficient, had the evidence existed to support the conclusion.

35. Even more problematic was that not having methods and mechanisms to at least score impacts meant that it was impossible to 'learn' what worked well and what did less well. The monitoring and database systems, which were intended to be at the heart of the learning system, did not generate the kind and the quality of information necessary for learning. It, however, did track the activities and the numbers of queries flowing through the system. If the aim was to help the poor, the system should have had the means and the methods to determine an enquirer's socio-economic status and, if so, somehow rank it so it could be correlated with scored impact. Bangladesh came closest to attempting to score the socio-economic status of enquirers and to measuring impact but their statistical calculations were done on guesstimates based on subjective narratives and observations. All interventions, in this case the answers provided, the accompaniments and the contextualization used should have been tagged on to the enquiries so the impact of answering a query if measured and scored could be used to determine which interventions and processes contribute to do better.

36. In spite of all these constraints all the projects learned and used their learning to adapt and modify their interventions and processes in order improve. They learned using their experience and instincts and in many cases their adaptations resulted in improvements. Unfortunately, the evidence is not available to support what is known instinctively. Here again the evaluation faced a dilemma: of seeing learning and adaptive changes taking place and not being able to give credit to the projects because they lacked the evidence to support their learning and actions.

37. The evaluation therefore restricted itself to estimating the relevance, effectiveness and efficiency, where possible, of the activities that the projects undertook as most of the activities did have reasonably specific results that they were attempting to achieve. The country reports for Bangladesh, Sri Lanka and the Sudan in Annex 6, 7 & 8 look at achievements of their activities and address relevance, effectiveness and efficiency concerns. Relevance of an activity to the objective it was trying to contribute to was relatively easy to estimate. Effectiveness could also be estimated in a relative sense driven primarily by the achievement of the results within the time frame. Efficiency both in cost and time terms proved very difficult to estimate because it was not

possible in many cases to find comparable efforts to use as a benchmark and the projects did not have accounting systems to track costs and human resource inputs to enquiry answering episodes.

38. The achievements of the activities of the PAN projects visited, as shown in the previous chapter, are impressive because by and large the projects managed to achieve the results they had set out to and achieved beyond expectations in several cases. The only obvious lack of achievement was in the development of the monitoring system and the database and in using it to learn. The only two other cases of achievement below expectations were cases where the circumstances were beyond the control of the project in Sri Lanka.

39. As Annex 6, 7 & 8 show the activities were generally relevant to very relevant to the objectives that the activities were attempting to contribute to. The question of the relevance in the near term of websites in areas with low Internet penetration can be considered positive if the effort is seen as an investment in the future. The efforts were relatively effective, and in some cases more so than others, in achieving the results that the activities set out to. Efficiency as already pointed out was difficult to estimate because of a lack of data and benchmarks.

40. To conclude, dysfunctional monitoring systems and databases that do not generate the quality and kinds of information to enable learning in a project that was two thirds learning-based may seem to suggest not just achievement below expectations but inadequate performance too. The evaluation would, however, like to differ. The staff of the PAN projects showed themselves to be committed and capable and have functioned admirably, innovating and learning by instinct, with not much recourse to advice, coaching and mentoring. Their achievements in undertaking the activities are impressive. We have only anecdotal evidence of impact of the TES and but it is positive.

41. Given the similarities in the situations of the 2006 evaluation and the 2009 evaluation, it would be unfair not to conclude, exactly as they did, that it is still hard to imagine many other development projects that could provide such good value for money. The demand for the TES is there and is as yet unmet, because every time it was publicized or made more accessible the numbers of enquiries increased. In an increasingly complex world, confronted with rapid and often difficult to predict changes, access to technological knowledge and a technological attitude could make the difference between adaptation and development on the one hand and deterioration and collapse on the other. The potential of the Practical Answers project and the need for its services requires that the project be continued and serious efforts be made grow it into a learning organization that improves the service and its impact.

42. In each country the PAN project developed and evolved slightly differently, depending on and evolving out of its particular context, history, needs and abilities. While they all broadly attempted to achieve the same objectives, local conditions, opportunities and innovations enabled some projects to perform better in some areas or, at least, show that they have the potential to excel in some areas. Such variations are indicators of performance and provide opportunities to other projects to learn from these and adopt or adapt what others have done to their own conditions. The

following is a listing of what the evaluation considered areas of good performance, good potential and innovation that can be learnt from.

PAN – Nepal:

- The project uses opportunities offered by exhibitions and periodic markets held in different parts of the country to showcase innovations and technologies that could help people improve their livelihoods and wellbeing, promote the TES, receive enquiries and try to have knowledge materials and technical PA staff on hand to answer the enquiries on the spot.
- The project is working on building partnerships to use community radio to promote the TES and to share its knowledge and people's knowledge through radio, in interactive and other formats.
- A large number of telecentres exist in Nepal, which are unable to provide content that their customers want. The project is looking into developing partnerships with knowledge providers in government, civil society and in the aid sector to develop a programme of providing the telecentres access to technical knowledge and using them as infomediaries for the TES.

PAN – Kenya:

- Developing partnerships with NGOs with similar technical competencies has been a favored option for PAN to widen its impact. In Kenya, however, more so than in other countries, the project built good partnerships with non-technical NGOs who run village information and resource centres and got the workers in the centres to act as infomediaries, answering queries using materials provided to them by PAN.
- The project seems to have made a lot of progress in trying to embed and integrate PAN into PA's activities, particularly looking into PAN helping PA to capture the tacit knowledge of its staff and to manage it and put it to use.
- PAN has attempted approaches to assessing the impact of TES on people's wellbeing and livelihoods that may give direction to future efforts to develop a simple and easy to implement scoring system. PAN uses narrative/stories to assess the before and after situations of enquirers to gauge impact. It also looks into whether the knowledge provided has diffused to others, thus increasing the impact. And, it tries to ascertain whether the enquirer's expectations were met by the service.
- An interesting partnership is being evolved with a government sponsored national farmers' information service of the Ministry of Agriculture to provide farmers technical information using mobile telephones as the primary channel. Given the popularity and penetration of mobile telephony in PAN project countries this effort could be an important learning exercise.

PAN – Peru:

- PAN uses its websites effectively and efficiently to promote technology use, call for enquiries and provide answers and their usage is growing. What makes it unique and worth learning from is the use of Web 2.0 networking tools like blogs, wikis and twitter to build networks and provide collaborative workspaces to create knowledge and generate answers to queries collectively.
- Using a commodity value chain (in this case of milk) as the structure for a technical enquiry and knowledge sharing network that brings all parties to gather virtually and collaborate was a unique and successful effort of PAN and

has resulted in a vibrant network with obvious benefits to the poor who are being empowered to take their rightful place in the chain and have a voice.
- Like the efforts of PAN Bangladesh and Sudan PAN, the project is promoting trained independent, village level extension workers as infomediaries linked to and supported by village information centres set up in collaboration with partner NGOs.

PAN – Sudan:
- PAN in Sudan has developed a very interesting partnership with the Institute of Family and Community Development, of the Sudan University of Science and Technology, and it is able to leverage the competencies of the university to act as an infomediary for the TES. The Institute is also as a source for technical knowledge to widen the reach of the TES.
- Like in Bangladesh and Peru, Sudan uses trained village level extension volunteers to act as infomediaries based in Village Knowledge Nodes, established by PA in partnership with village CBO networks, that were promoted by PA. The extension workers are more volunteers than entrepreneurs, though they occasionally receive compensation in kind for their services.
- PAN's partnership with PA's units dealing with New Technology Development and PROLINNOVA (to promote local knowledge and innovation) enables the TES to respond with knowledge of new technologies, and, very importantly, capture peoples' knowledge and innovations making PAN a true knowledge exchange.
- The head of the Knowledge Resource Centre of PAN has given a lot of thought to the codification/classification of 'fragments' of knowledge (an issue raised in the chapter on learning) that can lead to very sophisticated methods of knowledge codification, storage and retrieval.

PAN – Bangladesh:
- PAN Bangladesh has developed very innovative infomediaries and accompaniment systems, similar to efforts in the Sudan and Peru, but developed much further. The use of independent Rural Technology Entrepreneur/Extension Workers (RTE) (trained by PA) as infomediaries and attaching them to Rural Technology Centres (RTC) (developed and run in collaboration with NGOs) seems to be performing very well as it offers people, particularly women, a platform for discourse, attracts people by providing services like communication, photocopying, photography, computer composing, printing and training at cost plus, which assists in cost recovery and may provide an incentive to the infomediaries.
- In Bangladesh the RTEs and the RTCs enable the TES to provide a combination of knowledge, and accompaniments such as inputs and services that make for an attractive package to take technologies and knowledge across.
- Simple paper and Excel based knowledge maps are being developed at country office, regional office, RTC and RTE levels to facilitate tracking down knowledge and expertise resources by need and speeds up responses to enquiries.
- PAN in Bangladesh has confronted the contextualization issue both in terms of thinking about tagging knowledge with local environmental and socio-

economic contexts to enable appropriate adaptation when being used in other contexts. This kind of thinking can lead to the development of sophisticated methods of knowledge codification, storage and retrieval.

PAN – Sri Lanka:

- PA in Sri Lanka started its efforts to evolve a regional (South Asian) technical enquiry service a lot earlier than the present PAN activity. The context of the effort was much larger, incorporating issues like technology poverty, technology democracy and technology justice. Their learning in this may guide and give direction to evolving regional and global technical enquiry services, working with partners from different countries.
- Their work in developing and running websites in English, Sinhala and Tamil is path-breaking in that it developed Unicode fonts for the local languages, completely rebuilt templates to input and upload information, used sophisticated web analytics to track users and usage. As Internet penetration increases and makes websites the preferred interaction and repository system for TES the learning and experience from Sri Lanka will be significant.
- The project in Sri Lanka learnt its early lessons in media use to promote and extend its TES by using media to bring stakeholders together to learn, share and work together over local concerns, in this case the sustainable and equitable use of a lagoon. Their use of radio programming, podcasts, e-forums and e-discussions brought in more queries, increased sharing of knowledge and made it easier by using broadcasts where several similar queries had come in from an area. The use of interactive radio programmes with people calling in with queries and a panel of local experts answering in real time was a hit and very well received by the community.

5. Learning

43. The learning of the PAN project partly emerged from discussions the consultant had with staff members of Practical Action and Practical Answers and with their stakeholders. The collective meetings facilitated by the consultant proved a rich source of learning, especially because the diversity of stakeholders built in a certain of ground-truthing and triangulation. This was then added to what the projects had reported in response to the eight learning questions the project had used to surface the learning. Finally, the consultant, on occasion overlayed the learning with what he saw emerging out of the confluence of these various streams.

44. While the project had hoped for evidence-based learning, the learning synthesized here is more based on the observations, reflections, insights and instincts of the staff of PA and PAN and some of their stakeholders, matured and refined by their experience. The learning so gathered is not listed in any particular order of priority or preference.

1. **An overwhelming learning was that Practical Answers, could and does add a lot of value to Practical Action**. It can extend knowledge beyond the immediate beneficiaries of PA and the catchment area of its projects, with the help of partners. It can facilitate capturing people's knowledge and innovations. This would add to PA's understanding of technology demand and need, add to their knowledge resources and make technology transfer a two-way shared activity. The TES could help disseminate new technologies developed or refined by PA. PA's aim has always been to be the leading authority for technical knowledge for the poor and PAN can help by widening people's access to knowledge beyond PA's mandate through knowledge resource partnerships. PA's and PAN's dependence on the non-codified and tacit knowledge of its technical staff is very large and a source of vulnerability. PAN could help play the role of knowledge manager and try and capture this knowledge and codify it to make it available to all.
2. **Knowledge transfer by PAN is making a difference to the wellbeing and livelihoods of people, though the hard evidence is still lacking.** TES is producing knowledge objects and materials that are reasonably user-friendly. The information seems to have raised awareness, which on occasion led to more informed and better decisions and choices by people. The interaction with PAN and its infomediaries seems to have helped people to better understand their problems and their causes. Some of the knowledge was applied leading to adaptation and adoption of technologies. It helped some to overcome and rectify problems they were facing in their existing technologies. In some cases the expectations of the enquirers seem to have been well met in that they were able to address their needs or problems. Enquirers referred to and showed the benefits accrued from increased savings, reduced costs and waste or increased production. The interaction, particularly in the village knowledge centres, seems to be creating a public space for discourse that may in time lead to empowerment and social capital. How much is the impact, how widespread and whether it is attributable to the TES remains to be discovered.
3. **There seems to be unmet need for the TES.** Every time one of the PAN projects increased publicity or reached out and made themselves more accessible there was a spurt in the numbers of queries received, suggesting

unmet need. People who used the TES generally seem to have a high level of satisfaction and approve of it. And this can be triangulated by the fact that few if any complaints about the TES are received, and when received they complain of the service not being able to meet the demand.

4. **The keys to success of PAN are the human interface of the infomediaries, the accompaniments provided in addition to the knowledge, the contextualization of knowledge and a learning led adaptive management process.** Infomediaries can help in problem analysis, in knowledge transfer, provision of accompaniments, inputs and services and in following up and getting feedback. They are facilitators giving technology a human face and providing first mile coverage. Accompaniments that seem to matter are direct technical advice in the field, access to training, technology demonstrations, having some one to go to if things don't work out, getting easy to digest, easy to use, tested and context-tuned knowledge, getting advice and getting connected to others who can provide managerial, organizational and financial advice and support. Contextualization seems important because understanding the context of the enquirer and enquiry helps in generating an answer that has a better chance of meeting the expectations of the enquirer. But contextualization has implications to how knowledge fragments are codified and stored. Lastly the system is so complex that the only way PAN can develop, grow and excel is through a continuous learning process that leads to adaptive management.
5. **Practical Answers is embedded in Practical Action and what 'positions' PAN in the minds of people is the Practical Action 'BRAND'.** PA has a long history of developing and transferring quality and convivial technologies in the project countries. Practical Action's standing, its competence, the impact of its technologies and the trust it has developed is the 'unique selling proposition' of Practical Answers. PAN depends mostly on PA technical staff for their technical knowledge and for providing accompaniments. PAN also depends on PA for the training and support of its infomediaries. PAN has been most successful when it works closely with PA and within its catchment areas. Instead of considering a separate identity and brand PAN should consider integrating itself into PA and take on the knowledge management and dissemination role.
6. **The type and nature of the enquiries will determine the type and nature of knowledge required and that in turn will guide the way in which knowledge should be codified and stored.** Queries come in several types: some seek awareness, some want information to make a decision on choosing a technology, others want to adopt a technology in its entirety, some want to trouble-shoot and solve a problem in an exiting technology or process, others want to better understand their problem and some even want to adapt to change. Each of these types of queries by their very nature will need different kinds of knowledge, put together and presented in different ways to enable the enquirer to better meet their expectations. Designers, manufacturers, service and repair technicians look at the technology through different frameworks.
7. **Knowledge objects currently seems to be of three types in PAN repositories**: **Type 1** deals with short, attractive, relatively-less technical materials used to explain issues to enquirers and nudge them towards choosing and adopting particular technologies and information. This can be seen as information to help people to understand their problems, see how technology

can help and convince them that they can actually benefit from it and be able to deal with it. The digital stories and multi-media knowledge objects PAN is developing fall into this category. **Type 2** objects deal with technical knowledge or know-how to transfer a technology. They are nor very easily usable directly by enquirers and may require technical people to help them. Most technical documents, manuals, technical briefs and other materials available in PAN repositories are this type of knowledge object. **Type 3** is knowledge that PAN is generating from its learning, on how to do things better… a sort of 'meta' knowledge, as it were. As of now, Type 2 objects dominate PAN repositories in number, Type 1 objects are just getting to be known and people are developing skills to create them. Type 3 objects are scarce but will grow in the future.

8. **Knowledge has to be codified, stored and managed, not as traditional documents but in 'fragments' or parts of documents that can be stitched together on demand to create particular knowledge objects**. **This requires a very different kind of codification system, more like those used in relational semantic search engines.** When a query comes in the TES cannot just hand out existing documents to the enquirer, hoping that he or she will be able to extract the right parts and put them together in the right way as technical experts would. Breaking down documents and materials and storing knowledge 'fragments' would facilitate the process of answering hugely, provided PAN can come up with a classification system that is tailored to such a need. Parsing a document or a book or a webpage into fragments is exactly what technical experts do in their heads. PAN will need to build competency in doing this.
9. **Websites have large potential to reach out to people, enable them to access information and work together but are presently constrained because of poor Internet penetration in rural areas.** Websites as shown by the PAN sites in the UK, Peru and Sri Lanka are versatile, effective, efficient and useful tools. They can be the repositories of knowledge and can even be collectively developed and kept up to date by their users using wikis. They enable interactive and collaborative work to share and create knowledge. Websites facilitate inter-project, inter-country and even global working together and sharing though language can pose a problem. Web tools enable analytics and collecting users information, usage information and feedback, which can simplify monitoring and learning processes. Interestingly, given the human interface emphasis of the infomediary in PAN many of the projects seem to be managing quite well without websites. Websites are not replacements for infomediaries but they can connect infomediaries thus simplifying and speeding up the TES… if infomediaries are within Internet reach! Websites are potential solutions, when Internet penetration reaches levels where infomediaries can benefit from the connectivity. And therefore worthwhile for PAN as an investment in the future.
10. **Innovations like local knowledge centres and extension workers as infomediaries add value and need to be adapted to local conditions and replicated and upscaled.** Short training, some technical advisory support and continuing education can turn entrepreneurial young men and women in rural areas into independent extension workers, who can then play the role of infomediaries. Their technical competence will be an advantage in receiving enquiries, delivering knowledge and accompaniments and in getting feedback.

Attaching such extension workers to rural knowledge centres provides them a base to work from, and provide accompaniments to enquirers like inputs and services, at cost +, which could also be an incentive and in the long run even help in cost recovery. The innovation is not just in the extension worker/infomediary and a rural centre but also in the idea of combining knowledge, inputs and services that makes for an attractive package. Extension workers see this potentially as a livelihood option. They have local legitimacy. Their technical competence combined with partnership with PA, as supporter makes for a winning combination.

11. **Partnerships for knowledge access and knowledge delivery seems viable and possible** if the relationship is mutually beneficial to both parties. Having technical knowledge resources, technically competent people to provide accompaniments in the areas of operation, and having a cadre of workers or community agents who can work as infomediaries seem to be the minimum requirements for successful partnerships. The general experience has been that partnerships need a lot of work to build and nurture. The experience with partnerships to deliver the TES is far more positive than partnerships for knowledge access. Knowledge access partnerships exist and are functioning but the level of use of such resources has been low by the TES.
12. **PAN is focusing on taking knowledge out to people and little has been done to capture people's knowledge and innovations and make the flow two-way.** Efforts like PROLINNOVA in Sudan are exciting experiments that can make TES a two-way street and a knowledge exchange rather than a pipeline. With enquirers also becoming suppliers of knowledge, it may be possible in the future to facilitate the growth of self-sustaining communities of practice generating, validating and sharing technical knowledge in a sustainable manner.
13. **The TES with its outreach through infomediaries can with some development and research enable PAN and PA to undertake a rather unique technology challenge and demand mapping effort.** Understanding of technology demand, technology challenges faced by people, changes in context if regularly mapped can inform and influence policy, give direction to research and technology development, provoke innovations and even provide an early warning system.
14. **The monitoring system and database that the PAN projects developed to track, monitor and learn from their efforts was an improvement over those in the past but failed to generate the quality and type of information useful for learning.** There is an urgent need to develop a quick, easy to do (by infomediaries) and yet rigorous impact assessment method that considers and scores several expectation related outcomes like knowledge transfer, benefits from accompaniments, application and use of knowledge, ability to address expectations of enquirer, and the spread of the technology or knowledge to others. This kind of a score would enable projects to work backwards to find out which interventions and processes contribute more to success and thus suggest adaptive management options. A first attempt of developing a simple impact scoring system has been made and is included in Annex 10. PAN projects my want to build on it and refine and develop the method. The learning system has to gather information on the enquirer, on the type and nature of the enquiry and the expectations of the enquirer. The system should be able to track every query from beginning to end tagged with all the related

information about the enquirer, the enquiry, the answers provided, the accompaniments provided and the feedback from follow-ups and impact assessment. There is a need for mechanisms, processes and technology to facilitate easy capture and uploading of information onto the database from multiple remote points. The first priority is to have a functioning monitoring system and database to learn, custom-designed to fit the context of each project and country, The need to have comparable information from all the projects should be secondary and should be allowed to compromise the primary purpose of learning. Measuring impact on wellbeing and livelihoods is quite a different type of challenge and needs separate attention and development of methods in order to show that PAN is accountable to its mandate.

15. **PAN projects need to consider partnerships with mobile telephone service providers to converge Internet and mobile telephone platforms to benefit the TES, the learning system and better bridge across the first mile.** Technology is best transferred by people rather than by knowledge objects. Literacy and numeracy levels are often low in rural areas. A lot of people in general, and in the PAN countries in particular, feel more comfortable and are able to better communicate orally than in written form. Internet penetration is still very low in most countries, especially in rural areas, and equipment to connect up is still expensive. Mobile phones on the other hand are rapidly penetrating the PAN countries, providing a variety of innovative services at increasingly low costs. The TES and in particular the monitoring system and database for learning can benefit hugely from a convergence of the Internet and mobile platforms. Knowledge transfer through voice, text, data, photographs and videos will become possible and inexpensive. Feedback can be sent instantly by talking-in the report and stored as audio files. Text messaging can be used for rapid follow-up with short messages and even menu-driven answer options. The communities and the staff of PAN are already mobile users and it would be a shame not to build on this strength.
16. **PAN needs to evolve from being a collection of national projects to being a Global Project with many national contexts.** PAN projects currently function focusing on a country or a sub-region at best, fairly independently of each other, more connected to PA-UK for managerial direction and oversight, support and capacity building. This is a hub and spoke model, with the hub playing a direction, oversight and support role. PAN is a complex activity and there is much that PAN projects can learn from each other to collective benefit. Further, there seems to be a need to provide PAN projects with mentoring, coaching to improve the staff's capacity to learn and manage. PAN is attempting to address issues and concerns that are the subject of cutting edge research in areas like networks, cognitive sciences, communications, and search algorithms. PAN will need to collaborate with researchers and research organizations and this will require facilitation and guidance from PA-UK. All this may require a rearrangement of connections and relationships amongst PAN projects and PA-UK. Perhaps a wheel model that has a hub (PA-UK), spokes (the PAN projects) and a rim of platforms and processes that enable the projects to interact, learn from each other and work together would make more sense. The hub's role would also change, away from direction and oversight and more towards coaching, facilitating and mentoring to build learning and managerial capacity and facilitating research partnerships. The rim needs to

find resources for more in-person meetings because that seems the glue that holds virtual networks together. The February 2008 meeting is fondly referred to as a major learning experience but it happened too early in the project's life and was not repeated.

17. **The challenges PAN faces requires putting research to use and using action research to learn, which will require partnerships with researchers and research organizations.** Impact assessment methods and indicators, understanding and improving communication, understanding cognitive aspects of knowledge, developing new relational, semantic search systems are some of the challenges that PAN faces. The PAN project and PA do not have the capacity or the competencies to deal with these needs. PAN's work requires regular access to researchers, research institutions who could provide knowledge, help build the capacity of PAN staff, and assist in the design of action research efforts and analysis that would generate learning.
18. **Practical Answers' most valuable asset is its human resource.** Running a TES as a learning organization and constantly trying to do better is a very challenging task because of the complexity of the players and processes. PAN's project staff and their collaborators in PA and in partner organizations have done an impressive job. However, they realize that they often lack the competencies necessary to meet the demands of the task. Given that the ideal person managing a PAN project needs to be a people manager, a person familiar with appropriate technologies, a good communicator, a knowledge manager, a learning practitioner, to name a few competencies, a human resource strategy would be to retain and bring in generalist types who are team players, good managers, communicators, are reflective practitioners, curious about everything and anything and aggressive performers who want to excel, and then to invest in them through regular coaching and mentoring on the job.
19. **PAN projects in answering the eight evaluative questions have generated learning, some supported with evidence and lot not supported with evidence. Most of this learning, however, is very country specific and context specific and of not much use to other PAN projects and therefore was not included in this list.**

6. The Way Forward

45. The first step into the future should be to stand still and reflect on where Practical Answers really wants to go and why, how it should get there and with whom else. So **working out a strategy and some guiding principles (or values) to navigate in strange and choppy waters will be a good start, followed by developing a good business plan for the next three years.** Ideally, **this should be a collective task of key PA and PAN players from the countries and the headquarters in the UK working together with a good facilitator. The gathering could use this evaluation as a conversation starter and work on a few critical things: the vision of PA and in that context the vision of PAN, the guidelines or values (think of it as a compass) that PA/PAN need to choose and decide between options it will encounter, and a managerial learning system for the project.**

46. The only type of navigational approach that will work in such dynamic and complex situations for PAN will be for it to become a learning and adaptive management organization. It will by necessity have to innovate and experiment, seeking out newer and better ways to do things and then choose to either adopt it, replicate it and scale it up or to drop it. This **requires some very clear guidelines or values to test choices and make hard decisions**. It also **requires a managerial learning system** that belongs to, is created by and therefore run by the entire management team and not just an M & E Officer or Learning Coordinator. The development and strengthening of managerial learning systems will determine the success and viability of Practical Action. It has to become a core management activity and a responsibility of the entire team. The managerial learning system itself has to also learn and change as it evolves to meet changing needs and challenges.

47. PA-UK cannot avoid its programme management and oversight role being the hub of the PAN wheel, but it needs to better understand how to practice its direction and oversight in a decentralized network mode where supporting and nudging pays more dividends than pushing and directing. **A way to give direction organically, while being a part of the system, would be for PA-UK to take on a handholding, mentoring, coaching role, enabling and facilitating country projects in their efforts**.

48. **The challenges PAN faces are complex and so are the learning and adaptive management skills required moving forward. PAN and for that matter PA does not have the competencies required to do justice to these challenges. PAN needs researchers and research organizations to partner with who could help in determining the research questions, designing action research efforts and helping with analysis.** Researchers could also use Practical Answers as a living laboratory to test their research findings in the real world. While this is a win-win situation it can be chaotic with differing agendas and priorities clashing and distracting Practical Answers from its core activity, providing a high quality technical enquiry service to the poor of the world to enable them to overcome their poverty. PA-UK should consider facilitating and enabling these PAN-Researcher partnerships and Practical Action may have to develop a separate project to address this important area and seek out donors who specialize in supporting learning approaches like research and innovation.

49. **The learning that has emerged in the last year and a half seems to suggest some strengths and it would be good to start from there and build for the future, rather than place bets on all runners.**

50. **The human interface, the infomediary**, particularly a technically trained individual from the very geo-social milieu as the enquirer, who wants to be an extension worker or animator and who is entrepreneurial in thinking seems to be the most productive choice. With training, support and continuing education from Practical Action and a nucleus like a village knowledge centre that also provides inputs, services and a place to meet to crystallize around infomediaries will be able to provide accompaniments and contextualized knowledge in a cost effective manner. In Annex 11 a multi-variate plot is used to look at a variety of infomediaries against their ability to provide accompaniments, their socio-physical degrees of separation from poor enquirers and their access to actionable information, today and into the future, to think about which investing in infomediaries and the returns Practical Action can expect. The analysis seems to support the village technical extension worker/entrepreneur.

51. **Knowledge resource centres** will have to be strengthened to help a variety of stakeholders including PA staff, infomediaries and enquirers to capture knowledge. Resource centres will have to carefully study and research the types and nature of enquiries to develop classification methods for fragments of knowledge that speeds of retrieval and enables effective contextualization. The Knowledge Resource Centre of the future will function much more like the human brain capable of dealing with fragments of knowledge in a variety of media, retrieve knowledge using relational semantic search engines and make connections that facilitate innovation and insight and look less like libraries of documents or electronic databases that are not user friendly.

52. **Websites** can be very effective and efficient knowledge searching and sharing mechanisms, collaborative work platforms, repositories of knowledge, and collective learning systems all rolled into one. But the enquirers Practical Answers wants to help are often beyond the reach of the Internet at present. The Internet will never replace the human interface so it might be strategic to focus on reaching infomediaries with websites rather than the enquirers in the immediate future. With increased Internet penetration and reducing equipment and access costs websites have a huge potential and may well be the way of the future. But at present working on websites should be seen as more long term investments on the future possible than on the imminent present needs. Expansion of websites and creating specific language websites need to be carefully weighed against returns and alternatives.

53**. Communication** not only of knowledge but also of accompaniments and feedback will have to facilitated by starting with the nature of the problem and what needs to be communicated and then deciding on the most convivial technologies available. In other words the problem will determine the answer and not the other way around where solutions go in search of problems to solve, and force-fit the problems to fit solutions. Mobile telephony and a convergence of the mobile telephone platform with the Internet platform may be the way forward. Given the revenues of mobile phone service providers and their need to penetrate rural markets such an approach could also be a cost effective partnership opportunity. Communication

technology/medium choices should consider the nature of the content, the format to achieve what the communication sets out to do and the accessibility of the knowledge. The aim of communication should be to be Attractive, Informative, Motivating and Satisfying.

54. Lastly, **the future will be determined by the quality, competence and commitment of the people in Practical Action and Practical Answers and investing in them to build their capacity to learn and manage will be the insurance policy for the effort.**

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