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FROM INTERMEDIATE TECHNOLOGY TO TECHNOLOGY JUSTICE:

The knowledge sharing journey of Practical Action

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ABSTRACT

Knowledge work in international development NGOs has many aspects. While it is considered vital for maintaining effectiveness and extending impact and influence, demonstrating proof of resultant policy and practice change has often proved difficult. One development NGO, Practical Action (formerly ITDG), which has been in operation for over 50 years, has placed an unusually high level of emphasis on knowledge sharing work since its very beginning. This chapter tells the story of how its knowledge and learning work has developed, and the lessons that have been learned in the context of a changing sector and an evolving organisational approach. Considering both knowledge deriving from Practical Action's own programmes and the organisation's work as an intermediary broker of knowledge from other organisations, it is concluded that while its knowledge strategy has been revised over the years, its enduring commitment, flexibility of organisation, and ability to localise and contextualise its knowledge has played a key role in enabling it to adapt its knowledge offer to different target audiences and so effectively leverage policy and practice impact.

KEYWORDS

knowledge, research, learning, information, international development, non-governmental organisations, intermediate technology, appropriate technology, Practical Action.

BIOGRAPHIES

Toby Milner was Managing Director of Practical Action Publishing and a Director of Practical Action from 2001 to 2015 where he was involved in the knowledge work of the organisation. He previously worked for Oxfam and other international development NGOs and campaign organisations in publishing, communication and information roles.

1. | KNOWLEDGE AND DEVELOPMENT NGOS

It is a commonplace observation that the volume of information generated and communicated in our digital world rises exponentially and this is no less true within and between international development non-governmental organisations (INGOs). In addition to the challenge of how best to share and interpret source materials available to them in a world of big data and information overload, INGOs now also have their claims for effectiveness placed under more scrutiny, have come under greater threat from competition for resources, and face increased challenges to their legitimacy. INGOs have themselves engaged in extensive soul-searching as to how to move forward in an operational context of rapid change and increasing complexity where the requirements for transparency and stakeholder inclusion have increased markedly and in which pressure for a devolution of operational management to the global South has asked profound questions of the role of INGO offices based in the North.¹

As a key element in proving effectiveness, the value of research, knowledge and learning to INGOs is now held in high esteem. First acknowledged in general organisational and business management theory, particularly for technology transfer and innovation, knowledge is reckoned by many analysts to be the most valuable of all the assets that any organisation possesses and its effective use the most important factor in driving competitive advantage. As in business and industry, the pace of change and need for innovation by INGOs has required improved knowledge management to facilitate more effective and adaptive development that maximises the productive use of research and learning to leverage impact and influence. In addition, donor demand and the increasing need for collaborative consortia in programme work has further encouraged the sharing of knowledge, skills and best practice (Ramalingam 2005).²

When the World Bank's President James Wolfensohn announced in 1996 that the Bank was to become a 'global knowledge bank' (Wolfensohn 1996) focused on research and dissemination of knowledge rather than lending money it sent a signal to governments, international organisations, INGOs, and others that the knowledge agenda was firmly in the ascendant for the whole development sector (Cummings 2003). The Knowledge for Development programme of the World Bank Institute continues to be influential in defining a framework for knowledge-based economic development and is a major producer of learning resources for development knowledge management.³ However, for many international development practitioners and INGOs working with poor communities, the importance of a nuanced understanding of knowledge to take account of its implicit complexity and uncertainty had long been apparent (Chambers 1983, 1993, 2014). For all its funding influence, the World Bank's research paradigm was not accepted by many influential thinkers in the development sector (Broad 2010).

Knowledge and learning work is widely understood as intrinsically difficult to evaluate for INGOs and, with a need to show value for money to donors, delivery of the metrics required of the standard log frame for knowledge

work have sometimes proved problematic. The difficulty of assessing indirect beneficiary impacts, the usual relatively short project life cycle, and the need for snapshot external evaluations, among other issues, have all rendered research and knowledge impact disputable.⁴

Nevertheless, for all the contestation over value and values in knowledge work, the benefits of seeking and disseminating knowledge of what works to build evidence-based principles for the development and learning of best practice is a broad principle that few, if any, practitioners working in an INGO would dispute. How best to do it and the attribution of empirical worth to the results of that work are where the difficulties lie. In response to critics, the demonstration of evidence of impact, value for money and an ability to establish a distinctive and convincing theory of change have become increasingly vital components of INGO organisational and brand development. The knowledge work required to research, underpin and contextualise these attributes has become crucial in proving organisational effectiveness and reinforcing recognition of quality with funders and beneficiaries alike. The adoption of concepts such as that of the learning organisation and systems thinking, the continuing refinement of monitoring and assessment techniques, and the recruitment of more specialist evaluation and knowledge workers, have all acted to enhance INGOs' understanding of the nuances of impact and the learning implications for their work.

Despite these advances in understanding of knowledge and learning in INGOs, much of their knowledge sharing work has continued to be linear and unidirectional. As authors on complexity in international development have recently noted:

Over recent years there has been a shift from development interventions which can show a logic which links inputs to outputs (and possibly outcomes), to a theory of change which has required assumptions to be tested and evidence to support theories of how change happens. But these processes are still fundamentally based on a view of logic that assumes linear relations between cause and effect and such assumptions are often not congruent with the world with which we are engaging.

(Burns and Worsley 2016: 23).

For many in development NGOs also, the requirements of donor reporting, habitual procedures and staff working practices, as well as the need to present a story of steadily improving effectiveness to their public, have, in practice, acted to preserve an essentially linear knowledge impact paradigm.

Although a somewhat unusual example, one UK INGO, Practical Action, has placed knowledge work, and particularly knowledge sharing, at the heart of its work since its foundation, and it may help to exemplify how approaches to knowledge in INGO development work have developed over the last half-century. By no means always successful, the continuity and change in the way in which Practical Action has conducted its knowledge work is reflective of wider patterns of INGO work, as it has come to understand both the importance of knowledge and how problematic assessment of impact may be mitigated.⁵

2. PRACTICAL ACTION AND ITS KNOWLEDGE WORK DEVELOPMENT

'The gift of material goods makes people dependent, but the gift of knowledge makes them free'

E.F. Schumacher, *Small is Beautiful* (1973: 165).

Practical Action, known as the Intermediate Technology Development Group (ITDG) until 2006, was founded in 1966 by Dr Ernest Schumacher, a German economist who had lived in England since arriving in 1937 to escape Nazism (Wood 1984: 89). Having published several articles, most of them in *The Observer* through the 1940s, 1950s and early 1960s, he began to formulate the idea of an organisation to promote 'intermediate technology' in 1963–64. In August 1965, an article by Schumacher on the virtues of intermediate technology appeared in *The Observer* and provoked a large post bag from supportive correspondents, after which he was encouraged to found ITDG (*ibid.*: 320–29). Schumacher later brought together his ideas about development in a timely and influential book, *Small is Beautiful* (Schumacher 1973), which was among the earliest books to clearly articulate the dangers of unsustainable development. It received considerable acclaim and was published in several subsequent editions and translations, although Schumacher died not long after its publication at the comparatively young age of 61 just as his ideas were gaining traction internationally (Wood 1984: 367).

Although by no means entirely concerned with 'the developing world', Schumacher's essays and *Small is Beautiful* had a profound influence on the work of ITDG. Unlike any other UK charity INGO of the time (perhaps apart from the Christian agencies who had the Bible), ITDG had from its early years a set of deeply influential documents to underpin its view of how development work should proceed. From the outset, ITDG/Practical Action enjoyed an unusually active relationship with ideas and philosophy, a concern with intellectual rigour, and an engagement with the written word that was to find expression in its later knowledge work. Knowledge was always intrinsic to the ITDG view of development work.

Knowledge sharing work was to the fore in the work of ITDG from the very outset, as demonstrated in the 'Objectives' of ITDG set out in its first annual report:

- To promote the systematic assembly and documentation of all data relating to intermediate technologies
- To draw attention to them by publishing information about them, promoting the concept of Intermediate Technology, and advertising ITDG's services
- To offer practical advice and assistance to overseas projects to demonstrate the practical use of intermediate technologies in helping poor people to help themselves.

At a time when access to knowledge was difficult, especially for those in the global South, that ITDG was concerned with disseminating this specialist knowledge was an almost inevitable outcome of its focus on appropriate technology. Indeed, the very first task of ITDG was to produce a *Directory of Hand and Animal-Drawn Equipment* commissioned by the British National Export Council for its Agricultural Implements Mission to Nigeria in June 1966.⁶

From earliest days, the need to respond to the technical enquiries it received had been obvious. It grew to become a cornerstone of the service that ITDG provided to development practitioners and was recognised as such in its initial funding by the Ministry of Overseas Development (1964–70 and 1974–79), subsequently by the Overseas Development Administration (1970–74 and 1979–97) and latterly by the Department for International Development (DFID) (from 1997). The establishment of voluntary expert advisory panels to assist with the various commissions the ITDG received grew into a network of sympathetic specialists who were convened formally and consulted informally on any matters where their input was deemed helpful. The work of the expert panels grew as more requests for information were received and later, with increased funding, Technical Units were established, which employed staff to help service the expert panels and to provide additional expertise. In 1969 Intermediate Technology Services Ltd was founded to provide services to organisations including UN agencies and the World Bank. By 1970, expert panels existed for Agriculture, Building, Co-operatives, Education and Training, Food Processing, Water, Power, Rural Health and Women in Development (Frost 1991).

Schumacher was famously concerned with appropriate scale in economic production and had advocated establishing 'lots and lots of small autonomous units' (Schumacher 1973: 54) and extolled the benefits of 'a multiplicity of small-scale units' (*ibid.*: 62). He saw this principle as being just as relevant to the organisations he helped to found as for the productive units he envisaged to ensure a more human-scale economic growth in wider society. This approach was adopted in ITDG as subsidiary companies and associated charities were established to focus on, for example, energy (IT Power), transport (IT Transport) and, most importantly from the knowledge perspective, on consultancy in 1970 (IT Consultants, now Practical Action Consulting), and publishing and bookselling in 1974 (IT Publications, now Practical Action Publishing).⁷

From 1970, ITDG was aided by grants from the Overseas Development Administration, and a Working Party on Appropriate Technology Report commissioned by the Ministry for Overseas Development in 1977 (Ministry for Overseas Development 1977) resulted in ITDG receiving a substantial increase in government funding. Indeed, such was the extent of the funding that it completely dominated ITDG's resources for many years until the Appropriate Technology Project Fund was withdrawn at the end of the 1990s. The result of this steady core funding was that ITDG, in respect of its knowledge work, had at its disposal considerable unrestricted resources which it applied to knowledge sharing in a way that no other UK charity INGO could match.

The knowledge production of ITDG was largely formal and explicit in nature from the start. The concern was to produce accurate, quality assured, relevant

publications, papers, reports and technical diagrams that were intended primarily for the use of practitioners, mostly external. At first, the aim was technology transfer and the knowledge work was concerned with finding and referencing existing materials and making them more widely available. To this end a bookshop was established at the London office of ITDG and only gradually did the reworking of existing materials and the preparation of new manuals based on the experience of project staff start to grow in importance and the publishing work begin. The brokering of knowledge from other organisations and knowledge sharing to an external audience was always present in Practical Action's work.

The first publication from ITDG was a 190-page directory, *Tools for Progress*, produced in 1967, which listed various appropriate technologies (ITDG 1967). It set the tone, and other technology directories followed, of which *Tools for Agriculture* and *The Power Guide* were examples. A regular series of *IT Bulletins* were published to describe in detail the use of various technologies and from this publication grew the Group's quarterly journal *Appropriate Technology*, which was launched in 1973. The production of knowledge objects in the form of printed publications, both public and private, were essential to the early purpose of ITDG (Frost 1991).

However, because of the limited demand for publishing work on the part of ITDG/ Practical Action and the requirement for a high degree of cost-effectiveness in its work, the business dynamics of the subsidiary publishing company drove it to seek the majority of its customers and publishing clients outside of the ITDG/ Practical Action group and encouraged a broader base of subject-matter interest. Currently, its partnerships with Oxfam and the Sphere Project have, for example, led it to build a profile of publishing work in the field of humanitarian assistance and health that is not represented in the work of Practical Action. In other units also, for example in its Technical Information Services and consultancy work, Practical Action researched and shared knowledge that did not derive from its own operational project work in the South.

Although ITDG had helped establish intermediate technology institutions and had engaged in some project work in Africa and Asia in the 1970s, it was only in the 1980s that ITDG began its own programmes in Peru, Kenya, Sri Lanka and Bangladesh, with the first Regional Office opening in Peru in 1985. The registration of local offices led to a growing concern for the provision of information to Southern NGOs and the influencing of provincial, municipal and national governments on policy issues in the countries in which Practical Action operated. With the growth of the regional and country offices staffed by local nationals also came greater awareness of the need for localisation of knowledge content, including translation into local languages.

In this work, the Peru office led the way being the first non-UK office and having Spanish as the office language. Over 30 years it has built a considerable list of publications with its own editorial committee to assess quality and has supplemented this with an equally strong digital presence through its website and online portals. Local language publications have now been produced in all Practical Action local offices, both original publications and translations of existing English language editions. Currently, high-profile lobbying reports such as the regular *Poor People's Energy Reports* are

produced in English, Spanish, French and Arabic so that all staff, local partners and policymakers can read them (Practical Action 2010, 2012a, 2013, 2014).

In the 1990s, the importance of indigenous knowledge was being given more recognition, and several of the country offices of Practical Action engaged in practical work that sought to build on local traditional knowledge. For example, in Peru and Bangladesh this included agricultural methods, and in Sudan and Sri Lanka food processing and storage technologies were promoted. For a more academic audience, Practical Action Publishing produced a series of books on indigenous knowledge that found an appreciative readership in students and researchers of applied anthropology.

A growing concern for livelihoods and the rise of a more participatory focus in NGO international development work during the 1980s and 1990s encouraged more strategic thinking about the sustainable use and management of technologies with a resultant growth of interest in how markets functioned. This also led to a greater interest in issues of popular access to technology, particularly in rural areas, and a deeper concern with the wider political and economic dimensions of technology, including questions of policy environment and decision-making on such matters as technology research investment and gendered access to technology. A more political understanding of technology and development was nascent.

By the time of the 2002–07 ITDG strategic plan, entitled ‘Knowledge, Impact and Influence’, knowledge remained central to purpose just as knowledge and access to learning continued to be in the 2007–12 and 2012–17 strategies where Practical Action’s mission was stated as:

To use technology to challenge poverty by:

- building the capabilities of poor people,
- improving their access to technical options and knowledge, and
- working with them to influence social, economic and institutional systems for innovation and the use of technology.

Practical Action’s approach as set out in these plans defined technology as ‘including both the physical infrastructure, machinery and equipment, and the associated knowledge and skills, and the capacity to organise and use all of these’ (a reduced version of the strategic plan is available, see Practical Action 2012b). Practical Action concluded its half-century of work with knowledge as central to its purpose as it had been at the beginning.

Furthermore, Practical Action’s current ‘Knowledge Approach’ relates that:

Practical Action works in partnerships at all levels to enable women and men to access new and improved technologies and to make informed choices from the range of technical options available to them. It seeks further to empower women and men to change in their favour the institutions, policy processes, legal standards and development decisions that affect their lives – building from the local to the national and international levels.

Practical Action gains knowledge and experience through practical projects with local partners and combines its learning with partners

with research and best practice around the world. While practical work is at a local level, it aims to maximise impact on poverty reduction by informing and influencing the national and international practices and policies that affect the lives of women and men living in poverty.⁸

Knowledge and learning are the very essence of what Practical Action does at both the policy level and in its work at the first mile of development with poor communities. At the time of writing, Practical Action was developing a new strategic plan and reconsidering its working model, but it is certain that knowledge and learning will remain central to its activities.

3. PRACTICAL ACTION RESEARCH AND KNOWLEDGE WORK METHODOLOGY

As we have seen, knowledge continues to be as firmly embedded in Practical Action's narrative explanation of what it does and why it does it as was true at the start of the organisation's work. However, the problem of lack of access to knowledge and how it goes about addressing that challenge are now different. These changes have been gradual in implementation and have evolved at different speeds in the various units and offices. However, they have all involved an acceptance of a greater need for adaptation of content to meet the needs of different audience contexts, a need to work more collaboratively with others, a need to ensure a greater degree of interactivity with the intended beneficiaries of the knowledge shared, and a realisation that knowledge is a matter for all of the organisation and not just for specialised units.

That there remains a significant gap between the knowledge haves and have-nots in the world is not in doubt. Now, while vastly more useful knowledge is available worldwide via digital sources than was the case 50 years ago, the sheer volume of it necessitates it being localised, contextualised and championed for it to be actionable by poor communities. The listing of information sources in directories, the publication of adapted technology manuals and information briefs can help but is, of itself, not enough. Content needs curation. As Practical Action's professed strength is to 'capture, organise, format, contextualise, and share' (Practical Action 2015), it needs also to produce knowledge products that are increasingly pragmatic and actionable, that permit user feedback and dialogue, and that have a clear objective.

3.1 Knowledge brokering

While many NGOs have researched and disseminated knowledge about the project and programme work they have undertaken either alone or in partnership with other NGOs and delivery agencies, Practical Action also began to develop knowledge brokering programmes that included the work of other agencies, academics and associate consultants, in addition to its own project experience. Early recognition that Practical Action could never hope to provide the technical expertise for all disciplines relevant to its technology focus led it to

pull in research expertise from beyond its staff, initially through the employment of consultants and the voluntary efforts of external experts and, now, increasingly through commissioned research from academics and thinktanks.

The Technical Enquiries/Information Service, now Practical Answers, used panels of experts to decide on what areas of expertise to focus upon and to assist in the development of knowledge resources with which to respond to enquirers from the start. Practical Action Consulting was always heavily dependent upon external associates to do much of the actual research work it was commissioned to deliver. In the case of Practical Action Publishing, the external experts were the authors and editors commissioned to write books and articles for a wider audience of development practitioners and policymakers.

Both Practical Action Publishing and Practical Answers thus disseminate to an external audience brokered knowledge products that they have filtered and quality controlled through peer review processes to extend and leverage their roles and influence as knowledge sources for development practitioners and intermediaries. Furthermore, by not limiting either the subject matter of their knowledge work to that of the project work or the geographical regions of the parent organisation Practical Action, these knowledge brokering units helped to leverage the reputation and influence of Practical Action beyond its size as an operational INGO.

In the case of Practical Action Consulting and Practical Action Publishing, a further benefit to their establishment as quasi-independent companies was that the work was made extremely cost-effective, if never fully profitable, as the companies developed extensive external sales of services and products. As a service provider to others, Practical Action now also aims to offer advice on knowledge and to apply the same principles and skills as an intermediary broker and collaborative co-creator with other organisations as they do for the knowledge products they generate from their own project work.

3.2 Product development for external knowledge sharing

In 2014, following a restructuring of policy and practice management roles in the UK office, a new initiative was implemented: the Knowledge Portfolio Approach. Initially, this comprised a thematic review and stocktake of all the knowledge products and assets held by the organisation in the UK and abroad. While restricted to recent and relevant items, and aligned to the current policy change agendas, the review revealed a considerable overlap in some areas of work, gaps in others, and a general lack of awareness of what was available between parts of the organisation. A relatively new central repository for knowledge objects linked to the website was being significantly underused due partly to lack of capacity to manage it and partly to technical challenges in its implementation.

However, the Portfolio Approach has now also become a methodology for driving knowledge work, and the portfolio list is the focus of regular discussion with key stakeholders in each sector across the organisation. Matching the current knowledge products against forthcoming opportunities to influence on the global stage is leading to a more strategic approach to using knowledge assets by investing in new research to fill gaps and maximising opportunities to use or adapt existing items. To date the approach

has been mainly focused within the UK office with limited engagement from country offices, but this initiative is scheduled for organisation-wide roll-out in 2017.

This experience of a stocktake of knowledge assets and implementation of a refreshed way of considering future research and knowledge product needs, while both unsurprising and necessary, is also symptomatic of how capacity and enthusiasm for knowledge and learning work has waxed and waned within Practical Action with the availability of funding and according to managerial preferences or abilities. A generalised commitment to knowledge work has often been tempered by a need to cut cloth to fit the budget with the result that developments have sometimes proved fitful and short-lived, with questions of organisational structure and the personal preferences of senior managers influential in deciding direction.

Consistency in overall objective and mission has therefore not always been matched by a commitment to provide the required resources in practice or to agree the best way forward, with a sense that efforts in the past may not have been fully joined up in their planning or implementation. In addition, and as is common in many INGOs, staff without training in information and knowledge management or other relevant disciplines have frequently been required to manage knowledge work with the result that much learning on the job and reinvention of the wheel has taken place.

3.3 Internal knowledge management

One important realisation for Practical Action was that it could not hope to be a better knowledge sharer and broker until it ensured that its own internal knowledge management was enhanced. This was not just the need to put in place better systems for sharing knowledge but also to improve the overall understanding of staff about the importance of knowledge and how it could be better shared to improve the organisation's own learning culture. In an attempt to improve matters, a major investment was made from 2005 in a SharePoint system, which was intended to hold information to assist with the management of internally focused knowledge, for example, project and project funding information, key documents and diaries, and, more recently, staff performance reviews. In addition, more emphasis was placed upon knowledge sharing and learning in staff reviews, and prizes were awarded for conspicuous good practice.

It was increasingly recognised by senior management that what had been described as a silo culture, in which staff were principally focused on their own areas of work and rewarded for good performance for specific tasks, had to be broadened to include a more general spirit of togetherness and understanding of the importance of a whole organisation work ethic. In a wider INGO culture that has traditionally valued action over reflection, where staff may be hired from organisations with a very different history, and, in Practical Action's case, with a historical preponderance of engineering and technical staff backgrounds, this can be challenging to implement.

To what extent this effort to engender a learning culture will fully succeed cannot yet be assessed, but explicit recognition of the vital need for better internal learning has been crucial to making this intention a reality. An organisation in which knowledge sharing has been held to be central to purpose must understand that this can only be possible if a wider appreciation of the benefits of good knowledge management was instilled throughout the working culture.

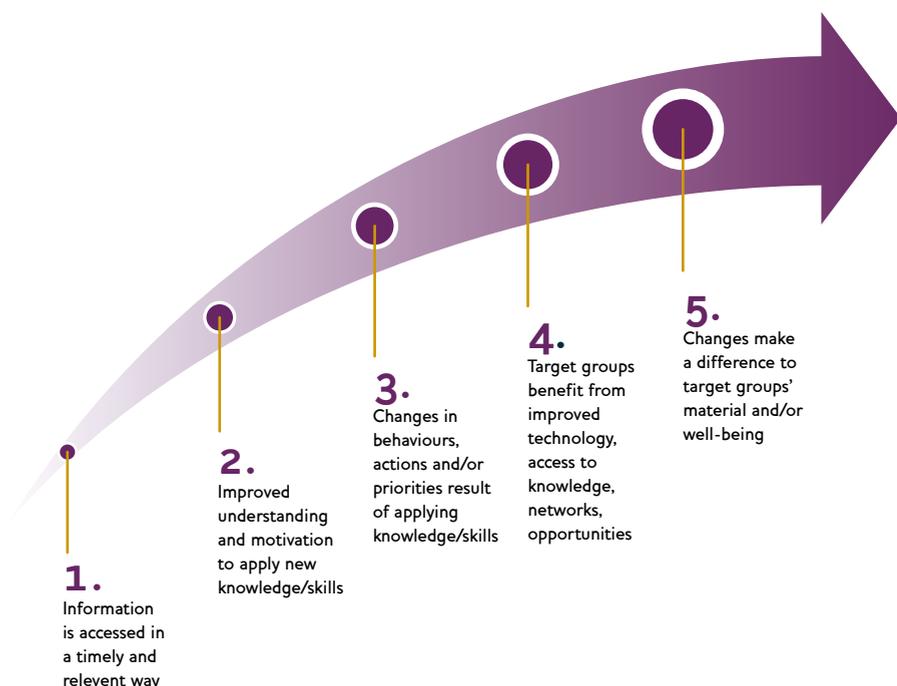
3.4 Knowledge work targets and evaluation

For the purposes of target setting and evaluation, if not for management, Practical Action has now grouped its knowledge services together in the UK. For internal reporting purposes it has been using a set of key performance indicators to assess its progress with knowledge, as for other areas of its work, against targets for the five years of its 2012–17 strategic plan. Included in these KPIs were also some considerations of how value for money may be assessed across Practical Action's programmes, including knowledge work.

It has also identified and confirmed its five key target audiences for its knowledge work – 'first mile' grassroots organisations, intermediary development practitioners, policymakers/decision-makers, academics/education (including secondary and tertiary education), and internal – and, through its knowledge services departments, it has adopted specific and relevant means of communicating and interacting with each of them. This approach is currently being used in the UK only and the challenge will be to try to make it consistent and the agreed approach across all offices around the world.

In a recent review of Practical Action's knowledge services, shorthand diagrammatic explanations of the impact process of its knowledge services work were developed representing 'change pathways' for all five of the knowledge services active in Practical Action (Vogel, O'Flynn, Brown and Currie 2014). It further reviewed how they might consider working together by combining efforts and developing a joint integrated change pathway for all the knowledge work of the organisation. An Access to Action Model was also developed based on the Practical Action's knowledge work (see Figure 1). Another significant contribution of this review was an outline consideration of how value for money assessments for knowledge work might be improved, but it was concluded that more work was required in gathering baseline data to make this viable. It remains to be seen to what extent these proposals will be put into practice, but they form a part of the current strategic planning process of which knowledge work is a part.

Figure 1 Practical Action knowledge Access to Action Model



Source: Vogel et al. 2014: Annex 1.

4. KNOWLEDGE WORK IMPACT EXAMPLES FOR PRACTICAL ACTION

After 50 years, Practical Action is now working on over 100 projects each year and has a wealth of knowledge and learning grounded in examples from its programme at its disposal. In this section we will examine examples of Practical Action's knowledge work deriving from its programme work research and experience. The first examines how Practical Action's long involvement in sustainable energy technology has helped it leverage influence in energy access policy at the highest levels and far beyond its size as an INGO. The second looks at the implementation of the long-running technical information and enquiries service, now known as Practical Answers, that delivers knowledge to the 'first mile' of development grassroots organisations.⁹ The third looks at Practical Action's work in Latin America that emphasises South-to-South learning, and the final example shows how all of this is brought together in Practical Action's latest campaign on Technology Justice.

4.1 Poor people's energy outlook

Almost uniquely among UK international development NGOs, Practical Action had from the start focused on energy as a crucial factor in improving poor people's lives. Schumacher's personal background with the National Coal Board and training as an economist helped to place power supply matters near the top of his agenda for economic development, and it has remained the organisation's best known area of project work. Small-scale energy production methodologies were a staple of ITDG's early consultancy work, and wind, solar, hydro turbine, bio-gas and other energy generating technologies were all researched in relation to their possible use in low-income community contexts. The emphasis in the early years was on power generation and less on the market for and access to power. Improved cook-stoves for energy efficiency was another area of work for which the organisation was well known in the 1980s and 1990s. From 2004, the 'Killer in the Kitchen' campaign promoted the largely unconsidered issue of the harmful effects of household smoke, especially for women's health.

By the 1990s, ITDG had set up a unit specifically to advocate and lobby for policy change. Energy policy was always a mainstay of this unit but had to take its place with other sectoral interests such as agriculture, construction, and water and sanitation. The move to substantially ramp up its policy work on energy access dated from 2010, when it was agreed by Practical Action management that it should become the prime focus of a policy work 'big bang'. Instead of spreading efforts more thinly over several areas of programme work, energy was to be given more resources and made the focus of attention for at least three years.

Unlike in agriculture and water and sanitation, there were no other INGOs making much of energy and, although not a specific target for the Millennium Development Goals (albeit arguably underpinning the achievement of most of them), in preparation for the UN Year of Sustainable Energy in 2012 (subsequently made into a decade) it was decided to allocate resources to enable the commissioning of a report, the *Poor People Energy Outlook (PPEO)*, to be used as a basis for energy policy lobbying (Practical Action 2010). The report was duly researched, written, reviewed by an expert panel of advisers and published in a full colour A4 format in print and digital versions and heavily promoted by the communications department and policy staff at the various energy policy forums. Launches were organised in London and abroad. The early results were considered promising and the success of the report and the lobbying it helped facilitate has ensured its continued regular publication since then.

Through the *PPEO*, Practical Action promoted its concept of Total Energy Access and, by using a thematic approach, the *PPEO* has since reviewed energy access for livelihoods and for community services, and national energy access planning to show the wider relevance and applicability of its policy positions. A series of Energy Policy Briefing Papers has also been produced to focus on various aspects of Practical Action's energy policy prescriptions, usually aimed at a specific target audience connected to a forthcoming international event or in partnership with other INGOs. The publication process has been given additional weight by the involvement of Practical

Action Publishing to ensure that all the necessary qualities and attributes of a formal publication were included. This helped ensure the visibility of the *PPEO* and other energy-access knowledge products to libraries and on bookselling websites such as Amazon, and helped to draw in a wider audience of interested people not immediately in the sights of Practical Action's policy staff by improving online discoverability.

Being able to draw on the long-standing energy programme project work at first hand was a vital aspect of the lobbying success of the *PPEO*, but, in addition to the internal resource deployed to research and write the reports, Practical Action has used its consultancy arm and local country staff to contract further research as needed to compile specific evidence on energy access, sometimes from outside the countries in which Practical Action has programme work experience. This has enabled the organisation both to use the depth of its first-hand experience in the *PPEO* reports and to broaden that with experiences from elsewhere to optimise the relevance of the research for its policy advocacy. Not entirely policy-based evidence-making but certainly research focused to achieve best policy impact.

The effect of this more concentrated focus on energy access policy knowledge products and the lobbying work they have facilitated has been remarkably successful. The *PPEO* reports themselves have been identified as a key catalyst in opening doors with energy professionals and policymakers worldwide. As is usual in these activities, being able to define clear direct causal linkage between the publication and promotion of the *PPEO* is hard, although there are several specific examples of its direct influence. Its publication as a formal but colourful and punchy report in digital and print formats with fully referenced sources and backed by independent expert reviewers was well aligned with its target audience of policymakers in a hurry. As a tangible reference point for Practical Action's policy work, it provided a calling card with which conversations could be started.

Equally, having a long track record of energy work gave Practical Action a credibility and entrée to expert departments within the multilateral agencies and international organisations that greatly facilitated energy access lobbying. Personal contacts could be mobilised and ex-staff members with inside knowledge could be deployed to push for access to events, attend launches, provide introductions to relevant officials and generally assist with Practical Action's energy access policy push. The personal involvement of the Chief Executive of Practical Action gave additional weight to these lobbying efforts.

The positive reception to the ideas in the *PPEO* series has led to the adoption of recommendations from Practical Action into the UN-created Sustainable Energy For All (SE4ALL) Global Tracking Framework 2015, a regular presence on the platform of the SE4ALL Forum, and membership of the SE4ALL Energy Access Committee by which means it is uniquely well-positioned to input from a civil society perspective to the UN Secretary General's strategies on ending global energy poverty. Further interest and acknowledgement of Practical Action's work on energy policy has come from the World Bank, the UK government and other INGOs that have sought to work with Practical Action on energy issues. The incorporation of clean energy access as Goal 7 of the Sustainable Development Goals agreed in

2015 has transformed the prospects for sustainable energy access for millions of poor people. The agreements of the Paris Climate Change Meeting in December 2015 also included provisions for an increased focus for sustainable energy access as a means of reducing carbon emissions.¹⁰

By employing a multi-channel advocacy approach based on the promotion of a crafted knowledge product, the *PPEO*, in a policy space where the interests of poor people had not been well-represented, Practical Action could leverage influence well above its size. In this way, Practical Action has played a leading role as representative of civil society organisations in shaping policy for a more sustainable and equitable global energy policy development at the highest levels.

4.2 Practical Answers

Practical Answers is the brand name of the Technical Information and Enquiry Service of Practical Action. Operated almost continuously since 1968 (with a short break in the 1980s), it provides information and a response service free to users from the Practical Action UK and country offices around the world. It is funded out of Practical Action's unrestricted funds and some restricted funds from other donors. The aim of the service is to enable poor people with little or no basic education to benefit from information materials available in electronic media and traditional libraries. It provides technical information to development practitioners across Asia, Africa and Latin America on a variety of technical topics, from fruit drying to water pumps and rainwater harvesting to solar energy. The information specialists in eight country offices answer more than 100,000 individual enquiries a year and the information materials (technical briefs, guides and manuals) are also available online (www.practicalanswers.org) (Cartridge, Noble and Mikolajuk 2008). Practical Answers is coordinated from the UK office of Practical Action and that office has hitherto also been largely responsible for the production of a series of Technical Briefs and for the management of the Practical Answers online platform. This central unit works with staff around the world who provide the local support and context for enquiries and information, including local language documents.

But Practical Answers is no simple document or response delivery service. It seeks to map demand for its services to better understand the knowledge market it serves and engages in qualitative surveys of users in coordination with local offices to assist its effectiveness and for the monitoring and evaluation of the service. It is therefore also considered an action research project that works to stimulate the market for knowledge products and to strengthen linkages between knowledge producers and users.

As has been noted, people's knowledge needs are complex and require a contextualised response and locally appropriate information. There is also a huge challenge with people not knowing what they don't know. Often people facing challenges and problems are unaware of the potential solutions (if they knew the solutions there would not be the same problem). Traditional Google-type searching for answers may not work and a more semantic approach is required. Practical Action has experimented in this area with the work it carries out in sharing knowledge at the first mile.

In Nepal, as one case study, the knowledge sharing model is based upon a group of community library and resource centres, managed by READ Nepal. Practical Action places a knowledge broker/social mobiliser into each library. The social mobilisers reach out to the community and organise focus group discussions on a regular basis with groups of clients. For example, they often work with the women who effectively head relatively poor rural households while their husbands work overseas. At the focus groups, there is a general discussion about people's problems and challenges and the mobiliser captures the questions that arise. They do not attempt to answer the questions in the meeting although help is often forthcoming from fellow members of the group. Where a particularly thorny issue is identified, the mobiliser will go back to their local 'knowledge committee' made up of the district agriculture officers, the local water and sanitation officers and other local authority employees. One of these will be invited to meet with the women at the next opportunity to discuss matters at an expert level. If the matter comes up consistently it may be captured into a 'flex paper' – a large poster that can be displayed in the library and copied for all the other libraries. In some cases, the discussions are repeated on a national radio station where national experts are invited to comment. Such programmes are recorded and replayed to the community group. This process helps to identify 'latent demand' – demand which people may not know they have, but which can be teased out through group interaction.

Because Practical Answers is so well established and involves staff from all offices around the world, it holds a central position in Practical Action's knowledge sharing programme. However, without a stream of earned income or reliable restricted funding for its work, it has had to claim substantial funds from the pot of unrestricted money Practical Action generates through its own public fundraising activity and its past core funding from DFID. This reliance on unrestricted funds has put it under pressure to justify its claim to this valuable pot of money, which is coveted by many other projects of Practical Action who find it hard to raise restricted funds (for example, policy research, internal learning, finance and administration systems improvements etc.) As a result, it has almost inevitably, and rightly, been the subject of two major reviews in the last ten years, with the first being conducted for DFID in 2006 (Rowley, Cranston, Mowles and Wallace 2006) and a subsequent internal review in 2014 (Vogel *et al.* 2014). On the latter occasion, Practical Answers was a part of the larger evaluative review of all Practical Action's knowledge service units referred to earlier in this chapter but which focused most attention on Practical Answers.

Both of these reviews provided generally positive assessments of the impact of Practical Answer's work but also acknowledged that it had been hard to develop and implement a business model that could provide true sustainability for the future. So, despite its historic role within Practical Action, when reliance on an uncertain funding stream is combined with perceived difficulties in proving impact it has rendered the programme vulnerable to questions about its future sustainability. These points, and further ways in which Practical Action has sought to incorporate more local experience into its knowledge provision activities, are the subject of the following examples of attempts to put in place cost-recovery elements for knowledge work and to diversify the funding base.

4.3 Practical Action and knowledge in Latin America

By linking Practical Answers responses to programme work, it has been possible to mobilise local staff and external experts to provide advice that may be relevant to other parts of the world and thus encourage South–South knowledge sharing. Practical Action’s Latin America Office (where it is known as Soluciones Prácticas) based in Lima, Peru, has led the way in several aspects of knowledge work and knowledge sharing. As well as having their own knowledge and research advisory committee to set research priorities, they have pioneered a great deal of Practical Action’s digital knowledge sharing work.¹¹ Initially growing out of a major dairy sector project involving participatory market systems development research and mapping, a sector-specific web portal, Infolactea.com, has been set up, which brings together a number of stakeholder groups in the dairy sector to share information. The portal was very successful and highly regarded and was soon followed by additional portals on the coffee sector, on forestry, on appropriate technologies more generally and on climate change. With this experience under their belt the local team were approached by other organisations wishing to establish their own portals.

One notable example of this impact was a portal on the grain crop quinoa established in 2013, the Peruvian Year of Quinoa, as part of an initiative led by Peru’s First Lady, Nadine Heredia. She noted:

The quinoa.pe portal is an example of technology in the service of rural productive development and shows the successful joint work of civil society, government, and international organizations. I salute Soluciones Prácticas’ 30 years of institutional life in Perú and this achievement in the use of information systems for rural production.¹²

Buoyed by this experience, the Latin America office has established several other digital platforms and learning environments, some of which offer simultaneous translation into English and Portuguese. Among its recent work is the provision of remote learning, and a recent course on rainwater harvesting was attended, virtually, by 20 paying development practitioners. The cost-recovery element of the course ensured its cost-effectiveness and also offered some tangible proof of its utility to participants.

Although web connectivity in Peru is much higher than in some of Practical Action’s other countries of operation, a challenge was levelled at the team that web services were not adequately reaching the poorest communities. For this reason, they have recently signed an agreement with the Peruvian government to supply government-operated rural information centres called TAMBOS, which provide information and access to services for remote communities in the higher altitudes, with technical information and a backstopping technical enquiries service.

With so much knowledge work in progress, and facing a challenging funding environment in which many major international donors are not prioritising Latin America, the regional office has recently sought to brand its knowledge work to increase visibility. A new identity, ‘Practis’, has been developed in a deliberate attempt to assist with marketing the work externally in order to win new business. At the time of writing the new brand had already been

successful in attracting funding from the Belgium Overseas Development Agency to support Practical Action's communications work in the region.

4.4 Bringing it together: Technology Justice

From 2012, Practical Action began to develop the concept of Technology Justice and subsequently invested in staff and budget to resource its development. Technology Justice is intended to be an organising principle and conceptual lens through which Practical Action defines its work, and which can bring together a movement of like-minded organisations and people to work on policy and practice change. Practical Action has announced and supported Technology Justice with a launching Forum held at University of Edinburgh in March 2016, the publication of a preliminary prospectus report *Technology Justice: A Call to Action* (Practical Action 2016), and a series of Technology Justice Briefing Papers (Casey 2016; Henderson and Casey 2015; McQuistan 2015; Meikle and Sugden 2015; Sugden 2015). For Practical Action a world with Technology Justice is defined (in Meikle and Sugden 2015) as one in which:

- Everyone has access to existing technologies that are essential to life; and
- The focus of efforts to innovate and develop new technologies is firmly centred on solving the great challenges the world faces today: ending poverty and providing a sustainable future for everyone on our planet (Meikle and Sugden 2015: 3).

and the three main technology injustices highlighted are:

- Inequitable access to existing technology
- Innovation ignoring the poor
- Unsustainable use of technology.

In 2016, Practical Action Publishing also published a book, *Rethink, Retool, Reboot: Technology as if People and Planet Mattered*, authored by former Chief Executive Simon Trace, which aimed to 'take a fresh look, through the lens of technology, at the twin problems of ending poverty and ensuring an environmentally sustainable future' (Trace 2016: 2). In echoing the sub-title of Schumacher's *Small is Beautiful*, Trace attempted to mark out the new concerns of Practical Action for a general audience with a broader and updated view on technology, poverty and environmental sustainability for the twenty-first century.

Technology Justice can thus be viewed as an update on the founding principle of Intermediate Technology that served the organisation well for many years but which ultimately came to be regarded as increasingly out of date and difficult to communicate. With a more inclusive and rights-based emphasis, it is hoped that Technology Justice can provide a frame of reference to attract new support and one that will resonate with other initiatives for open technology and freedom of access to information. For Practical Action, Technology Justice provides a lens through which to review its knowledge and learning work no less than its other operational programmes and

projects. A commitment to free sharing of knowledge through more open source and open access publications will have to be weighed in the balance with the more traditional strategy of developing products for sale and working on confidential assignments for consultancy clients.

5. REFLECTIONS ON DEVELOPMENT NGO RESEARCH KNOWLEDGE WORK IN PRACTICE

We have seen that among most development NGOs, and particularly among the UK development charities, Practical Action has had a distinctive approach to knowledge work; one rooted in its objectives, its history, its funding, its organisational structure and its working methods over the last 50 years. At a time when the pressure is on development organisations to show effectiveness, Practical Action can demonstrate a consistency of purpose and an adaptive methodology in its knowledge work. By developing a more nuanced and sophisticated appreciation of how best to understand and deliver on its knowledge work through specifically targeted research to create knowledge products tailored to their agreed purpose and actively encouraging feedback from its target recipients for knowledge sharing, it has helped maintain the effectiveness of this work. Further, its mix of business units and managerial involvement and support has helped it remain competitive in winning new streams of funding, in leveraging its policy impact and influence, and in remaining relevant to the changing needs of its knowledge partners and beneficiaries. It starts its second half-century of its knowledge work facing a more uncertain and complex world in which to work but with the valuable experience and learning of its first half-century to help it negotiate the challenges ahead.

5.1 Nine lessons from Practical Action's knowledge journey

1. *Effective knowledge work needs time and consistency but cannot be static*

Practical Action has been involved in knowledge work as central to its purpose since its start but has had to consistently adapt its research and knowledge work in the light of external environment changes (for example, digital media) and knowledge beneficiary feedback to maintain its relevance for policy and practice.

2. *Effective knowledge work needs to be contextualised and supported*

Top-down, push-out information knowledge sharing will not work in many contexts, especially at the first mile of grassroots development, and needs localising and contextualising to become actionable.

3. Effective knowledge work needs champions who can make the difference

In any INGO the importance of individual personalities is likely to be felt and in knowledge work a consistency of focus, management support and resource, the input of experienced staff, and the involvement of knowledge entrepreneurs and champions are vital assets.

4. Effective knowledge work needs wide organisational understanding and buy-in

To try to pursue knowledge work in an INGO that has its main priorities elsewhere is hard work and a wider appreciation of the value of knowledge and learning in any organisation will enhance the effectiveness of its knowledge work. Nevertheless, making the time for the development of a learning organisation culture may be difficult when under pressure to deliver on other aspects of work.

5. The practical implementation of agreed knowledge work principles may be problematic

Translating agreed understanding and action on knowledge work into best practice and knowledge management in the round within INGO programme work may be difficult in practice due to, for example, donor reporting requirements, established practices of programme evaluation and lack of continuity.

6. Knowledge and NGO cultures are fundamentally dissimilar

The language, processes and methodology of knowledge work are difficult to promote in any NGO culture. NGOs are, by their nature, the home of activists. The principles of knowledge and learning, which necessitate getting people to slow down and reflect, are often counter-cultural.

7. The problem of definition and jargon

The jargon of knowledge management is open to debate, confusion and misinterpretation. Whole books have been written around its definitions and within Practical Action there are different understandings and perceptions of knowledge work of which some are helpful and others not. The lack of clarity enhances misunderstanding and mistrust of purpose.

8. Networking in INGO knowledge work is beneficial

Because so many knowledge workers in NGOs work in comparative isolation, the benefit of networking for knowledge exchange about knowledge is particularly helpful.

9. The uncertainty of impact

The biggest point of all is still that of the uncertainty of impact and the ramifications for continued funding. Even in an INGO such as Practical Action where knowledge sharing has been a part of its lifeblood since the start, if the impact of its knowledge work cannot be satisfactorily proven or described, how long can it continue in a competitive funding environment where it must battle with other resource demands seemingly better able to prove effect and value for money?

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ENDNOTES

- 1 For evidence and discussion of these trends see, for example, Agg (2006), Bebbington, Hickey and Mitlin (2008), and Wallace, Bornstein and Chapman (2006).
- 2 For an example of recent statements on the importance of knowledge work for UK INGOs see Bond (2015); for a recent examination of the importance and challenges of research evidence impact in development see Eyben, Guijt, Roche and Shutt (2015); for a recent review study of NGO knowledge work see Hayman, King, Kontinen and Narayanaswamy (2016); and for some more detailed workshop discussion of knowledge work in INGOs see Mansfield and Grunewald (2013).
- 3 Knowledge for Development, www.worldbank.org/wbi/k4d.
- 4 For evidence of and comment on these trends see, for example, Roche (1999).
- 5 The author worked at ITDG/Practical Action from 2001 to 2015 and has been assisted with the inclusion of recent developments by current staff of Practical Action, including Jonathan Casey (Technology and Innovation Policy Officer), Aaron Leopold (Global Energy Representative) and Sarah Begg (Knowledge Officer), and particularly Astrid Bourne Walker (Policy and Practice Director) and Robert Cartridge (Head of Global Knowledge).
- 6 <http://practicalaction.org/history>.
- 7 <http://practicalaction.org/history>.
- 8 Practical Action, <http://practicalaction.org/values-vision-mission>.
- 9 For reasons of space many other interesting Practical Action knowledge initiatives and projects have been omitted from this chapter. Practical Action's Publishing programme, its long-standing and innovative work on Participatory Market Systems Development (PMSD), and the recent consultancy-led South–South knowledge brokering project on Evidence and Lessons from Latin America (ELLA) are conspicuous examples, and many others from the organisation's work on agroecology, sanitation and disaster risk reduction could all have featured.
- 10 Further specific examples of influential energy policy bodies on which Practical Action staff are now represented include the Steering Groups of two World Bank initiatives: the SE4ALL Global Tracking Framework and the Readiness for Investment in Sustainable Energy (RISE). Additional active board memberships include the Green Climate Fund Private Sector Advisory Group (responsible for catalysing private climate finance in developing countries), the Board of Directors of the Alliance for Rural Electrification, the Advisory Board for the Safe Access to Fuel and Energy initiative of the Office of the UN High Commissioner on Refugees (providing expert advice to the UNHCR's energy team on the development of approaches to improving household, community and productive energy services to the world's 60 million displaced people), the Task Force on National Planning for the Technology Executive Committee of the United Nations Framework Convention on Climate Change (UNFCCC) (actively working to review and revise guidance on national climate change planning processes, specifically on Technology Needs Assessments and Technology Action Plans), the Steering Committee of the International Renewable Energy Agency Coalition for Action on Renewable Energy, Civil Society Organisation Observer Member to the Climate Investment Funds Scaling Up Renewable Energy in Low Income Countries Program (SREP), Founder Membership of the Alliance of CSOs on Energy Access (facilitated creation of an alliance of over 30 CSOs from developed and developing countries seeking to coordinate, facilitate and educate work on global and national energy policy advocacy).
- 11 www.solucionespracticas.org.pe.
- 12 Quotation provided in personal communication from a colleague.

