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CONTRIBUTION OF WFS TO THE ENHANCEMENT
OF SURVEY CAPABILITY IN DEVELOPING
COUNTRIES

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AN UNARTICULATED OBJECTIVE

The success of the World Fertility Survey is often measured - and not unreasonably - by the fact that in the decade or so of the programme's existence, 42 developing (and 20 developed) countries have successfully completed 'nationally representative, internationally comparable and scientifically designed and implemented sample surveys on human fertility and family planning behaviour and attitudes'.¹ The achievements of the WFS are clearly outstanding in this respect. Most surveys conducted under the WFS are recognized as being of high quality and almost all have resulted in published reports within, a reasonable time after fieldwork. In order to assist countries in acquiring the scientific information that will permit them to describe and interpret their populations, level of fertility was always stated to be the most basic requirement, and always listed as the first objective of the WFS. In reference libraries of statistical offices, universities and other national and international institutions, and in private collections of users and researchers all over the world, one finds displayed ample proof of the WFS's ambitious publications programme. Apart from country reports and summaries, the number of technical manuals and bulletins, illustrative and comparative analyses, and research papers directly prepared and published by the WFS has reached nearly 150. Furthermore, numerous analysts, at national and international level, have access to standardized micro-level data tapes with full documentation. This has facilitated, and will continue to do so for some time to come, a great deal of intensive demographic research. By the middle of 1983, about 350 national (country level) and 165 comparative or multinational studies had completed, and a large number were in preparation.² Hence, much headway has also been made towards meeting the stated WFS objective of promoting international comparisons and comparative analysis of the data.

1 Halvor Gille and D J van de Kaa 'Contributions of the World Fertility Survey to Survey Methodology and Analysis' 44th session of the International Statistical Institute, Madrid, September 1983.

2 WFS Annual Report 1982. The Hague: International Statistical Institute.

But let us also remind ourselves that as originally formulated, the WFS had three major objectives: (i) to assist countries in acquiring scientific information on fertility and fertility regulation including levels and differentials; (ii) to build up national fertility and other demographic survey capability; and (iii) to promote international comparisons of the data. Note also the order in which these objectives have usually been listed: the enhancement of national capabilities is listed as the second of the three objectives, after the main objective of assisting countries in acquiring information on fertility and related factors, but above the objective of comparative analysis. To be sure, this was not an unreasonable ordering, since WFS, though often described (merely) as a programme of fertility research, was bound simultaneously to be a major programme of technical cooperation absorbing and disbursing as it did more than 50 million dollars over a period of 12 years or so. WFS represents an international investment in Third World survey taking without precedent in scale or nature, and ignoring the enhancement of national capability would constitute a most serious flaw in any international programme of this magnitude.

However, it remains true that the WFS approached its stated objective of enhancing national fertility survey and research capabilities in a rather peculiar manner. This was quite different from the way the other two objectives, both concerned with generating data of a particular type, were tackled. A great deal of time and effort was devoted to developing detailed technical and operational plans and standard procedures with the aim not only of achieving high quality national surveys but also of safeguarding their international comparability. There evolved a fairly clear, well articulated and explicit 'WFS philosophy' and 'WFS approach' to meet these objectives of data collection and analysis but, by contrast, no such philosophy or approach to the objectives of enhancing national capability.³ It would not be too far from the truth to claim that whatever the level of WFS contribution to enhancing national capabilities, it has been achieved more as a result of

3 There have of course been isolated discussions of the issue. For an explicit consideration of the issue see T E Smith et al 'Evaluation Report of the World Fertility Survey', prepared by independent consultants to the WFS finding agencies under auspices of the American Public Health Association, 1980.

spontaneous factors than of deliberate plans. Often contribution to national capability was an indirect result of activities carried out primarily for other purposes; and not infrequently, this contribution was a consequence of personal philosophies of the exceptionally high quality staff involved in shaping and implementing the WFS programme to the extent that the pressure of getting the job done well and on time would permit.

The lack of articulation by the WFS itself makes it harder for one to evaluate the success or otherwise of the objective of enhancing national capabilities. Often one can judge programmes and organizations against their own stated objectives since, unless they are merely an insincere exercise in public relations, the stated objectives are often an expression of what could potentially be achieved under 'ideal' but not altogether unrealistic conditions, ie achievements which are feasible under the circumstances given sufficient effort and will and barring accidents and unfortunate combinations of circumstances.

Since the WFS does not provide its own definition of building national capability, it is necessary for us to begin from a broad definition and to narrow it down to what could be considered a feasible ideal for the WFS, given the specific context in, and the objectives for, which the programme was created, and the conditions under which it had to be implemented. In a sense we are trying to address an issue which should have been addressed much earlier and in much greater detail by the WFS as an organization.

Essential Elements of National Statistical Capability

In general terms, we take the concept of 'national statistical capability' to refer to the capacity of all the indigenous organizations engaged in the production of statistical information to identify what information is needed and to deliver that information in a manner which maximizes its usefulness to the diversity of national needs and its chances of being actually used.

A statistical organization cannot be a passive collector of figures in response to predetermined and clearly expressed 'needs' of users. To be able to participate in the articulation, refinement and even prediction of the needs is an essential part of the capability of the statistical system. First, the potential users may not always be aware of the objective needs for statistical information; they may, for example, not realize that improved

information on the impact of a programme or project is needed to improve certain aspects of its design and operation. Even with this awareness, the need may go unformulated, i.e. go unexpressed in terms of the specific statistical inputs required. Then, it is necessary to filter and cut down these expressed needs to what may be feasible to collect and actually use; to determine priorities, develop a balanced programme to meet the diversity of needs as best as possible within the available resources; and gradually to set up permanent arrangements for generating relevant and integrated data on a continuous basis, and secure necessary resources to sustain and enhance this capability.

In short, it is an essential part of its capability and function for a statistical organization, first, to be able to assist users in defining and expressing needs which are realistic and pertinent, and to be able to specify the steps or activities, time, skills and resources needed to meet these. This capacity is dependent on the existence of appropriate organizational arrangements and channels for effective user-producer interactions, on necessary expertise in various subject fields to facilitate communication with users, and on technical skills in the general planning of statistical operations.

Secondly, the essential requirements for producing and delivering the necessary statistical information include technical staff equipped with skills and tools for statistical design, processing and analysis; cadres of interviewing and data processing staff; adequate infrastructural facilities such as suitable sampling frames, field transport, computer hardware and software, printing and publication facilities etc, and, above all, funds to execute the operations.

It is also necessary to develop a capacity to utilize these facilities in a manner that maximizes the quality and quantity of information produced within given resources. In a fundamental sense it is essential to view these elements as integrated or common facilities for defining and meeting the totality of needs for statistical information, cutting across the often arbitrarily delineated subject fields. It is neither desirable nor in the long run possible to emphasize on a single subject matter area or a single source or method of obtaining statistical information at the expense of others. Censuses, household surveys, surveys of establishments, registration systems and other administrative sources have to be utilized in a balanced manner, in conjunction with each other, organizing the strengths and weaknesses

of each source. Data on agriculture, economic activity, social conditions, demographic trends etc all represent inter-related aspects of the same basic reality to be explained, managed and hopefully improved.

A degree of endurance and continuity are, by definition, concomitant with 'capability', not only in statistics but in other fields of activity as well. Statistical capability involves the creation of reasonably enduring facilities and arrangements to ensure source continuity and coordination between statistical operations. Coordination encompasses investments to develop and utilize common sampling frames and arrangements, data processing, printing and other facilities; to set-up regular supervisory, field and office staff to meet the requirements of diverse operations; to develop and plan the various operations to facilitate utilization of inter-relationships both at the functional and substantive levels, and so on. Without some attention to continuity and coordination, it makes little sense to talk of 'national capability'.

We have tried to sketch some broad requirements. In practice, however, the process of building capability is much more complex and uneven. At different stages, it may involve more or less emphasis in particular directions, on particular modes or sources of obtaining statistical data, on particular subject-matter areas. For instance, focused attention on undertaking the population census has in many countries provided a tremendous boost to the overall development of statistical capability. Similarly, the establishment of infrastructural facilities for undertaking sample surveys of the household sector can constitute in many situations a leading or dynamic component in the process of overall development. This is because properly planned and executed programmes of household surveys can generate interconnected data of great variety, broadening the range of users which statistical organizations can satisfy. At the same time, the statistical agency is in general able to design and undertake sample surveys more independently, ie with less dependence on wider administrative support which full-scale censuses and collection from administrative sources require - a type of support which is often not easy to secure.⁴

4 V R Roa and Vijay Verma 'The United Nations National Household Survey Capability Programme'. Joint meeting of the American Statistical Association, Cincinnati, August 1982.

In a similar manner, it may be necessary to pursue the development of statistical capacity in particular sectors before the subject-matter scope can be broadened to cover other areas in a balanced way. For instance, many developing countries have tried to establish regular surveys in particular areas such as population, labour force and agriculture, and only later expanded the scope to include other topics - possibly around the established regular surveys which serve as the core. There is of course a limit to which capability in any one field can be developed in isolation from and independently of other fields.

The development of infrastructural facilities and skills is also a step-by-step process. Even more important, it can only be an ongoing process with no permanent solutions. Vehicles, computers, printing facilities, even buildings and all sorts of other 'durable' equipment need to be constantly replenished. Sampling frames and designs need periodic updating and revision. Resources for survey operations need to be secured and resecured year after year, survey after survey. There is a constant loss of trained statisticians to non-statistical responsibilities, to the commercial sector, to other organizations and to other countries.

Given the breadth and complexity of the process of development of national statistical capacity, no single programme, approach or set of activities can provide the sole or lasting solution. But even so, the role of the World Fertility Survey in this context was meant to be, and could only be, a relatively limited one. The WFS was designed to assist countries in obtaining high quality information, comparable across countries as far as possible, on a very specific topic. Furthermore, the time horizon of the programme, and especially of any country project under it, was strictly limited. Consequently even under ideal circumstances WFS could not be expected to make a fundamental contribution to setting up new arrangements, nor could it be expected to help set up enduring infrastructural facilities for survey taking and analysis, whether in fertility or in any other field. The funding agencies had explicitly placed constraints on the form in which resources provided through WFS could be delivered to participating countries: they had to be devoted primarily to developing tools and techniques for conducting surveys of a specified type, providing intensive technical assistance to countries to ensure successful implementation of the surveys, meeting some in-country operational costs, impacting on-the-job project specific training and undertaking and supporting analytical research on the data collected.

Little provision could be made for long-term training, providing 'durable' equipment such as new computers or vehicles, setting-up permanent cadres for data collection and processing, or for supporting any other operations not clearly linked to the requirements of the particular survey.

For a programme representing 'international investment in Third World survey taking without precedent in scale or nature', these are indeed very serious limitations in so far as the building of national capabilities is concerned. Given that the WFS in many respects has been an outstandingly successful programme, there is a danger of forgetting these inherent limitations in the scope and possible impact of the programme on national capabilities. Yet these limitations do not, as such, reflect shortcomings in the implementation of WFS; but rather, they were inherent given the primary objective of WFS to 'assist countries to describe and interpret the fertility of their populations by conducting scientifically designed sample surveys'. It can indeed be claimed that the manner in which WFS was implemented seriously attempted to transcend some of these limitations.

Some Positive Features of the WFS Approach

We have lamented the lack of articulation and limited scope and time horizon of the WFS in relation to the objective of enhancing national capabilities in survey research. Yet this lack of articulation does not, of course, mean that issues of national survey capability were completely forgotten or ignored in determining the mode of implementation of the WFS. It is necessary to remember and emphasize several positive features of the manner in which WFS went about promoting fertility surveys and research in developing countries (and in developed countries as well). The WFS promoted a standardized approach, but it was far from a series of pre-packaged questionnaires and survey procedures simply taken to and implanted in countries, with countries acting merely as collection agencies re-exporting the data collected for processing and analysis by foreign individuals and institutions. There have been and probably will continue to be international projects of that nature, despite some raising of consciousness of developing countries by efforts such as the United Nations' National Households Survey Capability Programme but the WFS was not such an international project. WFS managed to achieve considerable success in four major areas: (a) completion of as much work as possible in-situ, within countries; (b) active participation by national staff in survey implementation; (c) successful completion of all phases of the

survey, providing countries with the rich (and often memorable) experience of a well conducted survey; and (d) providing valuable experience and training not only in collection but also in analysis and reporting of the data - a feature badly lacking in a great deal of survey taking. Let us consider these points a little further.

Much time and effort was devoted in WFS operations to ensure that as much work as possible was completed in the country itself. Serious attempts were made to adhere to this policy, even in situations where the cheaper and quicker alternative might have appeared to be a direct execution of the task by WFS headquarters. In no case were completed questionnaires removed from the country. All manual editing and coding and (with one exception) all data entry was done in the countries themselves. The same applies to machine editing, even though this involved very prolonged and sophisticated procedures and turned out to be a major cause of delay in the publication of final results in some countries. At a later stage, WFS directly undertook some further editing and corrections of country data and reformulated data files into a standard format, but this was done to facilitate wider dissemination and comparative analysis of the data and was undertaken generally after the major descriptive report had been issued by the country concerned. The initial policy of WFS was also to have all tabulation and report-writing done in the countries. In fact, little provision was made for several years to equip WFS headquarters to undertake processing work directly; rather, the organization concentrated on developing and installing in countries the necessary computer software packages for this purpose. This policy was fairly successfully implemented in the first years of the programme, even though it resulted in delays and proved more, not less, taxing on technical resources available at the WFS. Gradually, however, these problems became more critical, and the policy of completing processing and report-writing in countries was increasingly compromised due to the increasing pressure from all quarters to get the basic task of producing 'First Country Reports' for all participating countries finished in reasonable time, or at least within the life-time of the WFS. Failure is indicative more of the problems many developing countries face in timely processing and reporting of survey data, than of a flaw in WFS institutional philosophy or any inherent callousness towards the issues of enhancing national capabilities.

The second positive feature of WFS approach has been the efforts made to ensure close participation of national staff in the execution of their fertility surveys. Several factors facilitated this. Generous support by the funding agencies for a relatively large central staff meant that the WFS could also be generous (sometimes even on the verge of wasteful) in providing technical assistance to country surveys. In fact it has never failed to surprise us how substantial a part of the total cost of externally supported projects, WFS or others, technical assistance usually forms. This appears to be the case, at least in the area of statistics. But even so, WFS may have been an atypical 'ivory tower' in this respect: the project provided a coverage of around one-and-a-half person-years of direct in-country technical assistance, plus a substantial amount of additional time spent at London headquarters, for a single one-time survey operation of a fairly standardized type. There are some advantages in this generosity. It is our contention that, with an appropriate institutional philosophy and a determination to get the job finished, the relationship (for a given level of existing capability in the country) between the intensity of technical assistance and the extent of country participation is a U-shaped curve. National staff, of course, 'participate' fully in their work when there is little external assistance available, the limiting factor being their ability to undertake and complete the task. This situation prevailed, for instance, with respect to data processing in some of the first participating countries before the WFS became adequately equipped to provide the necessary assistance in this field. At the other end, with generous provision of technical support, it becomes more feasible to take a liberal approach, with the foreign 'expert' taking on a more advisory, as opposed to executive, responsibility and paying greater attention to transmitting skills - the sort of arrangement conducive to enhancing national capabilities. The WFS enjoyed this advantage in many of its operations owing to the exceptionally favourable material conditions in which the programme was implemented. In less favourable circumstances, an international agency pressed to get the job finished would tend, in the interest of short-term expediency, to take on to itself direct execution of as much work as possible and hence minimize participation by the country staff - as indeed tended to happen more and more during processing and reporting stages of the later WFS surveys.

Country participation and the development of a partnership was also facilitated by other circumstances. On the public relations side, carrying out a WFS survey often turned out to be a 'high profile' activity both within a country and to some extent internationally, with a bit of fanfare and, more seriously, with a lot of interest in the successful completion of a survey and in the timely publication of its results. This, and the intensive technical inputs by WFS staff, helped to develop a close partnership between the national and international staff involved - with both sides having a clear stake in the successful completion of the country project.

Thirdly, a determination to produce high-quality final results for each national survey (by no means a universal virtue in survey practice) has been another crucial factor. This emphasis is, of course, a two-edged sword in relation to capability building. On the negative side, pressure from outsiders for timely completion takes aspects of the work out of the hands of national staff; and emphasis on high quality can result in adaption of procedures and practices which are irrelevant or are at best of limited applicability to conditions under which most other survey work has to be carried out in the country. These are very serious concerns. However it is equally important to appreciate the positive side of the equation. Our close contact and discussion with a wide spectrum of national staff has convinced us that the contributions of WFS in transferring skills and good practice in survey work has been far from trivial. Emphasis on quality went hand in hand with the production by WFS of elaborate sets of detailed manuals on survey methodology, as well as detailed documentation of survey implementation and outcome. These are useful contributions to enhancing survey capability, and provide examples which can be studied and emulated. Even more important, participation in WFS provided countries with direct experience of a high-quality, well executed, large scale national survey. The completion of a national survey included not only data collection and production of basic tables, but also a programme of analysis of survey results - which again is not a universal virtue of survey practice, especially in developing countries. Successful completion and publication of results also enhances the

morale of the statistical organization involved and raises its image and general standing with the user community and with the outside world in general important elements of what has been termed 'external capability'.⁵

The fourth positive factor which should be highlighted is that, in line with its emphasis on data analysis as an integral part of survey taking, WFS Headquarters provided facilities for intensive and task-oriented training in data processing, evaluation and analysis. The 'analysis workshops', in which country researchers analysed their own data at London headquarters in intensive interaction with the best of WFS staff are a fine example of this. Indeed these workshops and other arrangements for prolonged stay in London by individuals from developing countries to participate in data processing and analysis became an increasingly important activity of WFS, compensating to some extent for the unfortunate tendency to shift some of these activities away from the countries in later years of the programme.

General Assessment of WFS Contribution

Let us return to some of the essential elements of survey capability sketched earlier and see how WFS has failed in general in relation to those. Five areas of capability are pertinent:

- (a) Development of appropriate organizational arrangements for communication between users and producers of statistical information; the capacity of producers to assist in identification and definition of statistical needs, and to plan operations necessary to meet those needs.
 - (b) Development of material infrastructure and common tools and arrangements on the basis of which diverse needs can be readily met, and continuity and a degree of permanence assured.
 - (c) Development of necessary professional skills for survey planning, design and management, for evaluation and research analysis; establishment of trained and experienced cadres for data collection and processing.
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5 The concepts of 'external' and 'internal' capability are expounded in United Nations publications 'The Organization of National Statistical Services: A Review of Major Issues' and 'Handbook of Statistical Organization, Vol I', Studies in Methods, series F numbers 21 and 28.

(d) Specifically in the context of WFS, capability to collect and analyse fertility and related demographic data.

(e) Capability to report and disseminate statistical information in the appropriate form, at the appropriate time and to the appropriate audiences.

The first and the last points pertain to the 'external capability' of an organization, ie to its relationship with the outside world. The development of appropriate organizational arrangements and 'standing' of the organization is a long-term process, and depends not only on the organization's capacity to deliver what it is supposed to deliver and what it promises, but also on prevailing legal structures, arrangements and traditions. By and large, it is beyond the capacity of externally supported projects of limited scope and focus to fundamentally influence these factors. This is certainly the case for a one-time project of strictly limited duration such as a fertility survey under WFS. Before discussing the WFS in this respect, however, it should be noted that in many countries the model provided by WFS could and did help to raise the users' awareness of the extremely important areas of human fertility, mortality, family planning and other demographic factors. Its promotion on an international scale and especially in neighbouring countries provided a catalyst in many cases. Nations are becoming increasingly aware of the significance of the demographic phenomena, even though there remains a gap between this objective significance and its subjective realization and acceptance by governments, other organizations and people at large. WFS made some contribution in the narrowing of this gap. More specifically, the successful conduct of fieldwork, preparation of comprehensive reports and analyses, wide dissemination of the results, and especially the organization of WFS national seminars at the conclusion of the survey, contributed towards improving user-producer contact and hence the chances of actual utilization of results. The significance of this contribution is enhanced by the fact that three-quarters of the WFS surveys were carried out by national statistical offices - which in many countries are the exclusive or primary source of official statistics. In several cases these institutions collaborated with universities, health and family planning organizations or other national institutions - which again is a good thing.⁶

6 For information on the national agencies involved in executing WFS surveys, see World Fertility Survey Annual Reports.

We have already noted the very limited scope of WFS's contribution to the development of survey infrastructure. The provision of equipment was largely precluded by its terms of reference, and of course the use of ad hoc, especially recruited female interviewing staff seriously limited any contribution WFS could have made towards the building of a permanent survey machinery.

However, where a survey machinery existed, in some cases WFS's contribution to its enhancement was quite considerable. Existing staff generally acted as supervisors and received valuable experience and training. In addition, in most cases, coders, editors and other office workers came from existing staff. In a few countries some of the newly recruited staff could be retained in the organization on a regular basis, or could be absorbed in other national organizations engaged in statistical or related work. In a survey of participating developing countries (response rate about 60 per cent), just over one-half reported such retention of staff.⁷

The WFS experience may also have made an important contribution in the rightful acceptance of females as survey interviewers, quite capable of undertaking the exposure and hardship of fieldwork. During the course of planning country surveys a variety of prejudices surfaced against the use of women in survey work (though much less so in South America and East Asia where there had been more experience with female staff). Many national professional staff argued that women with the necessary education would not readily accept the hardship involved in fieldwork; that women would need chaperoning and that this would create personal and social problems; that younger women would be unacceptable to older respondents but that older women interviewers would generally have family commitments which would preclude long absences from home; and that all these factors would lead to high drop-out rates among interviewers.⁸ Certainly there were occasional problems, but overall the evidence from WFS is conclusive: such arguments represented little more than prejudice in most cases.

7 Martin Vaessen, private communication on the basis of preliminary results of a survey of national survey directors.

8 Christopher Scott and Susheela Singh 1981 'WFS Data Collection Methodology', Proceedings of the WFS Conference, 1980.

WFS could not directly support long-term training fellowships for the development of professional skills. However, data collected through the WFS formed the basis of many postgraduate research theses by scholars from participating countries, and sometimes the WFS was able to act as a 'broker' in arranging for long-term training fellowships from other sources. An important contribution of WFS came in the form of analysis projects undertaken by national researchers and the short-term but intensive analysis and training workshops organized by WFS directly, or sponsored by it in collaboration with other reputable institutions. In addition a partial analysis of responses from countries indicate that WFS materials and data have been used for some sort of training and general research at national institutions in nearly two-thirds of the countries, though only one in three reported that WFS had contributed towards 'institutionalization of research' (excluding those who stated that such capability already existed).

Direct experience through participation in a well conducted survey is of course the main contribution of WFS. The problem in this context is the well known one of loss of trained staff. In the survey of participating developing countries referred to above,⁷ the percentages of national directors (responsible for overall policy direction), survey directors (responsible for technical direction), field directors, principal persons responsible for data processing, and principal analysts who were still with the survey organization by the end of 1983 were approximately as follows: 30, 40, 50, 40 and 60 per cent respectively. Twenty to 25 per cent in each category were reported to have left the country, the rest having gone to other organizations within the country.

Apart from providing on-the-job training in various aspects of survey work, the major contribution of WFS lies of course in the area of developing and disseminating tools and techniques of survey-taking and analysis.

Contributions to Survey Methodology

That WFS has made important contributions to the practice of survey taking is by now a widely accepted view. Yet in assessing this contribution, it needs to be remembered that, with minor exceptions, WFS has not had at its disposal any funds for purely methodological research or experimentation, and no breakthroughs in methodology were expected of the programme. The contribution lies primarily in setting out to organize and co-ordinate surveys using what

may be considered state-of-the art technology, and in promoting the wider and systematic application of that technology. The significance of this lies in the fact that many of these techniques were innovative as far as many of the participating countries were concerned. Its contribution also lies, though perhaps to a lesser extent, in the area of assessment and documentation of survey procedures and outcome, and evaluation and analysis of data. The availability of a relatively substantial and competent staff at WFS headquarters made this possible, especially in the later years of the programme when the pressure of country work had eased somewhat.

It is necessary to take a balanced view of WFS methodological contributions. On the one hand, several factors limit the generalizability of WFS techniques and procedures: for example, its highly standardized nature, adoption of a fixed approach, absence of experimental evaluation of alternatives, the generally ad hoc approach to design, and the lack of financial constraints. On the other hand, the significance of the contribution is hard to overstate since, in our experience, the most common cause of wastage of enormous resources in survey work is the use of poor methods and techniques, resulting in equally poor or even useless data.

First let us counter some limitations of WFS methodology.⁹

The WFS has been an attempt to apply a standardized approach across diverse circumstances so as to generate more or less comparable data on a very specific topic. Its methodology is characterized by a high degree of standardization in survey design and operations across countries. It is important to appreciate the nature, extent and rationale of this standardization as it defines both the strengths and limitations of the WFS. Of course the standardization is by no means complete and there has been considerable flexibility in its appreciation concepts, definitions, survey instructions and the main statistical outputs. The central staff of the WFS

9 For fuller discussion of the broader issues and specific illustrations of WFS contributions to survey methodology, see Vijay Verma 'WFS Survey Methods: An Assessment' in J. G. Cleland and J. N. Hobcraft (eds). Reproductive Change in Developing Countries: Insights from the World Fertility Survey. Oxford University Press (forthcoming).

have been directly involved in the development and provision of common concepts, definitions, survey instructions and the main statistical outputs. The central staff of the WFS have been directly involved in the development of detailed survey designs and their implementation at the country level. Furthermore, as noted earlier, the pressure for speed and high quality invariably encouraged concentration of activities at the WFS headquarters, increasing further the degree of standardization.

On the one hand, standardization has had the advantage of efficiency. For the international organization, there is considerable economy of effort in designing a uniform package of procedures for data collection, processing and analysis, in contrast to custom designing survey tools and procedures for each country. For given sources, it can provide a much more intensive technical support to country surveys. This element has been of crucial significance in the successful completion of country surveys under WFS. Outside the WFS, there are countless examples of poor quality surveys, yielding poor quality data, which are published after long delays, if at all. The main cause of this state of affairs has been the lack of time and of the professional skills necessary for detailed and careful planning in many developing countries' organizations. The WFS has done well on this score.

On the other hand, there are certain fundamental limitations of the standardized approach. Standardization results in neglecting the broader issues of planning, design and implementation of statistical surveys which, even if not narrowly technical, constitute an essential part of the survey capability. As noted earlier, participation in the WFS did not provide countries with experience in developing user-producer interactions and the organizational forms necessary for identifying, expressing and enumerating priorities in user requirements. The scope and content of the survey was largely predetermined in the form of a fairly elaborate 'minimum' core which all countries were required to follow. Of course, to facilitate the inclusion of additional topics in country surveys, a series of 'modules' were developed which, at the country's discretion could be added in whole or in part to the core. These obtained additional information on such topics as fertility preferences and contraceptive use, availability and access to family planning services, induced abortion, traditional restraints on fertility (eg breastfeeding, sexual abstinence and spousal separation), economic determinants of fertility including attitudes towards costs and benefits of children, and on general mortality. In principle, countries could also add other relevant topics of special concerns. But in practice the possibilities

of broadening the scope of the survey were severely limited to what could be accommodated in a retrospective single-round survey with the major part of the content already fixed in the form of the WFS core. The only additions to this arrangement were the collection of information on (i) current age-specific fertility and mortality on a larger sample of households, (ii) availability and accessibility of various facilities at the community level, (iii) attitudes and behaviour of husbands of women interviewed in the main survey, and (iv) response errors by reinterviewing a subsample of the women. Out of 42 developing countries participating in the WFS, the numbers who introduced these additions were, respectively, 13, 17, 3 and 9, ie a minority in all cases. Little attention was paid to such highly relevant and related topics as mother and child health (MCH) and nutrition. One general conclusion is that, given the diverse conditions and requirements of countries, and the intellectual and material sources at the disposal of the WFS, WFS provided inadequate opportunity for user-producer interaction and country-specific determination of survey content. This would have been entirely compatible with the WFS primary objective of assisting countries in describing and interpreting the fertility of their populations.

The second limitation of WFS methodology is that fixing the approach in the form of a retrospective single round survey also precluded the study, evaluation and adoption by countries of any alternative survey arrangement. Yet it is possible that, even within the specific context of a fertility survey, different approaches would have been more appropriate in terms of cost or precision and relevance of the information generated. For example, it is possible that a multi-round survey or a 'dual record' system would have fitted more economically and conveniently into existing statistical operations of particular countries; in other countries, the experience gained by participating in and the results from, a larger-scale, simpler demographic survey of the conventional type might have been more relevant to national needs and served them better.

Thirdly, the 'priority' of WFS methodology is also limited by the fact that, in spite of some variation in the approach followed in different countries, the experience of the WFS sheds little light on the relative efficiency of these various approaches. It is true that large scale experimentation was precluded in the WFS mandate. Even so, WFS does not provide a good example to follow in its neglect of even smaller-scale experimentation. In spite of the large size of the operation, little can

be said, for example, about which of the various approaches to collecting birth history data tried in different countries is better. To obtain an indication of the direction in which the answer lies does not necessarily involve split-panel experiments on a national scale! WFS failed to give countries experience of how alternative design and operational strategies may be formulated and evaluated. Such experience is an extremely important element of general survey capability.

Fourthly, in many countries the fertility survey was conceived and designed more or less as a special operation, requiring specially recruited interviewers and other ad hoc arrangements. The designs and procedures for the fertility survey were often - though certainly not always - chosen without considering seriously the broader requirements of operational co-ordination and substantive integration of related surveys. Yet these requirements ought increasingly to be considered critical in choosing appropriate designs and methodologies of statistical surveys, especially in developing countries where, despite very limited resources data requirements are becoming more extensive and diverse and the number of surveys being undertaken is on the increase. It is important to consider questions such as: to what extent are the approaches and procedures developed within the particular context of a fertility survey of a specific type useful and applicable to future surveys on other topics? Are there elements which can be regarded as models of excellence, comprising a more lasting and general contribution to survey methodology, portable beyond the immediate concern of fertility surveys? To what extent have countries actually retained and absorbed the survey practices introduced through WFS? And how realistic and relevant are these contributions for general survey work in countries, given that that work has usually to be carried out under less favourable material circumstances than was WFS?

This is another limitation which needs to be recognized, even though its significance has been often exaggerated. The usefulness of some aspects of WFS methodology towards national survey capability may certainly be limited because these surveys were often carried out under favourable conditions in terms of available material and intellectual resources and the provision of liberal operational and technical assistance - conditions which are not easily repeated or sustained in survey work in developing countries. Indeed what may appear to be an optimal or at least a good methodology in favourable circumstances may sometimes be far from sensible when the going is not so good.

Before listing some of the WFS's important contributions to survey methodology, it is important to emphasize that, in our view, the last mentioned limitation has often been overstated. Certainly the operational costs of WFS surveys have, for given sample size, been notably above average, but not outstandingly so, especially when one considers the mean square error and elapsed time before publication, and remembers that many surveys yield nothing. Even so, these costs are comparable to numerous surveys of similar size, and lower than many. What is exceptional in the case of WFS is the cost and intensity of technical assistance provided although; that in itself does not reduce the relevance or applicability of the many excellent contributions of WFS to the methodology of survey-taking in developing countries. Hopefully, some of the methodology can be applied with less technical assistance in the future, as shown by the Dominican Republic in its second fertility survey, for example. Numerous surveys are badly conducted and yield poor/unusable results not so much because of lack of operational resources, but largely because of lack of the technical and managerial skills to design and execute surveys properly. Indeed, some of the 'methodological sophistication' promoted by the WFS is important precisely because it can be an instrument of saving costs through more efficient design and procedures. Appropriate methodology is an essential element of survey capability.

Specific areas of WFS contribution to survey design, execution and analysis capability have been described in several publications.^{1,8,9} Perhaps the best description is to be found in the numerous manuals, technical bulletins, illustrative and comparative analyses, case studies, occasional papers and other scientific publications, mainly by the WFS but also by other organizations, and in wide-ranging published and unpublished documentation of experience by participating countries and WFS staff and consultants. Below we list briefly the five most outstanding areas of contribution.

(1) Questionnaire design. If we were to identify one area where the basic WFS characteristics of centralized support, standardization across countries and concern with high technical standards are most manifest, this would be in the area of design and development of survey questionnaires. The care and attention with which the basic instrument was developed is exemplary, and in design if not in content the WFS questionnaire has served as a model for many other surveys on different topics. Even so the process of review and refinement has continued throughout the WFS's own existence.

One of the fundamental sources of trouble in many surveys is the use of poorly formulated, designed and tested questionnaires. Often questionnaires are unnecessarily bulky, contain irrelevant and unusable material, are not properly tested and evaluated, and make little provision for editing, coding and data processing requirements. We have already noted the undesirable rigidity with which the WFS questionnaire was sometimes applied in countries, but whatever its shortcomings, a critical study of the documents ought to be a compulsory part of the training of practising survey statisticians.

WFS promoted painstaking work in the area of translation of questionnaires into the languages of the interviews. Formal disciplined translations were normally made and checked to reduce those mistakes in translation of questions which inevitably arise if translating is left to each interviewer to be done at the time of the interview. An attempt was made to prepare a written version in each major language of the survey. For instance, 14 languages were used in Cameroon, 11 in Ivory Coast, 10 each in Kenya and Ghana, 9 in the Philippines, 7 in Benin, 6 in Nigeria, and 5 in Pakistan; in all 40 per cent (17 of 42) countries used two or more written versions. In addition, versions of oral delivery were prepared in several cases. In Cameroon, a unique linguistic survey was carried out before the main fieldwork. This practice was a new departure in survey-taking. Its neglect in past surveys may in part have been due to lack of resources, but in part it may also be the result of lack of attention to an important issue. A senior member of the national staff once remarked that it was illuminating for his organization to undertake a multilingual survey. The practice has not been repeated in the country since the fertility survey but the experience exists to be made use of as appropriate.

- (2) Training, pre-testing, supervision and fieldwork. The WFS can claim with justification to have encouraged and introduced several major improvements in data collection. Not all these are innovative, but the credit lies in their elaboration and systematic application. We have already noted the use of well designed verbatim questionnaires and written translations. Other improvements include thorough training and pre-testing, the use of female interviewers and mobile teams, high supervisor-interviewer ratio, prompt editing in the field, spot checks and reinterviews, tape recording and analysis of a sample of interviewers' work, rigorous rules for call-backs to follow-up non-responding units and so on. The WFS training

manuals, for interviewers and, supervisors, as well as trainers, contain a great deal of useful material which is adaptable to diverse surveys and survey conditions. The same applies to training courses developed in WFS surveys, with their emphasis on demonstration and role-playing exercises and field practice, use of audio visual aids, especially tape-recorders, and above all on the length of training - usually three weeks for interviewers and up to five weeks for field supervisors. In so far as WFS has demonstrated and convinced countries that longer training of operative staff can contribute towards substantial improvements in the quality of the data collected, it has made a significant contribution to the improvement of survey practices.

(3) Sampling. WFS samples were designed within the specific context of a one-off survey, yet a great deal can be learned from the simple and clear strategy adopted. The experience of countries participating in WFS has demonstrated that it is feasible to conduct, and conduct fairly well, surveys based on strict probability samples; and that it is possible to have measurable samples, to keep records of sample structures, and to estimate and present sampling variances along with the publication of substantive results. The designs were simple in several respects: they were often self-weighting; avoided multiple area stages and cumbersome stratification; and relatively speaking the sample sizes were small to moderate, emphasizing the importance of controlling non-sampling errors. The WFS manual on sample design, as didactic material for the general survey practitioner should be counted among the significant contributions of WFS to the art of survey-taking in developing countries. But most important is the WFS contribution to computation and analysis of sampling errors. The WFS developed and distributed free of charge a special package program for the purpose (CLUSTERS), and provided technical and empirical material on analysis of sampling errors and evaluation of the sample designs used. Most survey reports include detailed information on sampling errors; the participating developing countries in this respect excelled the usual practice of neglect by many developed country organizations.

(4) Data processing. The WFS contribution in the area of data processing is sometimes underestimated, at least in part because the programme originally underestimated the complexities of the task and its strategy and methodology evolved rather slowly. Considerable resources were ultimately devoted to the development and free distribution of useful

software packages for survey data processing. While some of these were designed for very specific WFS applications, others such as COCCGEN, CLUSTERS, ASSEMBLER, CONCOR, UPDATE, CORRECTOR, MARG and COD BOX provided a valuable arsenal for countries in a very critical area of survey work and were generally applicable. WFS also developed and carefully documented detailed procedures for data editing, tabulation and archiving. The comprehensive WFS publication, Data Processing Guidelines, is an outstanding document on how to plan and specify the various data processing steps; in fact we know of no other document of comparable quality on the subject .

- (5) Reporting, analysis, assessment and evaluation. Perhaps the most outstanding contribution of the WFS lies in the fact that it took the tasks of data analysis, assessment, evaluation and reporting most seriously, as an integral part of the total survey operations. This is not because WFS paid any less attention to data collection and processing, but because insufficient attention is paid in most other survey work to data analysis. WFS has made some important contributions in the area of data analysis. We need not comment on specific techniques developed and tested, except to note that the large number of scientific publications by WFS, or others in association with WFS, constitute an important contribution to the development of survey methodology and analysis techniques, some of which go beyond the specific concern of a fertility survey. Finally, special mention should be made of the analysis and evaluation workshops conducted by WFS to help train a large number of researchers from developing countries.

Capacity to Absorb

In conclusion, we must raise the question; to what extent are countries willing or able to absorb some of the desirable survey practices promoted by WFS? In other words, has there been a lasting effect?

Such questions are of course extremely difficult to answer. In the main one can form only subjective impressions from talking to the individuals involved. On that basis, we may answer the above questions affirmatively, since almost always ex-directors of WFS surveys have been complimentary to the WFS in their remarks to us. Generally, criticism of WFS has come from other, non-ex-directors, who no doubt are equally wise and objective.

The WFS has itself been, at least of late, quite conscious of the importance of these questions. It has recently carried out a survey of senior national staff in participating countries, to which we have already referred. Again responses to questions similar to the above have been generally positive; perhaps people are polite, or we have a biased population of those who may have personally benefited from participation in the WFS experience. For whatever its worth, here is a typical sample of responses to a question on general appraisal of the WFS (on the basis of a 60 per cent response rate); (1)

QUESTION: How appropriate is the WFS model for fertility and other similar surveys?

Sample responses:

- Very appropriate; want to repeat
- Appropriate; in fact have repeated fertility survey on same model
- Too expensive; not sensitive to national needs
- High fieldwork cost; too much emphasis on data editing
- Very appropriate
- Better than most surveys, but cost high
- Follow-up prospective approach would have been preferable in this country
- High marks for thorough training, planning, fieldwork and editing
- Very appropriate
- Need to follow a simpler approach
- Will follow in future
- Good for countries which already have a capability (like the country concerned)

From the same survey of national directors, the following is a more objectively answerable question. Countries were asked whether any of the following survey practices introduced during the fertility survey were adopted and continued in subsequent surveys. The response categories were:

- (1) Practice already existed before participation in WFS, and continues;
- (2) Practice introduced since the WFS survey, and continues;
- (3) Practice discontinued after WFS was over;
- (4) Response not stated or not clear.

Technique	Number of countries by response				
	(1)	(2)	(3)	(4)	Total
1. Translation of questionnaires	18	2	2	2	24
2. Use of female interviewers	17	6	0	1	24
3. Use of team approach to fieldwork	19	3	1	1	24
4. Use of tape recorders	4	2	14	4	24
5. Use of field editors	19	2	2	1	24
6. Thorough machine editing	11	8	2	3	24

It would appear that in the promotion of translation, in the use of female interviewers, and in the team approach, the WFS was not particularly innovative. (The issue of translation is misrepresented in the above figures since at least 10 of the countries in (1) have a single language in any case; some others are perhaps referring to oral not written translations. The most notable features are the 6 countries out of 24 who introduced female interviewers following experience with the WFS, and 8 who introduced more thorough machine editing of the data. The use of tape recorders has not caught on, probably due to the substantial extra work required in the analysis of tape recordings, and because appreciation of the practical significance of methodological research and evaluation still remains inadequate.