

# IDS Bulletin

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## THE MILLENNIUM VILLAGES: LESSONS ON EVALUATING INTEGRATED RURAL DEVELOPMENT

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# Integrated Development, Past and Present\*

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**Abstract** Recent years have witnessed a renewed interest in integrated rural development (IRD) projects, which were a common feature of international development in the 1960s and 1970s. In this article we critically review the literature on past IRD with the goal of informing current practice. We identify two key narratives in the IRD literature: (1) IRD projects were designed to exploit complementarities and synergies between development interventions, and (2) the administrative complexity of IRD projects prevented their successful implementation. We argue that the first narrative is not grounded in a solid theory of how IRD works, and that the second is largely based on a body of evidence which is wide but not rigorous. We show that some recent IRD experiences have been successful and conclude that future IRD evaluations need a novel conceptualisation of synergies and greater attention to the characteristics of implementation and cost-effectiveness.

**Keywords:** integrated development, Millennium Villages, integrated rural development, IRD, multi-sector, synergy, impact evaluation, complexity.

## 1 Background

Recent years have witnessed a surge of interest in multi-sectoral poverty reduction interventions. The project sites under the Millennium Village Project (MVP) discussed in this issue of the *IDS Bulletin* is one example. The MVP was conceived to show that the Millennium Development Goals (MDGs) could be achieved in rural Africa at a small geographic scale and at relatively small cost through interventions in multiple sectors (Sanchez *et al.* 2007). Reminiscent of theories of poverty traps popular in development economics (see, for example, Azariadis and Stachurski 2005), the hypothesis underlying the MVP was that simultaneous interventions in multiple sectors could raise living standards over a threshold level that would bring villages onto a sustainable development path, thereby breaking the poverty trap. The non-profit human development organisation FHI 360 has recently developed a research programme to identify the multi-sector and

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integrated programmes which are the most powerful and effective.<sup>2</sup> The Partnership for Economic Inclusion (PEI) hosted at the World Bank was recently established to accelerate and scale up the poverty graduation approach initiated by the non-governmental organisation (NGO) BRAC: a 'coordinated multi-sectoral big-push intervention' to address extreme poverty.<sup>3</sup> The poverty graduation approach consists of a package of cash transfers, training, asset transfers, and financial inclusion interventions, which was successfully tested through a multi-country evaluation by the Abdul Latif Jameel Poverty Action Lab (J-PAL) in nine countries (Banerjee *et al.* 2015).

These multi-sectoral interventions with multiple goals are well aligned with the recent transition from the MDGs to the Sustainable Development Goals (SDGs). It has been observed (Le Blanc 2015) that the SDGs are strongly interconnected so that impact in one sector may produce second round impacts in other sectors. These interlinkages between outcomes invite the international community to consider development as a system of trade-offs and interdependencies. The interconnections between goals may enable more integrated policies and easier considerations of synergies and trade-offs across SDG areas. All this points to what seems to be a renovated interest by the international research and policy community in multi-sectoral integrated poverty reduction interventions. These interventions, however, are not new. Very similar projects were implemented on a massive scale in developing countries by NGOs and international organisations starting in the 1960s. Integrated rural development (IRD) projects and small-area programmes dominated international aid assistance in the 1970s. These initiatives were abandoned in the early 1980s and the re-proposition of similar interventions nowadays has led some to argue that the international development community is unable to learn from past experience, and for this reason is bound to repeat the same mistakes again and again (White 2015).

In this article we critically review the literature on past and recent integrated development programmes. Our primary goal is to draw lessons from past experience that can inform the design, implementation, and evaluation of better integrated development programmes. We start with a summary of existing reviews of past integrated development programmes, followed by a discussion of synergies and of the available evidence of their effectiveness. We then review the success of recent integrated development programmes and we conclude with some reflections on the design and evaluation of future integrated interventions.

## **2 Old integrated rural development**

There is a large literature on integrated development programmes. The World Bank, one of the major funders of integrated development programmes, has been particularly prolific. In this article, we mostly rely on existing reviews of this large literature, particularly on two reviews conducted by the Overseas Development Institute (ODI) (ODI 1979;

Buse, Ludi and Vigneri 2008), the review by Baah-Dwomoh (2016), and a very comprehensive review by the Operations Evaluation Department (OED) of the World Bank (World Bank 1988), and on other papers quoted by the same reviews.

IRD projects were very popular in the 1970s among major development agencies such as the World Bank, the African Development Bank, the Ford Foundation, the Rockefeller Foundation, the Swedish International Development Cooperation Agency (Sida), and the International Maize and Wheat Improvement Center (CIMMYT), among others. Two major conferences have been singled out as pivotal in a major shift towards IRD by major donors (Ruttan 1984). In 1971, a major symposium was held at the Food and Agriculture Organization of the United Nations in Rome on 'Agricultural Institutions for Integrated Rural Development' and in 1973, the World Bank president Robert McNamara made a speech to the Board of Governors in Nairobi in which he made a pledge to fight world poverty through an integrated approach to rural development. Since then, integrated rural development has become an increasingly important focus of multilateral and bilateral development agencies and NGOs.

Two main reasons are said to explain the popularity of IRD projects in the 1970s: the widespread persistence of poverty in rural areas and the perceived need to simultaneously address multiple constraints to economic growth. Development efforts in the 1950s and 1960s were mainly devoted to the promotion of industrialisation and community development following the theoretical thinking and the development discourse of the time. By the end of the 1960s, however, the persistence of poverty in rural areas suggested that these policies had largely failed and that entire segments of the rural population had been left behind by development interventions. It was felt that deprived areas were in need of special programmes to improve productivity and that a package of basic services had to be provided. At the same time, it was believed that poverty could not be addressed by simply promoting agricultural development. Poor people's opportunities, it was thought, were limited by multiple constraints in infrastructure, health, and education that needed to be addressed simultaneously. IRD projects promised to address these multiple constraints exploiting synergies and complementarities across sectors.

References to synergies and complementarities were common in the discussion of IRD projects of the time and they recalled theories of the 'big push' put forward by the 'high development theories' of the 1950s (Krugman 1995). Authors such as Rosenstein-Rodan (1943), Hirschman (1958), and Leibenstein (1957) had interpreted development not as a gradual process but the result of a radical transformation of the economy through simultaneous changes in all sectors. According to these authors, economic progress would require simultaneous growth in all sectors through the operation of forward and backward linkages and economies of scale. By the early 1970s, these development theories were

completely discredited in academic and policy circles, but the notion of synergies and complementarities across sectors lingered on in the practice of IRD projects, though the precise nature of the hypothesised interactions across sectors such as agriculture, health, and education was never investigated or described.

The practice of integrated rural development took many different forms including small-area interventions, packages of agricultural interventions, and truly holistic programmes. The pioneering village development project run by the Pakistani Academy for Rural Development at Comilla in today's Bangladesh was a great source of inspiration for the designers of IRD projects (Ruttan 1984). The Academy was established in 1959 as an experimental training station and it evolved into a holistic development programme based on the cooperation between local authorities and communities and coordinating activities in agriculture, water, health, and education. Observers of the time reported that the project had been successful in developing cooperatives and in increasing farmers' productivities. Following the Comilla example, similar integrated projects were established in other countries such as the project in Puebla (Mexico) and in Lilongwe (Malawi) (World Bank 1988).

IRD projects shared some common characteristics. They all had a focus on agriculture and the goal of increasing crop productivity and agricultural incomes. This was normally pursued through a package of interventions including cooperative development, credit access, input delivery, access to roads, and markets. But IRD projects went well beyond agricultural interventions and were often multi-sectoral, including interventions in health, education, and infrastructure. They relied on a centralised unit that coordinated and carried out activities in different areas. Since programmes were often implemented in deprived areas lacking the institutional structure and skills to provide this coordination, the coordination units were established anew and relied on highly skilled technical staff and expatriates.

IRD projects became the standard approach to rural development in the 1970s. For example, the World Bank approved 227 such projects between 1975 and 1989, though it never used the term IRD explicitly and preferred the term 'area development projects' (World Bank 1988). IRD projects fell out of favour in policy circles in the early 1980s with the emergence of the Washington Consensus and of a new ideology hostile to agricultural development and public sector interventions. By the late 1980s, all IRD projects had been abandoned, though elements of IRD survived in Community-Driven Development (CDD) and in projects promoted by some multilateral agencies such as the International Fund for Agricultural Development (IFAD) and by NGOs.

The great popularity of IRD in the international development community and its later sudden demise appears to be related more to changes in the political environment than to an appreciation of evidence

of their effectiveness. The widespread adoption of IRD in the 1970s reflected a major shift in development policy, from a concern with economic growth to the goal of reducing income disparities, fighting poverty, and meeting the basic needs of the poor (Rondinelli 1979). The World Bank in the 1970s made unprecedented financial disbursements in rural development in an effort to fulfil the goal of fighting rural poverty inaugurated by its President, Robert McNamara, often without proper planning and evaluation (World Bank 1988). Similarly, in the early 1980s, the new development policy of structural adjustment drastically reduced resources for public investments and poverty alleviation programmes (World Bank 1993), mostly on political and ideological grounds.

A vast literature on IRD projects was produced in the 1970s and narrative reviews of this literature have generally concluded that the evidence against the effectiveness of IRD projects was overwhelming. However, while skimming this literature, we cannot avoid a sense of missed opportunities. In little more than a decade, hundreds of large-scale projects were implemented in different forms, by different agencies in an incredibly wide variety of contexts, but without an evaluation system in place to learn from these experiences. While a consensus has emerged that these projects were not successful, a number of questions remain unanswered. For example, to what extent did projects fail because of a fundamental failure in design or because of implementation problems related to the absence of adequate political and administrative support? IRD projects were implemented following early successful experiences, but what were the contextual characteristics, of implementation, implementing agencies, and beneficiaries, that influenced their success? Could IRD interventions have been more effective had they adopted a more decentralised and participatory implementation approach? In this article, we do not develop these questions further, but instead focus on two key themes.

The literature on integrated rural development is dominated by two key narratives. The first narrative is that there are gains in integrating interventions across different sectors such as agriculture, health, and education. The reason is that integration exploits complementarities and synergies: impacts in different sectors, such as agriculture, education and health, reinforce each other. The second narrative is that integration, though theoretically appealing, does not really work. By the early 1980s, a consensus emerged among academics and policymakers that IRD projects were impractical and unfeasible. Observers had reached the conclusions that the complexity of integrating interventions outweighed the gains produced by synergies. We now discuss these two narratives more in detail.

### **3 Synergies and complementarities**

All reviews and the documents of the time made reference to synergies and complementarities as a main motivation of IRD projects. However, though synergies and complementarities were always mentioned, their mechanisms of operation were never explicitly spelled out. They were

introduced as a sort of obvious and known fact of development policy without further elaboration. One exception is Brinkerhoff (1981) who discussed the theoretical underpinnings of integrated rural development in some detail. Development, he argued, was the result of complex and multifaceted interactions between interlinked economic, physical, political, and social phenomena. It should be natural, therefore, that development efforts should try to replicate this process through integrated interventions. Development should be unlocked by the emergence of complementarities and synergies across sectors.

In economics, complementarities refer to the fact that the optimal use of one input may require the use of another input. For example, fertiliser alone may not increase agricultural yields and needs to be complemented by water. Indeed, a combination of fertiliser, new seeds, and water made the 'green revolution package' that increased agricultural yields in Asia. We can extend the concept of complementarity in the production of one crop to complementarity in agriculture. For example, farmers may need a combination of a green revolution package, training, roads, and access to market to sustainably increase their incomes. Moving a step further, integration can occur across sectors as well as within sectors. We can think of a higher order integration across agriculture, infrastructure, health, and education. It could be argued, for example, that agricultural interventions need a minimum level of infrastructural development to be successful, or that behavioural change in health practices needs a population with a minimum basic level of education. This point was explicitly made by Adelman, Morris and Robinson (1976) who concluded a review of anti-poverty policy stating that single-policy interventions do not have lasting effects and that different interventions should be implemented simultaneously in different sectors to have a sizeable and long-lasting impact on rural poverty.

Synergies consist of mutually reinforcing outcomes, independently of whether activities are complementary in the sense defined above. For example, empowered women may start a business activity more confidently, which results in higher incomes and further increase in empowerment. Synergies can also be the result of economies of scale, as they are commonly understood in economics, that emerge from increasing the scale of production. Such economies of scale can be generated by integrating the provision of services at a larger scale. For example, joint planning and service use by a single integrated entity operating in different sectors may save resources and avoid duplications. In other words, synergies and complementarities of IRD projects can be thought of as a technology whose joint output is larger than outputs separately produced:

$$y(x_1, \dots, x_n) > y(x_1) + y(x_2) + \dots + y(x_n)$$

Output generated by the joint production of outcomes (on the left-hand side) in  $n$  different sectors is larger than the output produced separately and independently in each sector (on the right-hand side).

Synergies and complementarities are terms borrowed from economics and their frequent use may suggest that IRD was informed by economic theory. The similarity between the language of economics and the language of IRD, however, is only apparent. The economic theory of the firm is formulated for single production units using several inputs to produce a single output, not many. Complementarities in economics refer to combinations of inputs, not outputs. Economies of scale in economics emerge at the expansion of the input scale, not through output interactions. Even the economics concept of economies of scope refers to economies of scale in the production process generated by the simultaneous production of a variety of outputs. It does not refer to outputs affecting each other. To complicate matters, unlike output considered by economic theory, development outcomes such as education and health cannot be easily priced and monetised in a single unit. This complicates the task of optimising inputs for output maximisation discussed by economic theory, as overall output of an IRD project is not easily defined.

Finally, not all interactions between outputs are mutually reinforcing. There are also conflicting outcomes that need to be taken into account. For example, promoting agricultural production may lead to higher labour demand and less schooling, thus acting against education goals rather than in their favour. The literature on IRD contains limited discussion of these issues, and the economics literature is not of much help either. The notion of synergies and complementarities seems to rely on grand development theories popular at the time which rely on the concept of economies of scale and that favoured big-push interventions which were similar to those proposed by IRD projects. But a theory of integrated rural development, of how it was supposed to work and under what conditions, was never explicitly elaborated and it is still absent today.

#### **4 IRD did not work**

The second narrative dominating the IRD literature is that IRD projects did not work. It is clear that this type of project was abandoned by the late 1980s and treated with scorn and contempt by most development agencies. The reasons for this are many. First, IRD projects did not deliver the expected results, which were, admittedly, very ambitious. Yields and rural incomes did not increase significantly and poverty persisted. This was found by most evaluations of IRD interventions, a point to which we will return later. Some difficulties originated at the design stage (Baah-Dwomoh 2016). IRD projects were often designed using a top-down approach. Apparently, projects were designed with scarce knowledge of the context and the solutions proposed were often inadequate. This was more common for the agricultural packages such as new crops or cropping systems that were not always feasible or even desirable in the particular context in which they were promoted. Projects often included a simple package of inputs (fertiliser and improved seed) to increase agricultural productivity. No consideration was given to dryland areas, farmers' risk, adaptation

of technology to local context, or development of local and more appropriate technologies. This problem was exacerbated by the reliance on staff with a technical background and with a poor understanding of poverty and social issues.

We are also told that IRD projects were often implemented in deprived areas with little potential for economic growth, and in economic environments hostile to agricultural development. The economic policies of the 1960s and 1970s, consisting of overvalued exchange rates, price controls, and tariffs on goods, were directed to favour urban areas and industrialisation against agriculture. In such policy environments, it was extremely difficult to stimulate agricultural production. Agricultural prices controlled by the state were unfavourable to producers. Producers' prices were kept artificially low by government policies and sometimes they would fluctuate in the international markets, thus harming farmers. Commercialisation of output was neglected, and problems related to availability of labour and land were also ignored.

By far the most significant problem of IRD projects was their complexity. IRD projects turned out to be very difficult to administer and implement because of difficulties in coordinating activities across sectors and agencies. Projects were implemented in an integrated way across sectors rather than sequentially or in parallel. This organisational complexity often resulted in delays. In addition, local institutions in marginalised rural areas were weak and not sufficiently skilled to carry out the activities. To obviate this problem new structures were established to administer the projects that were often staffed with expatriate and skilled personnel. This staffing was impossible to sustain once project funding had ended, nor could such organisations be scaled up to cover a larger area. This came as no surprise to those who had argued on theoretical grounds against integration well before IRD projects started, and who had questioned whether the integration of services also required the integration of the service provider (Ruttan 1984). In one interesting example reported by an OED report (World Bank 1988), staff interviews led to the conclusion that an integrated rural development project in Bangladesh of the cost of US\$177 million would have been more effective if implemented as four separate projects. We are now told that IRD projects would be less expensive if implemented separately:

$$c(x_1, \dots, x_n) > c(x_1) + c(x_2) + \dots + c(x_n)$$

The cost of administering an IRD project was higher (left-hand side) than the cost of running the components of the project separately (right-hand side). This observation is interesting because it runs against the synergy argument made earlier on. One implication of the synergies described by the equation in Section 3 is that costs of administering an IRD project should decrease as the scale of the intervention or the number of sectors increases. But this second equation leads us to

consider that, on the contrary, costs increase with integration, and in principle the two statements cannot be true.

As for the evidence in support of the poor impact of IRD, this is totally non-existent. The evaluation methods used at the time have been described as underdeveloped and intuition was often used instead of data (World Bank 1988). Data on outcomes were never collected from comparable control areas. In fact, data were rarely collected at all, even in project areas, and they were often of poor quality when collected. Finally, when data were collected they were rarely analysed. In our review of the literature, we could not find a single piece of evidence on the impact of the interventions. The evaluations of IRD projects conducted by the World Bank were probably the most rigorous of the time and consisted of *ex ante* estimations of internal rates of return (IRR). Project impacts in the form of IRR were estimated before the projects were implemented and, sometimes, were calculated again after the projects ended, by revising the original projections with whatever piece of data was available. We learn that the average rate of return of World Bank projects calculated in this way was 10.4 per cent, just above the minimum threshold of 10 per cent, and that this was highly disappointing. It is difficult to decide what to make of the evaluation literature on IRD projects. On the one hand, all authors concur that IRD projects did not achieve their ambitious goals and we are willing to believe them. On the other hand, no evidence is ever presented in support of these statements and we are left somewhat unconvinced.

### **5 Recent integrated development**

Despite the desertion of large-scale IRD projects in the 1980s, the idea that addressing rural poverty requires a holistic approach to development has resisted. Projects run by NGOs and development agencies often include integrated elements and some projects have embraced integration altogether. Examples of the latter include the Upper Mandrare Basin Development project in Madagascar run by IFAD between 2001 and 2009, which aimed at reducing poverty through a package of capacity building, local initiatives, financial services, and roads; and the World Bank-funded Southwest Poverty Reduction Project (SWPRP) implemented in the counties of Guanxi, Guizhou, and Yunan of rural China, which consisted of income-generating activities, reforestation, promotion of off-farm employment, rural infrastructure, rehabilitation of schools and clinics, construction of roads, and piped water supply.

Perhaps the most notable example of recent integrated development is the MVP discussed in this issue of the *IDS Bulletin*. Since 2006, the MVP has been implemented in ten countries of sub-Saharan Africa by the Millennium Promise, the Earth Institute at Columbia University, and the United Nations Development Programme (UNDP) to show that the MDGs could be achieved in rural Africa at a small geographic scale and at low cost through interventions in multiple sectors. According to the project designers (Sanchez *et al.* 2007), the achievement of the

MDGs in rural Africa was prevented by multi-sectoral constraints including low agricultural productivity, a high burden of infectious disease, and poor infrastructure. The hypothesis underlying the MVP was that simultaneous interventions in multiple sectors can raise the capital stock over a threshold level that will put the local economy on a sustained path of economic growth, thereby breaking the poverty trap. To fulfil these goals, the MVP made concerted investments in agriculture, health, education, and infrastructure.

Another example of modern integrated development is the ultra-poor graduation programme run by BRAC. The programme combines traditional social support initiatives such as cash transfers, and long-term support such as life-skills training, asset transfers, enterprise development, and saving and planning for the future. 'By addressing the social, economic and health needs of families simultaneously, these programmes provide holistic support to participants, as they climb the ladder of economic self-reliance into a sustainable future' (BRAC 2018). It is also worth mentioning that since 2014, FHI 360 has been running a research programme on integrated development in the belief that 'integrated approaches to the design, delivery and evaluation of programs have the potential to make an enduring difference in people's lives'.<sup>4</sup> The programme includes an evidence map and a theory of change of integrated development, several case studies, and examples of catalysing integration between water, sanitation, and hygiene (WASH) and education; agriculture and nutrition; and governance agriculture and food security.

Finally, it should be noted that many development projects are designed as packages of multiple interventions including social protection and community-driven development projects. Even when these packages are implemented in a specific sector, such as employment, nutrition, or governance, they include many different interventions in the belief that they are all required to achieve the stated goal and that they reinforce each other. For example, the Chars Livelihood Programme in Bangladesh included, among others, the following activities: growth monitoring and promotion of nutrition interventions, the construction of homestead plinths, the provision of sanitary latrines, and access to clean drinking water; asset and cash transfers, training, social mobilisation, and women's empowerment (Nisbett *et al.* 2016). In another example, the Tuungane project in the Democratic Republic of the Congo (DRC) promoted the establishment of community-level committees and village-level committees, and funded interventions in education, transportation, water, sanitation, and agriculture (Humphreys, Sanchez de la Sierra and van der Windt 2012).

The reader may wonder why integrated development is still popular, given the overwhelming evidence against its effectiveness. Apart from the already mentioned inability to learn from the past, it must be noted that despite the strong resemblance between new and old integrated development, there are also some major differences. Both old and new integrated development models consider development

to be complex and that there are synergies and complementarities across sectors. Proponents of both believe that problems are better addressed simultaneously and preferably by a specialised coordination unit run by a project, though it was noted in Section 4 that specialised units, established to supplement lack of local administrative capacity, introduce an element of complexity in implementation that prevents their short-term success and their long-term sustainability.

But there are also some major differences between old and new IRD. Recent integrated projects are much less ambitious. The IRD projects of the 1970s covered large geographic areas within a country with the goal of permanently eradicating poverty. As a matter of comparison, the World Bank-sponsored Upper Region Development Project ran for nine years between 1977 and 1985 covering three undeveloped regions of northern Ghana comprising 125,000 households and investing today's equivalent of US\$240 million (World Bank 1987), while the northern Ghana MVP covered just two districts of northern Ghana, lasted four years, reached about 3,900 households, and invested a total of £11.5 million (US\$16 million equivalent) in the area. Recent integrated projects also rely on implementing units that are more flexible.

The IRD projects of the 1970s established big implementation units that turned out to be inefficient and unsustainable, while modern integrated projects build simpler structures. Associated with a more agile management structure, there is a different approach to decision-making which is more inclusive and participatory in comparison to the classical top-down approach of early IRD projects. There are also differences in the type of interventions implemented. It is fair to say that much more is known today about agriculture, health, and education technology than was known in the 1970s, including in the science of managing development. Sanchez *et al.* (2007), for example, pointed out that, unlike old IRD projects, the MVP was designed using science and evidence-based technologies and practices that had been proved to work. Recent integrated projects are likely to be much better designed and to promote more effective policies than was the case in the 1970s.

Perhaps the biggest difference between new and old integrated development, however, is in the monitoring and evaluation of the interventions. Old IRD interventions were rarely, if ever, evaluated, while more recent experiences of integrated development have been often independently evaluated, sometimes in a very rigorous way. As a result, there is today a sizeable body of evidence on the effectiveness of integrated interventions, which allows a more informed and balanced judgement about their significance. An evaluation showed that the IFAD-sponsored project mentioned above made a significant impact on income and food security, through increased agricultural production (Baah-Dwomoh 2016). Conversely, the SWPRP in rural China improved short-term incomes but had no long-lasting effects on consumption and poverty (Chen, Mu and Ravallion 2009).

Two rigorous evaluations of the MVP found mixed results. Mitchell *et al.* (2018) collected data from MVP sites from ten different countries and found impacts on 30 of 40 'MDG-related' outcomes, particularly in the agriculture and health sectors. They conclude that, consistent with an integrated rural approach, the intervention had a favourable impact on all MDG areas. Our evaluation of the northern Ghana Savannah Accelerated Development Authority (SADA) MVP found less positive results, with only seven out of 29 MDG targets being reached and no discernible impact on two key indicators: poverty and child mortality (see Jupp and Barnett, this *IDS Bulletin*). A multi-country evaluation of the BRAC poverty graduation programme found long-lasting effects on poverty reduction (Banerjee *et al.* 2015), a result that was confirmed by further evaluations in other countries.

The evidence produced by evaluations of recent integrated development programmes suggests that they can be effective and have long-lasting poverty reduction effects. However, these evaluations are largely silent on the two main questions regarding integrated development discussed in this article: synergies and the cost of integration. It is not clear from these evaluations whether the projects were able to unlock the expected synergistic effects, nor is there a discussion of the added value of integrating the management of interventions across sectors. We will further develop these two points in the following concluding section.

## 6 Conclusions

Our experience in evaluating the northern Ghana MVP project and our reading of the literature on past and present integrated projects taught us that two elements are key for our understanding and for the successful design of future interventions: synergies and the cost of integration. Synergies are the fundamental motivation for integrating interventions across sectors, but the mechanisms behind the operation of synergies are not well understood. Projects often take the concept of synergies implicitly as obviously linked to multi-sector interventions. Alternatively, they make reference to some grand development theory, relying on economies of scale or complementarities such as, for example, theories of poverty trap or of the 'big push'. Impact evaluations of integrated interventions put a lot of effort in outlining the programme theory of the intervention to describe in detail how the intervention in each sector affects the target outcomes and what the interactions are between activities.

What is missing is a middle-level theory that lies between the all-explaining grand theories of development underpinning integration and the detailed programme theories of specific interventions (Davey *et al.* 2018). What is needed is an effort at theorising and conceptualising synergies occurring at the implementation and output level at a sufficient level of abstraction to be applicable to several contexts. It seems that synergies should ultimately emerge as the result of interactions between individuals and that theorisations should start by formulating behavioural

hypotheses at the origin of mutually reinforcing outcomes. Within the economics discipline, a possible starting point for such conceptualisations is the study of multi-input and multi-output production functions and joint production in agricultural economics (Chambers 1988) and the study of emergent phenomena in social interactions through the lens of complexity theory (Durlauf 2005, 2012).

A second major gap in our understanding of integrated development relates to the cost of integration. Few evaluations have conducted a cost effectiveness analysis of integrated interventions. We stressed how little is known about the cost of integrating interventions across sectors. The opinion of observers of old IRD projects is that this cost is so high as to outweigh any benefit obtained through synergies. Early critics of IRD projects (Ruttan 1984) did not argue against the possibility of generating synergies but doubted the advantages of running interventions in different sectors simultaneously. The question is whether synergies can be simply achieved through the coordination of interventions running in parallel in different sectors and being implemented by separate specialised agencies, rather than by costly implementation units striving to implement all activities simultaneously in all sectors.

Answers to questions about synergies and about the cost of integration can only be provided by evaluations that are at the same time rigorous and concerned with more than just effectiveness. We have suggested how synergies need to be better understood and conceptualised through the development of a mid-level theory of integrated interventions. The theory can be developed to a sufficient level of generality to be applicable to a variety of interventions and contexts. This theory will then generate a number of testable hypotheses that can be addressed by specific evaluation methods. These methods can include factorial designs, which include as many intervention arms as there are interventions and interactions of interventions (Ahner-McHaffie *et al.* 2017). Factorial designs are able to provide the full range of synergistic effects but are very complex to run and extremely expensive.

An alternative approach, which is strongly linked to the formulation of mid-level theories, consists of conducting mechanism experiments (Ludwig, Kling and Mullainathan 2011), whereby the causal chain of the intervention is fully unpacked and the evaluation tests the most uncertain and unknown links to compose our understanding of interventions as in a jigsaw puzzle. For example, rather than running a full factorial design, it could be extremely informative to test the interaction of just two or three interventions by selecting less-disadvantaged areas where other achievements predicted by the synergistic theory are already obtained. However, more interesting and informative tests are likely to be generated by the development of a middle-level theory of integrated development interventions, which should be the first step of a research programme to explore synergies of integrated interventions.

### Notes

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- 1 Centre of Excellence for Development Impact and Learning (CEDIL) at the London School of Hygiene & Tropical Medicine (LSHTM).
  - 2 [www.fhi360.org/expertise/research-integrated-development](http://www.fhi360.org/expertise/research-integrated-development).
  - 3 [www.microfinancegateway.org/sites/default/files/announcement/pei-brochure.pdf](http://www.microfinancegateway.org/sites/default/files/announcement/pei-brochure.pdf).
  - 4 [www.fhi360.org/resource/integrated-development-tools](http://www.fhi360.org/resource/integrated-development-tools).

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