MODULE 5

Incentives and Resources for Innovation Partnerships and Business Development

OVERVIEW

Josef Ernstberger, Consultant

EXECUTIVE SUMMARY

Governments in developing countries increasingly *intervene actively in supporting private sector development* through diverse means. Public investments in business development can *direct* private investments towards areas of significant public interest and areas where the private sector alone would generally underinvest. They can *facilitate* or *stimulate* private investment through a conducive policy, legal, and institutional environment. Public investments for business development can also *complement* private investments (for example, by funding services or basic research). Such public-private partnerships need to become a *strategic element* of the agricultural development agenda. Formal technology transfer mechanisms (IPRs, licensing) offered through specialized *technology transfer offices* are critical to engage effectively in PPPs and disseminate technology through market channels.

The appropriate *funding mechanisms* to support innovation by collaborating public institutions, private entrepreneurs, and other actors depend on the public good to be produced and the role of the public sector. Useful alternatives include specialized innovation funds and matching grants to provide incentives for collaboration and risk taking. The use of *venture capital funding* has been limited in developing countries, but small and medium agricultural enterprises require risk capital to capture opportunities presented by agricultural innovation.

Support for *business incubation* helps to scale up small and often newly formed enterprises that bring innovative technologies and services to market. Developing countries require broader, less intensive, and more diverse incubator services to develop entrepreneurial, innovative cultures and business environments. *Agricultural clusters* foster innovation through proximity; they encompass interdependent firms in a value chain, service providers, and associated institutions. Cluster-based approaches have increased agricultural productivity, innovation, and business formation.

The *key policy issues* for agricultural business development and PPPs involve their potential for *altering development priorities*, the potential *welfare effects* of agricultural innovation and growth driven by private interests, *welfare concerns* related to gender and social equity, and prospects for building a "*shared responsibility system*" capable of balancing the sometimes divergent interests of the public sector, private sector, and civil society. Finally, in an environment characterized by increasing private involvement in agricultural innovation, very clear criteria will be needed to determine when public intervention is justified and at what level. Every publicly supported partnership or business development program must have a clear *time frame* and *exit strategy*. If the temporary nature of public involvement is not clear at the outset, private investors' decisions and business plans will be biased. The sustainability of social and

environmental services, on the other hand, is often assured only through long-term public support.

RATIONALE FOR PUBLIC INVESTMENT

The power of the private sector to innovate and foster economic growth is a critical driver of long-term, sustainable development in agriculture. Development programs apply two major instruments to engage with the private sector for this purpose: *agricultural business development,* which aims to stimulate general economic growth, and *public-private partnerships* (PPPs), which aim to address development issues in conjunction with the private sector.

Agricultural development aims to achieve three objectives: national *food security*, *income* for rural people, and the *sustainability* of natural resources. These interdependent, sometimes conflicting objectives must be finely balanced; for example, food security must not be attained regardless of the cost to the environment. The private sector's primary goals are to generate *income* and *economic growth*, and its involvement in agricultural development carries the risk that development will be inequitable. The challenge is to find the common interests that will enable the private sector to use its many advantages to encourage balanced agricultural development and innovation.

Public sector support for and cooperation with the private sector are generally considered justified, valuable, or even necessary to: (1) compensate for market failures that prevent or hinder necessary private investments, (2) stimulate growth and help businesses become established; (3) generate and/or direct innovation in areas considered important for society; or (4) reduce some of the risk inherent in commercializing new technologies.

Support for agricultural business development

For agricultural business development, the most important objectives are to generate *qualitative* and *innovation-led* economic growth and income opportunities. "Qualitative growth" is associated with a range of additional public goods that especially reduce extreme poverty, provide food security, narrow structural inequalities, protect the environment, or sustain the growth process itself (Thomas et al. 2000). "Innovation-led" growth is based on innovative technologies, processes, products, markets, or organizational arrangements rather than on large additional uses of natural resources.

Public investments for business development are important because they can accelerate and improve the quality of growth in several ways. They can *direct* private investments towards areas of significant public interest and areas where the private sector alone would generally underinvest. They can *facilitate* or *stimulate* private investment through a conducive policy, legal, and institutional environment. Public investments for business development can also *complement* private investments (for example, by funding services or basic research).

The agricultural sector is characterized by specific market failures that are less prominent in other sectors, including the problem of scale, the time lags, and the multitude of partners. To overcome these and other initial obstacles to private investment and enable new products or technologies to be introduced, the public sector can provide incentives such as tax incentives, grants, and guarantees. Many governments support investments in new agricultural products or production systems until they can be commercialized or support the commitment of actors throughout an industry (in production, processing, and marketing) until a secure and mature business foundation develops. Most of the recently subsidized biofuel production programs were justified on these grounds.

A typical problem in developing agribusinesses is that the number and diversity of market players in a given value chain is often high. A chain's production base often consists of large numbers of small-scale, unorganized, geographically scattered producers. In circumstances such as these, which the market alone cannot improve, it makes little sense to introduce new production processes and products.

Public funds are needed to facilitate the vertical and horizontal linkages that will make the value chain efficient—for example, to organize farmers into cooperatives and associations and create platforms for institutional cooperation. For example, China's government supports *farmer-company* or *farmer-company-researcher arrangements*, in which farmers organize to partner with investors in processing/marketing industries, contract research institutions to develop certain products, or move into processing and marketing their products themselves (see IAP 2).

Support for public-private partnerships

Public support for PPPs in agriculture moves beyond business development and facilitation and makes direct use of individual *private sector actors to generate public goods*. Many governments and development agencies recognize that it can be more effective and sustainable for the public sector to work with the private sector to generate public goods in ways that enable each sector to build on its comparative

advantages. Such direct cooperation can benefit both partners and is particularly useful in the following areas:

- ***Social services.*** Governments and development agencies use cooperation with private partners to invest directly in the delivery of social services. Public support ranges from providing favorable conditions for private investments in targeted poor or remote areas to contractual agreements between public institutions and private investors to deliver specific social goods and services. Such partnerships can offer a number of benefits, not only to small, local companies but to large multinational firms, which have come under increasing scrutiny to ensure that they operate in socially responsible ways. For example, under a PPP supported by GIZ and the multinational food company Tchibo GmbH, factories in Bangladesh, China, and Thailand are trained to implement production and labor standards with worker participation and sustainably improve employees' working conditions (GIZ 2009). In this way, PPPs pave the way for the development and adoption of international social standards.
- ***Environmental services.*** The protection and sustainable use of natural resources in agricultural production are important public goods. To preclude private entities from externalizing environmental costs or the costs of using natural resources, governments traditionally apply two sets of instruments: (1) regulations and controls and (2) incentives and disincentives in the form of financial instruments, such as subsidies for water-saving technologies or planting trees on eroded hillsides. The second set of instruments has recently become much more diverse and has created a new line of business in agriculture. Payments for environmental services involve not only payments for avoiding environmental costs (for example, payments for not cropping in watershed areas of reservoirs) but payments for actively generating environmental benefits. Farmers in the European Alps are subsidized to continue livestock production to maintain the characteristic alpine landscape, for example. Many countries use carbon sequestration funds to support farmers' efforts to plant trees, protect grasslands, use biogas, or pursue similar activities that reduce greenhouse gas emissions.
- ***Innovation and technology adoption.*** Agriculture in particular suffers from significant underinvestment in R&D (see module 4, TN 2) because of the high degree of externalities (such as benefits not being captured by the investor). PPPs lower the risk for individual private partners; at the same time, they foster the adaptation and dissemination of new research results or existing knowledge and technologies. This kind of collaboration helps to overcome problems of underinvestment and accelerates technological progress.

Notably in agricultural PPPs farmers play an important role as partners and providers of public services. This involves the mobilization and organization of farmers in formal or informal associations, cooperatives, or groups as a first step; then these organizations can partner with public services organizations or participate in wider partnerships with public and private organizations. Most commonly this partnering involves training and extension services but can also include adaptive research and technology testing or social and environmental services.

Table 5.1 summarizes some of the instruments used in business development, including PPPs.

PAST EXPERIENCE

Agricultural development agencies traditionally have been ambivalent about business development. Attitudes range from seeing business as an obstacle to agricultural development—at worst, the "evil middleman" that must be controlled—to regarding business as a necessary link between farmers and markets and finally to regarding business development as a driving force for agricultural innovation, growth, and development.

Business development is a relative latecomer to the agricultural development agenda, but starting in the mid-1990s the business sector came to be widely recognized as an important driver of agricultural development. Agricultural development programs and projects started to address the development of the private sector, particularly small and medium enterprises (SMEs) and value chains, and to seek ways of improving the business environment and facilitating business operations. Table 5.2 presents a more schematic view of the relationship between business development and partnership objectives and instruments.

Business development and partnership instruments

Recognition of the business sector's role in agricultural innovation and growth was accompanied by business development services (BDS) similar to those employed in non-agricultural sectors for many years. While most of these instruments are applied for general business development

Table 5.1 Business Development Instruments Used in Nonagricultural Sectors (and Later Adapted to Agriculture)

Type of instrument	Target firms	Key features
Tax incentives (for R&D)	– All firms (generally more attractive for larger firms)	– Motivate companies to invest in R&D and innovation – R&D tax credit to reduce a firm's tax liabilities, based on the amount spent to develop new products or improve existing products – Large enterprises paying more tax will benefit more than small firms
Business advisory services	– Small and medium enterprises (SMEs)	– Broad business support, including training and advisory services – Acts as primary service provider – Basically supply driven
Business development services	– SMEs	– Broad business support, including training and advisory services provided to individual businesses (more on a demand-driven basis than advisory services) – Often coordinates other service providers – Focus on building capacity within the business development service industry
Business incubation	– Startups and SMEs with high growth potential (dynamic enterprises)	– Integrated mix of intensive strategic and operational support provided to entrepreneurs and businesses selected for their growth potential – Focus on helping firms manage risk and build competitiveness through early, high-risk growth stages – Support typically ends when clients "graduate" by reaching particular milestones – May be linked with educational or research institutions
Science and technology parks[a]	– Emerging and established technology businesses, but may target specific industries	– Focus on helping relatively mature businesses accelerate growth – May use incubation as way to source future clients – May be linked to national, cluster-driven development strategies
Industry clusters[b]	– Related and supporting businesses and other organizations linked by a shared value chain (vertical) or shared final market (horizontal) – Concentrated in technology industries	– May be linked with educational or research institutions – May use incubation to source future clients – May be linked to national competitiveness strategies
Public-private partnerships (PPPs)	– Mature, strong, experienced companies (sharing of responsibilities) – Private partners can be diverse, from small to multinational	– Addresses delivery of public goods more directly – Addresses diverse set of public goods (social, environmental goods and technologies) – Can have sustainability problems (e.g., if social or environmental goods are targeted)

Source: infoDev Monitoring, Evaluation, and Impact Assessment Study, n.d.
a. For more information about technology parks, see infoDev, http://www.infodev.org/itparks. b. A practical application of Michael Porter's industry cluster theory, explored in *The Competitive Advantage of Nations* (1990).

or private sector partnerships, they can also be tailored to particularly stimulate and direct private sector development for R&D and innovation.

Tax incentives for R&D and innovation. R&D tax incentives have been used to encourage more spending on R&D. Such tax incentives are usually provided in the form of tax deductions based on the amounts spent in financing agricultural *research and innovation.* They can be a suitable instrument to overcome market failure resulting in underinvestment in R&D as they motivate companies to invest in innovation. Although such incentives may not always be limited to large corporations but include small and medium enterprises, clearly large enterprises that pay more tax than small firms will benefit proportionately (World Bank 2006). Even though the use of tax incentives is widespread (over two-thirds of OECD members have tax incentives, as well as many developing countries), evidence of their cost effectiveness is not clear. Box 5.1 describes the experience in Chile, which has yet to undergo a closer impact evaluation. In general, tax incentives tend to benefit larger companies with large-enough revenue streams. Small and start-up companies may have difficulties benefiting from tax deductions because their revenue base is limited.

Other forms of tax incentives used in some countries include personal income tax deductions for individuals investing in startup businesses (effective only if the investor is paying any substantial income tax) and tax relief on

Table 5.2 Objectives, Instruments, and Financial Support Mechanisms for Business Development and Partnerships

		Business development and partnership instruments					
		BDS	**Incubators**	**Science parks**	**Clusters**	**TTOs**	**PPPs**
Objective	Overall	Qualitative, innovation-led *economic growth and income opportunities*					Specific *public goods* (e.g., social, environmental, innovations with high public good content)
	Intermedia te	Business startups		Business growth			Generation of innovations of public interest
		Business growth		Commercialization of new technologies			Transfer and application of technologies
				Efficiency gains (e.g., through synergies, reduced transaction costs, among other means)			
Financial support mechanisms		Often initial public funding, but service fee collection important for sustainability	Most incubators subsidized, fee collection and cost recovery difficult	Complementary public funding (e.g., infrastructure, public sector institutions)		Initial public funding replaced by service fees	Matching grants
				Tax breaks and other financial incentives (e.g., subsidies, public sector credit guarantees) are common			Competitive grants
				Risk capital			
				Commercial financing			
			Matching grants				

Source: Author.
Note: BDS = business development services; TTO = technology transfer office; PPP = public-private partnership.

Box 5.1 Research and Development Tax Incentive Law in Chile

Chile was one of the first Latin American countries to introduce competitive funding programs for agricultural research. These programs have helped to increase the volume and quality of Chilean agricultural and nonagricultural research significantly. Another step was to introduce tax incentives.

The main objectives of the incentives are to:

- Increase private investment in R&D.
- Strengthen the link between research centers and companies.

The R&D tax incentive works as follows:

- Companies hire registered R&D centers through a previously approved R&D contract.
- Thirty-five percent of the payments private companies make to the research center against an R&D contract are considered a credit against corporate taxes.
- The remaining 65 percent of the payment is automatically considered expense for tax purposes.

The main requirements to qualify are:

- Research centers need to be registered. The criteria to be included in the registry include years of operation, research capabilities, and good accounting practices to ensure appropriate enforcement.
- Contracts need to be approved by CORFO, the Chilean development and innovation agency.
- The company and research center cannot be related.

Source: Adapted from Noe 2007.

donations to research foundations or endowments. Infant firms can benefit from incentives such as tax grace periods while they grow, which may be an important strategy in countries that tax firms even before they start production. Reducing taxes on importing equipment and supplies needed in R&D can help innovative projects. Innovation can be further encouraged by establishing special economic zones offering tax and regulatory relief, especially to stimulate cooperation with foreign partners.

Business development services. Business development services (BDS) comprise a wide range of nonfinancial services provided by public and private suppliers (BDS providers) to entrepreneurs who use them to operate more efficiently and expand their businesses. BDS thus may include training, consultancy, and advisory services, marketing assistance, information, technology development and transfer, and business linkage promotion. The high cost and low impact of many BDS approaches has caused government and international donors to shift from providing highly subsidized BDS toward a demand-led, market-based approach based on undistorted private service markets. The most frequently mentioned weaknesses of the former approach include (Altenburg and Stamm 2004):

- ***Lack of financial sustainability.*** Because most services are highly subsidized, service providers come to depend on continuous public support. Most countries are cutting back on public expenditures, including business support measures.
- ***Insufficient outreach.*** Even in times marked by high government revenues, deficit spending, or substantial inflows of foreign aid, business services usually only reach a relatively small percentage of the target group.
- ***Lack of business orientation.*** Public service providers can share some of the less admirable tendencies of publicly administered programs. Budget allocations are not linked to program performance, employees do not act in a business-like fashion, and beneficiaries are not treated as clients. Incentives—both for support institutions and the people working within them—often are not designed for them to actively seek links with the business sector and strive for client satisfaction.
- ***Poor quality.*** Service providers and clients work under different incentive systems, operational routines, and even mindsets, with the result that service supply often is not tailored to clients' needs. In addition, products delivered at low cost or for free may induce a debilitating dependency and cynicism over quality and value.
- ***Crowding out private competitors.*** Delivering services at highly subsidized rates distorts markets and hampers the emergence of commercially viable service providers.

In contrast, the new BDS market paradigm highlights the need to deliver services at cost-covering rates and for providers to operate in a demand-driven, business-like manner. Service providers should either be private companies or public entities organized like firms with respect to their incentive systems, personnel, culture, and attitudes. Services should be regarded as commercial products, and the companies that receive services should be regarded as customers rather than beneficiaries. Providers should always charge fees high enough to secure the provider's financial sustainability (box 5.2).

Business incubators. Incubation first emerged in developed countries in the 1980s, operating alongside many other generic business development services and evolving to provide narrow and deep services for a small, select group of companies. Developing countries picked up the concept, and today more incubators are based in developing than developed countries. Observers and the "global business incubation community" estimate that of about 5,000 business incubators worldwide, at least 1,000 are based in Asia (approximately half in China), 1,000 in North America, 900 in Europe, and close to 400 in Latin America (with a sizeable and robust industry in Brazil).

As the name implies, incubators nurture young firms, helping them to survive and grow during the startup period when they are most vulnerable. Incubators provide hands-on management assistance, access to financing, and business and technical support services; they frequently also provide shared office space and access to equipment. Although they work with a broad spectrum of business development models, the vast majority of business incubators fall into two general categories: *technology* (focusing on commercializing new technology and transferring technology) or *mixed use* (serving a wide range of clients). Hybrid models, combining outreach, virtual, and broader services with more traditional incubation for new and existing businesses, have emerged in many developing countries, particularly those with smaller economies, limited generic business support services, weak cultures of entrepreneurship, difficult business environments, and limited resources to support innovation. In these circumstances, the demand for intensive, narrowly focused, and deep incubation services is minuscule. Instead, broader, less intensive, and more diverse services are needed to extend impact and develop

Box 5.2 Main Aspects of Developing and Implementing Demand-Driven, Sustainable Business Development Services

Market assessment and reasoned justification of any public intervention. Well-intended government interventions may be harmful for the long-term development of markets for business services and business development services, because they may distort prices, create bad habits, and crowd out private competitors. For this reason, intervention, rather than nonintervention, in markets for business development services has to be justified on the basis of a clear analysis of the situation.

Separating funding from service delivery. Major problems arise with subsidized service provision when the service provider and the organization managing and administering the funds are identical. Without relatively complex external supervision arrangements, it is nearly impossible to commit this "system" to an efficient and cost-sensitive execution of its tasks. Inefficiencies often result from an explicit or implicit obligation to spend funds in a given period, disregarding careful targeting and the best possible cost-benefit ratio. Separation of funding and delivery functions will reduce the risk of crowding out private suppliers, especially when private companies can apply for public funding to provide services. This kind of competition increases the transparency of service markets and provides additional information on whether there still is a case for public intervention.

Improved accountability. Many service providers offer a more or less ample set of services, often without having established an accountability system to measure the cost and the income generated by each service offered. It is highly important to improve accountability and enable service providers to monitor market success and cost-related aspects of each and every service offered. Service providers with a public function or mission may then decide to cross-subsidize different services to maintain important services that cannot be provided on a cost-covering basis.

Monitoring and evaluating performance. Public service provision must be continuously, transparently, and independently monitored and evaluated. The two subsystems of service provision (funding and delivery) need to be evaluated according to different performance criteria. Within the organization that manages the funds, the cost-benefit ratio of the previously established objective(s) should guide the evaluation. At the level of service delivery, the evaluation should focus on the proven impact and efficiency of links between the provider and small and medium enterprises (SMEs).

Establishing a direct link between performance and resource allocation. Monitoring and evaluation are not objectives in their own right but should be used for continuously improving the system. The most effective way to ensure the system's responsiveness is to link the allocation of funds directly to the performance of those who supply services. The success of effective service providers is largely based on incentive systems that provide financial rewards for good performers.

Compulsory cofinancing. To ensure that SMEs feel some ownership of the services they receive, every transaction should be partly financed by the customer. The proportion of cofinancing will depend on the character of the service and the final objective of service provision. Additional factors to consider include the business environment and changes in the institutional setting. Services with predictable and appropriable outcomes should be largely financed by the customer, while in some strategic areas it will be necessary to step up the share of funds transferred. When SMEs operate under conditions of economic growth or at least stability, a higher proportion of private financing should be expected. On the other hand, when macroeconomic conditions are volatile and competition is becoming life-threatening for many companies, governments or other funding organizations may opt for a higher share of subsidies, stressing short-term impact and outreach and temporarily sidelining aspects of financial sustainability.

Source: Altenburg and Stamm 2004.

entrepreneurial and innovative cultures and business environments. For more information on how an incubation approach may contribute to business development and innovation in agriculture, see TN 3.

Technology parks and clusters. Technology parks (also known as science parks or research parks) are usually linked with educational or research institutions and provide infrastructure and support services for businesses, particularly

real estate and office space. Technology parks can foster business-driven development and innovation because they focus on creating links and collaboration among diverse businesses, many of them large, established businesses for technology transfer and economic development. Business incubation shares some of the features of technology parks and industry clusters, in that each involves a "place," processes, and companies with potential for growth. The main difference is that business incubation focuses on startup companies that eventually graduate from the incubator service, whereas companies in clusters or parks usually intend to maintain their association. Technology parks often have their own business incubators dedicated to "growing" tenants for the park, and some clusters have a business incubation component as well.[1]

Technology transfer offices. Technology transfer translates agricultural research innovations into applications. The vast majority of agricultural innovations in developing countries arise from publicly sponsored research centers that typically are inexperienced and unprepared to engage in formal mechanisms of technology transfer. Technology transfer offices (TTOs), which are usually affiliated with research organizations or universities, have the mandate to identify and protect research results[2] with a view to facilitating their use and commercialization. Some TTOs also host incubation services for businesses to commercialize technology. TN 5 offers a detailed discussion of TTOs.

Industry clusters. Since 2000, industry clusters have become an increasingly popular model for organizing strategies and policies to promote regional development. Clusters are agglomerations of strongly interdependent firms (including specialized suppliers) linked to each other in a value-adding production chain, service providers, and associated institutions in a particular field. Some clusters encompass strategic alliances with universities, research institutes, knowledge-intensive business services, bridging institutions (brokers, consultants), and customers. Cluster-based approaches for business development and innovation have increased agricultural productivity, innovation, and business formation (Gibbs and Bernat 1998; Andersson et al. 2004; World Bank 2009b). TN 4 summarizes key lessons from cluster-based business development and innovation.

Partnerships. At first, private partners in agricultural development initiatives focused on developing and strengthening businesses, but growing appreciation of the private sector's role in agricultural development has led to innovative partnerships in which the public and private sectors are true business partners, producing public goods. The partners bring their complementary skills to a program or project, with varying levels of involvement and responsibility (TN 1). Partnerships range from global strategic alliances to specific forms of cooperation in individual development projects. In true PPPs, the financial and managerial strength and experience of the private partners is important (box 5.3), but many development programs have difficulty working with financially strong and experienced companies and are concerned that the partnership will weaken their focus on poverty. The objective of PPPs is not to support weak businesses through public contracts, however, but to engage with the private sector as a reliable partner that can deliver a public good efficiently. A comparison with the procurement of public works is useful, because it follows requirements for bidders based on size, past experience, financial strength, and reliability.

Funding mechanisms

A range of innovative funding mechanisms can be used to support innovators and their links to public institutions, private entrepreneurs, and other actors.[3] Rather than funding innovation through block grants, many countries use specialized innovation funds to provide incentives for collaboration and risk taking. For example, competitive research grants target research-related activities to mobilize public and private research capacity. Matching grants are widely and increasingly used to stimulate engagement between the private sector and farmers in activities related to technology generation, technology dissemination, and innovation processes.

Matching grants show greater promise than competitive research grants in fostering business-driven innovation development, as they tend to be better at promoting pluralism in applied technology development, transfer, and adoption by enhancing ownership among actors. They are also well suited to overall development of agribusiness because they can be adapted to support productive partnerships, provide technical assistance and other services, promote productive activities by farmer groups, support value-added activities, and build small-scale infrastructure (World Bank 2010). TN 2 reviews experiences with grant schemes and the various opportunities they present; IAP 4 provides examples.

Venture capital funding is explicitly designed for investment in a high-risk business or security of some type. It has

Box 5.3 Critical Choices for Public-Private Partnerships

Before entering into any partnership project or program, the rationale for the investment must be fully understood, along with the problem(s) to be fixed or outcomes to be achieved. These considerations have critical implications for the choice of:

- ***Institutions and partners.*** If delivery of a public good is the main objective of the partnership, it must involve organizations that are capable of generating the good (or that can undergo institutional development to acquire this capability). This issue is explored in the discussion of institutions and partners later in this module.
- ***Financing instrument.*** The appropriate financing instrument depends on the type of public good to be produced and the role of the public sector. When governments act as brokers in these sorts of partnerships, common instruments include government guarantees, risk or venture capital for developing and introducing new technologies, or competitive and matching grants to "buy" public goods from the private sector. For environmental and social services, temporary or permanent subsidies are more common instruments. For creating an enabling business environment, legislative instruments are complemented by direct investments in services, infrastructure, and facilities.
- ***Exit strategy.*** Every support program must have a clear time frame and exit strategy. The public sector intervenes to support private investment until industries mature or technologies are proven and adopted. If the temporary nature of public involvement is not clear at the outset, private investors' decisions and business plans will be biased. The sustainability of social and environmental services, on the other hand, is often assured only though long-term public support.

Source: Author.

been used widely outside agriculture to support business-driven development, but its application in agriculture has been limited. Small and medium agricultural enterprises require risk capital to fully capture the opportunities presented by agricultural innovation, however. TN 6 summarizes experiences with and applicability of risk capital investment models for agriculture in developing and middle-income countries.

KEY POLICY ISSUES

The key policy issues for agricultural business development and PPPs involve their potential for altering development priorities, the potential welfare effects of agricultural innovation and growth driven by private interests, welfare concerns related to gender and social equity, and prospects for building a "shared responsibility system" capable of balancing the sometimes divergent interests of the public sector, private sector, and civil society. Finally, in an environment characterized by increasing private involvement in agricultural innovation, very clear criteria will be needed to determine when public intervention is justified and at what level.

Food supply versus rural incomes

Building on business development and business-driven innovation, agricultural development is likely to see priorities shifting toward growth and income generation and possibly away from regional and global food security. Business development is driven by the interest of producers, processors, or traders of agricultural products in generating profits (for example, by increasing factor productivity, adding value, or developing new products and markets) and capturing a meaningful proportion of these gains as additional income rather than passing them on to consumers.

Increasing factor productivity in primary agricultural production is the main approach to increase food production, but increased factor productivity does not always translate into higher profits for producers over the long run. Historical trends show that after early adopters of a technology achieve their initial high gains, most of the ensuing productivity gains are passed on quickly from producers to consumers in the form of absolutely or relatively lower prices for foods. This scenario offers little to interest key business actors, with the possible exception of the input supply industry (box 5.4).

Box 5.4 Different Trajectories of Agricultural Growth and Producer-Consumer Welfare Distribution

From an economic welfare perspective, additional agricultural economic growth and ultimately additional welfare in a society are generated by higher levels of productivity, which in turn depend strongly on innovation. Technologies that increase the volume of production (such as a higher-yielding crop variety) would shift the supply function to the "right" and increase welfare, but this shift would largely come at the expense of producers because of a price-decreasing effect. Technologies that reduce the cost of production (such as insect-resistant Bt cotton, which reduces the use of costly pesticides) would shift the supply function "downward" again, with a significant welfare gain that would in this case be shared more equally between consumers and producers.

An alternative option for growth is possible by actively addressing the demand function or creating new demands for agricultural food and nonfood products. For example, agricultural raw materials like maize, sugarcane, or cassava could be used in new ways for energy production; consumers' changing preferences could be served through market differentiation, brand-naming of products, and so on; an agricultural raw material could serve as the basis for chemical or pharmaceutical products; or agricultural products could be designed as functional foods. While the vast majority of agricultural production is still destined to meet the world's basic requirements for food, market differentiation and new products and uses will increasingly play a role in raising the overall value of agricultural production, especially in middle- and higher-income countries, with production coming from developed and developing countries.

Source: Author.

Distributional effects of business-driven agricultural growth

The distributional aspects of agricultural innovations are related to the food security issue just mentioned. As explained in box 5.4, the nature and type of innovations and technologies influence both absolute growth and welfare gains as well as the distribution of welfare gains between producers and consumers. Agricultural innovations and growth driven by business interests not only open new growth opportunities but are likely to move agricultural development in a different direction. Although innovation generated by the private sector can be important in securing continued gains in agricultural productivity, particularly from the agricultural input side (in the form of new seed or chemicals, for which royalties can be sufficiently protected), the private sector will probably give much more attention to adding value in agricultural production and production systems. This emphasis will favor agricultural industry (companies supplying inputs and processing or marketing products) and possibly farmers as the primary producers, but it could put poor consumers of staple foods at a disadvantage.

Gender and social equity

Compared to the public sector, private interests are not equally sensitive to gender or other social equity considerations, with the risk that a growing role of the private sector could further erode social equity in agricultural development. For example, women make up most of the rural workforce (70 percent), but in comparison to men, women still have far fewer resources (land, capital, and access to knowledge) to carry out their tasks (World Economic Forum 2011). The growing influence of civil society and shared responsibility for social and gender issues by the public and private sector are positive, continuing developments, but on their own they will not ensure that gender and equity considerations are reflected in agricultural development. Governments need to incentivize the private sector and promote and safeguard gender and social equity in all business development activities, PPP contracts, services, and access to resources and knowledge. Specifically targeted PPPs can make an important contribution to gender and social equity goals (for an example, see IAP 2 on the China Technology Transfer Project).

A shared responsibility system with new roles for stakeholders

A well-functioning society provides a range of checks and balances to keep the agricultural development agenda in line with the desired priorities. Many companies have started to integrate social and environmental responsibilities in their

long-term business concepts because they understand that this strategy is important for long-term commercial success. A balance between private commercial interests and the interests of society is not attained automatically, however. It is the product of smooth interaction among governments, civil society, and the private sector, under a shared responsibility system (for example, see Henckes et al. 2004).

While PPPs and business development activities can be interesting for most countries, these activities are unlikely to deliver the desired results in the absence of a minimum level of governance and sufficient control mechanisms in civil society (box 5.5). A capacity analysis is a prudent step to take before investing in PPPs and business development in a given setting. The analysis should assess risks and risk mitigation measures and determine whether supportive capacity building is needed. To work well, a shared responsibility system requires a high level of transparency, sensitization, and sufficiently effective mechanisms for society to influence policies as well as private sector decisions—conditions that are anything but perfect in most countries.

Market distortion

Market failure is the main justification for public sector interventions, but efforts to address market failures often distort markets unduly. Two key questions need to be answered: First, is public investment justified? Second, what is the right amount or level of support? The generation of a public good is a necessary condition for intervention, but it is not sufficient justification. Public funds need to generate *additional* positive economic net returns that would not have been generated without public investment. In other words, the public sector should not pursue investments that the private sector is likely to undertake on its own. For practical purposes, this determination can be difficult to make, however. Nor is it easy to determine the right level of public sector support (box 5.6). TN 1 describes methods for determining additionality.

NEW DIRECTIONS, PRIORITIES, AND REQUIREMENTS FOR INVESTMENT

Given that business development and PPPs are becoming important drivers for innovation and growth in agriculture, policy makers and development agencies need to consider a range of issues related to supporting partnerships and business. Among these considerations, *developing a vision* of the priorities and strategic choices related to agricultural development is perhaps the most fundamental. Agriculture provides more than food. It produces essential commodities that increasingly include energy, environmental services, and a wide range of social goods. Given that three-quarters

Box 5.5 Consumers Want to Be Engaged

Civil society itself has developed a wide range of instruments to express its interests and preferences and influence governments, development agencies, and private companies. "Mature and sensitive" societies significantly influence the direction of technology development and business opportunities. For significant numbers of consumers in these societies, the value of a food product lies not only in its taste, nutritional value, and chemical and physical properties but in the resources used to produce it, the impact on the environment, the contribution to global warming, and the social conditions and safety of farm or factory workers.

According to the 2010 Cone Shared Responsibility Study, 84 percent of Americans believe that their ideas can help companies create products and services that are a win for consumers, business, and society, yet only 53 percent feel that companies effectively encourage them to speak up on corporate social and environmental practices and products. A majority of consumers want to be engaged on four key pillars of responsible business, including how a company conducts its business (85 percent), its products and packaging (83 percent), its support of social and environmental issues (81 percent) and its marketing and advertising (74 percent). Consumers are prepared to dedicate time and money to help influence corporate social/environmental practices through surveys and research (70 percent), buying or boycotting a company's products (44 percent), or through email, phone, or employee communications (32 percent), among other activities.

Sources: Author; Cone 2010.

Box 5.6 Additionality Criteria to Use in Deciding Whether to Provide Public Funding

Public investment decisions need to be based on an *economic* and a *financial* analysis. The economic analysis determines whether an investment is likely to generate additional benefits at minimum rate of return for public capital investments. The financial analysis shows whether public funds are required at all. It helps to ascertain, for example, if an investment is unattractive to private investors, and it determines the level or amount of public funds needed (the share of public grants or level of subsidy, for example).

Additionality is a key consideration in programs to support private sector development. Certainly companies will enjoy public support and will give any assurance to donors that they would not have invested without such support. This assertion needs to be proven. Especially in matching grant programs, the risk is high that public funds will simply replace private funds. This substitution is not only inefficient but disturbs and biases competitiveness among producers or businesses.

Source: Author.

of the world's poorest people live in rural areas, agricultural development goals are often torn between delivering low-cost food using increasingly scarce and more expensive resources and providing income for poor farmers. Effective partnering and business development must be guided by a vision for agricultural development that sorts through these issues, sets priorities, and makes strategic and often difficult choices.

The roles of the public and private sector must also be defined clearly. Business-driven agricultural development, combined with PPPs, will require a *definition or redefinition of the roles and responsibilities of the public and private sectors*. Many governments already find it challenging to define and implement clear policies of what the public sector should do in relation to the private sector. Ministries of agriculture and their subordinate institutions often still engage directly in enterprises related to agricultural production, such as input supply or food processing facilities. They will need to reassess these enterprises with a view to facilitating participation by the private sector and partnering with private entities.

A fundamental role of government is to create conditions enabling the private sector to generate economic growth through innovation and the development of new businesses. The lifeline of an *enabling business environment* is a strong legal and institutional framework capable of protecting investors and intellectual property. Module 6 gives examples of strategies to develop an enabling environment for agricultural innovation.

The public sector also *intervenes actively in supporting private sector development* through business development and advisory services, business incubators, technology parks, and cluster development. *Formal technology transfer* mechanisms, such as intellectual property protection and legal agreements that transfer property rights to commercial or international partners, are becoming critical to engage effectively in PPPs and disseminate technology through market channels. TTOs are an interesting option, especially if they are affiliated with research organizations or universities or host incubation services—in other words, if they focus on nurturing businesses that aim at commercializing technology.

Working in isolation, public institutions and private companies are less and less likely to address global, regional, or even local agricultural development challenges. *New partnerships need to be encouraged,* from global strategic partnerships and alliances to innovative PPPs and individual stakeholder partnerships. Such partnerships need to shift from being ad hoc initiatives to becoming a strategic element of the agricultural development agenda.

With the growing diversity of partners and institutional arrangements, the demand for more *innovative funding mechanisms* is growing as well. The significant experience with some of these mechanisms, such as competitive research grants and matching grants, can be built upon; at the same time, new applications for other funding mechanisms, such as risk capital funding, are beginning to emerge.

MONITORING AND EVALUATING INVESTMENTS

Tracking and attributing the results of a business innovation or partnership program is highly challenging. The

particular challenges relate to the timeframe, complexity of the processes, great array of stakeholders, and external influences. Key aspects of M&E include clarifying the program's objectives, identifying appropriate indicators, establishing appropriate M&E arrangements, following common monitoring practices, and evaluating impacts.

For complex business innovation or partnership programs, a multistage grouping of indicators may be useful. For example, the PAID framework includes process indicators (P), used to track the first stage of a program; action indicators (A), used to track activities and inputs provided by the program; investment indicators (I), used to track investments and co-investments by the private entities receiving support; and delivered results (D), used to measure final outcomes.[4] Table 5.3 provides examples of indicators for designing monitoring systems.

Table 5.3 Possible Monitoring and Evaluation Indicators

		Program type			
Type	**Indicator**	**Grant**	**PPPs**	**Incubator**	**Cluster**
Process indicators	Analytical activities (competitiveness, availability of infrastructure, capacity of institutions)	X	X	X	X
	Memoranda of understanding	X	X	X	X
	Agreed schedules and levels of participation (including aspects of gender or other social equity)	X	X	X	X
	Other milestones in process for designing and establishing a business support scheme (for example, private sector mapping)				
Action indicators	Technical assistance provided	X	X	X	X
	Completion of strategies			X	X
	Completion of action plans with responsibility split among representatives			X	X
	Delivery: Number of subprojects terminated within a year after the planned date	X		X	X
	Success rate: Number of subprojects that have achieved the planned milestones	X	X		
	Punctuality: Ratio of realized and planned time for subproject execution	X	X		
	Length of subproject cycle (number of months)	X	X		
	Number of incubatees supported			X	
Investment indicators	Outsourcing for efficiency: Share of contracted research within subproject activities (percentage of total)	X			
	Additionality of resources attracted by mechanism (from clients, government, private sector, and partners)	X	X		
	Business formation: Number of new business registered			X	X
	Value of newly registered capital			X	X
	Accessed financing during the incubation process			X	
	Business retention: Percentage of graduates staying in the community in which they were incubated			X	
	Business success: Percentage of incubator graduates staying in business			X	
	National and foreign investment attracted				X
Delivered results	Factor productivity (crop yields, labor productivity)	X	X		X
	Trends in natural resource degradation (soil erosion rates)	X	X		X
	Social rate of return to research (percentage)	X			
	Absolute and relative poverty rates (percentage)	X	X		
	Scientific quality and spillover benefit (publications, citations, peer evaluations)	X			
	Increase in the value of sales, farmer value-added, the quality of produce of farmers engaged in partnerships	X	X		X
	Increase in the income/profitability or competitiveness of target actors (agribusiness, farmers, and others)	X	X	X	X
	Increase in innovation (technical, organizational, and other) among the target actors	X	X	X	X
	Public return on investment (e.g., tax revenue versus public spending)			X	X
	Sector or subsector growth rates				X
	Employment				X

Sources: World Bank 2010; World Bank 2009b; author.