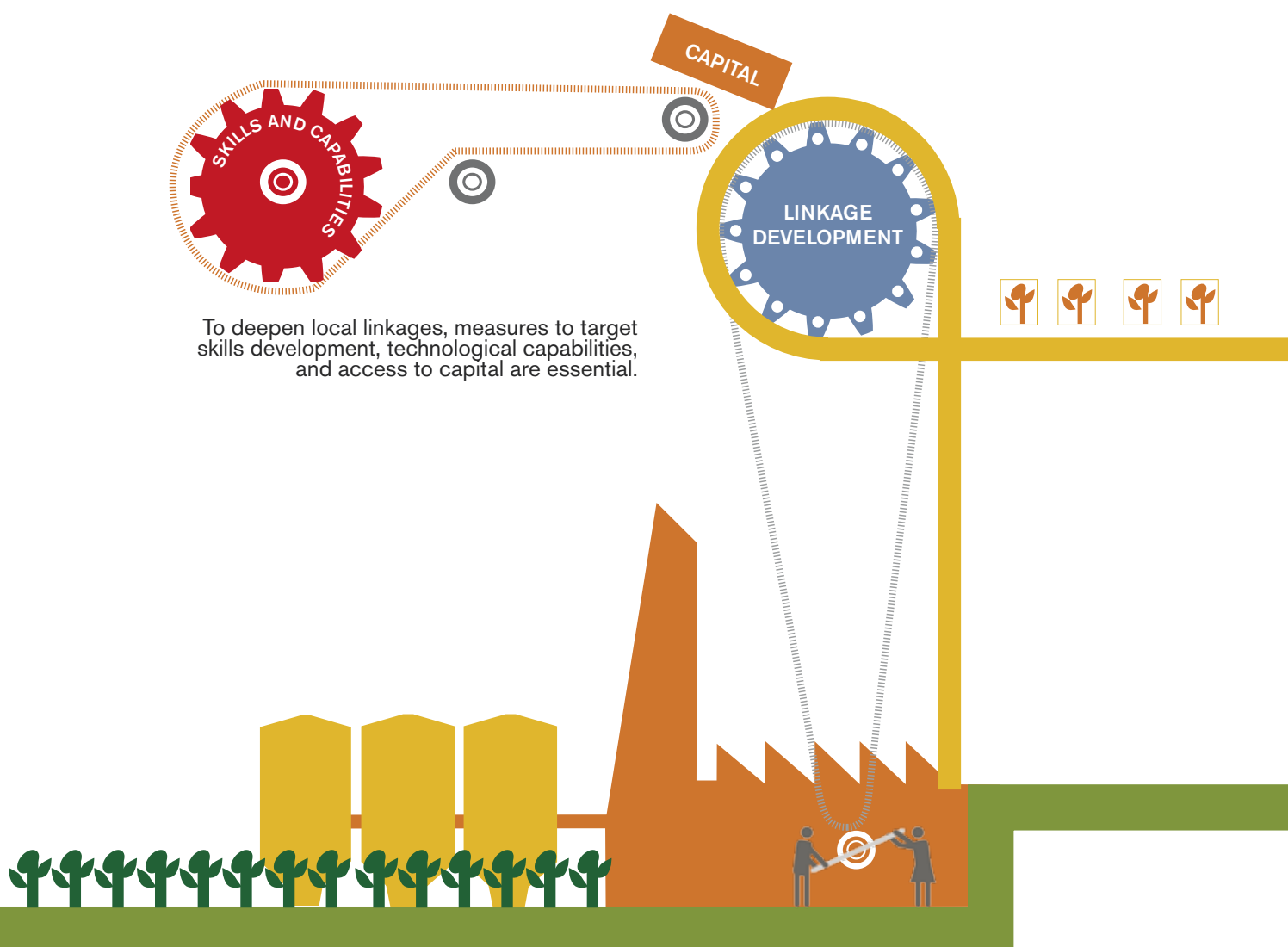

Making the Most of Policy Linkages in Commodities

THE BIG DIFFERENCES IN SOFT, HARD AND ENERGY COMMODITY SECTORS AFFECT HOW LINKAGES DEVELOP

COMMODITIES SPAN HIGH- AND LOW-TECHNOLOGY INDUSTRIES, LARGE AND SMALL ENTERPRISES, AND CAPITAL- AND LABOUR-INTENSIVE SECTORS. THEY ALSO DEPEND ON DIFFERENT TYPES OF INFRASTRUCTURE.



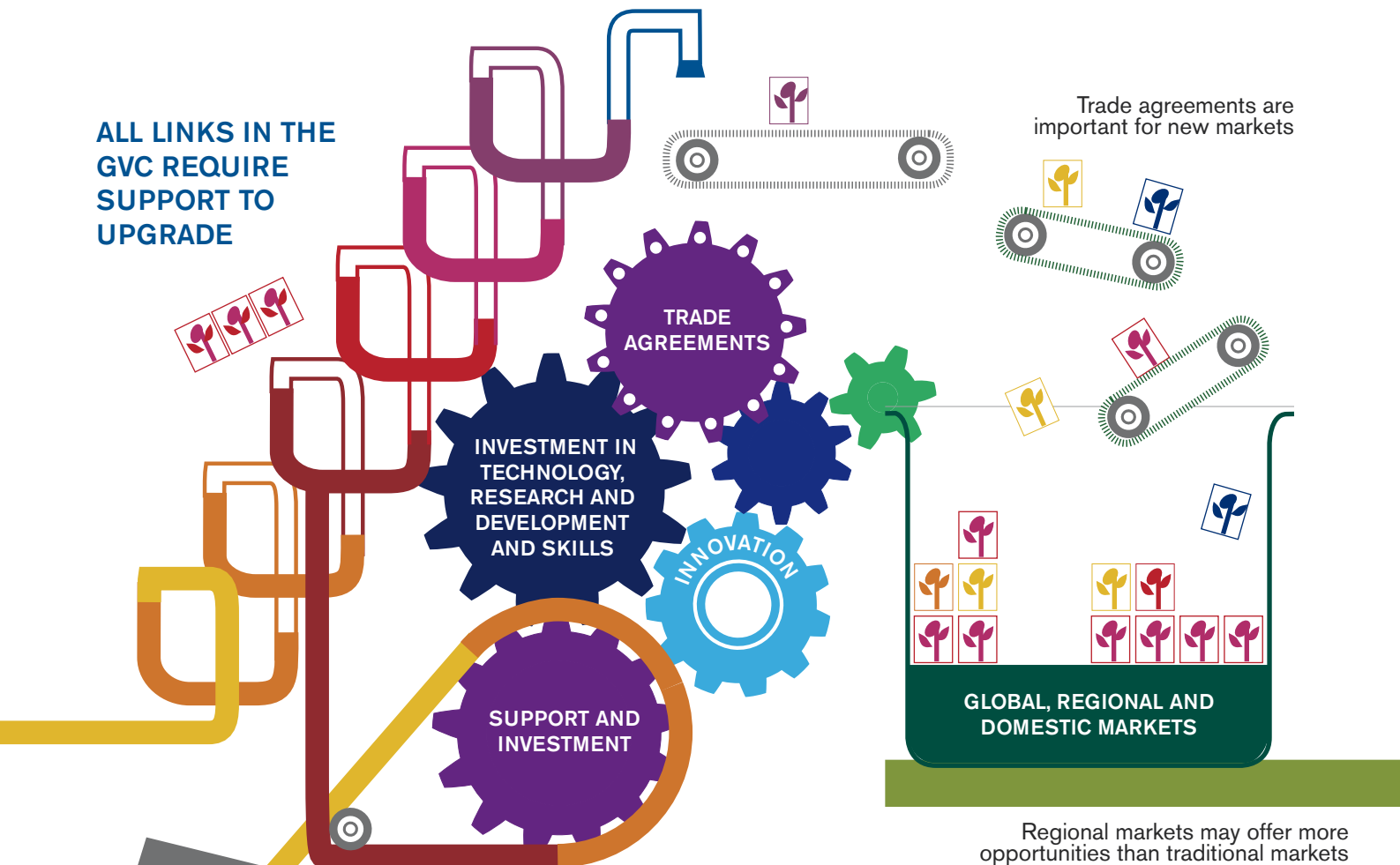
Most soft commodities have little technological content, lend themselves to small production, are labour intensive, require diffused infrastructure and rarely stay fresh in their natural state, requiring early processing.

FINDING INTERNATIONAL BUYERS IS CRUCIAL ...

... AND THEN STAYING IN GVCs NEEDS SYSTEMATIC INVESTMENT AND SUPPORT

ALL LINKS IN THE GVC REQUIRE SUPPORT TO UPGRADE

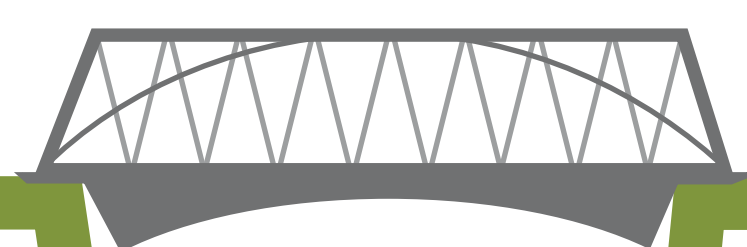
Trade agreements are important for new markets



GLOBAL, REGIONAL AND DOMESTIC MARKETS

Regional markets may offer more opportunities than traditional markets

INFRASTRUCTURE BUILT AROUND HARD-COMMODITIES CAN BE USED FOR DEVELOPING OTHER SECTORS.



RESOURCES

Most hard commodities involve large and capital-intensive production and embody more complex technologies. They are durable and require intensive, large infrastructure (such as roads, rail and harbours) to get to market.

The earlier chapters suggest that backward and forward linkages are developing in the soft, hard and energy commodity sectors in some African countries. The depth of linkages (the accretion of local value added) varies more by country than the breadth (the share of local spending).

Some summary conclusions on value chain linkages and drivers of commodity linkages can be drawn to provide an evidence base for this chapter's policy recommendations. The aim is not to detail individual value-chain or country issues, but to present cross-cutting conclusions and recommendations as foundations for ministries to apply to their own economic reality. The recommendations are set out in a nine-part policy framework (rather than in a long wish list of policies that may not apply to a given country or value chain). This approach allows policymakers to use the policy framework to generate more detailed strategic mechanisms appropriate to their own country's conditions. But first, the summary conclusions.

6.1 SUMMARY CONCLUSIONS

The big differences in soft, hard and energy commodity sectors affect how linkages develop

The commodities span high- and low-technology industries, large and small enterprises, and capital- and labour-intensive sectors. They also depend on different types of infrastructure. Some commodities also differ in their shelf lives. Most soft commodities, for example, have low technological

content, lend themselves to small production, are labour intensive, require diffused infrastructure, and rarely stay fresh in their natural state, requiring early processing.

Most hard commodities by contrast involve large and capital-intensive production and embody more complex technologies (although small-scale artisanal mining is fairly widespread). They are durable and require intensive use of large infrastructure (such as roads, rail and harbours) to get to market. This infrastructure can be used for developing other sectors.

For their part, energy commodities are generally very technology, scale and capital intensive and require infrastructure that is less useful to other sectors.

FINDING INTERNATIONAL BUYERS IS CRUCIAL ...

Searching for buyers is costly for any firm, but is critical for a firm to join a global value chain (GVC). In some countries this insertion is based on relationships built over many decades—building linkages is neither easy nor quick. Local firms attempting to move into higher value added products need government support, especially as those firms that succeed can then provide information and channels for other domestic firms. Government support is critical in view of the political and economic factors that determine the conditions under which local firms are inserted in a GVC, the distribution of benefits along the value chain as well as resolution of trade policy issues (box 6.1).

BOX 6.1: POLITICAL ECONOMY TENSIONS FROM GVCs

Policymakers need to resolve underlying political economy stresses as they decide how their countries will benefit from GVCs. Transnational corporations (TNCs)—the lead firms—are at the forefront of advocating for deeper GVCs, premising their policy advocacy that GVCs are good for growth and development. But the TNCs do not address the issue of how the value along the chain should be shared (and this is where the policymakers come in).

Another anxiety comes from jobs. Some citizens in countries where TNCs are headquartered perceive GVCs as job destroyers—for their countries—rather than job creators.

Yet the most critical tension relates to multilateral trading rules. As discussed in chapter 2, the Doha Round has made little progress, and moves to liberalize non-agricultural goods and services are two areas with divergent views not only between developed and developing countries but even among developing countries. There are those, including the African Group, who argue that these chains are being promoted, mainly by industrial countries, as an indirect route to more deeply liberalizing trade in industrial goods (as well as services). For GVCs to be efficient, any barriers along the chain must be eliminated. This means that an export tax, for instance cannot be employed as a negative subsidy, neither can an import tariff be higher in say a given developing country, for as long as the export tax or the import tariff relate to a given GVC.

... and then staying in GVCs needs systematic investment and support

Once firms are in the GVC they are subject to very demanding market requirements. Lead firms require their suppliers to be globally competitive on critical success factors (CSFs) such as price, quality, delivery times and innovation for these companies to ward off other competitors seeking to become GVC suppliers. Firms in these value chains also have to meet technical, private, health and environmental standards set by global governance regulators.

Linkage development is thus a progressive and cumulative process, one that requires continuous investment in technology, research and development (R&D) and skills, to help firms upgrade their capabilities. This requires assistance from three sources—the lead firms, domestic skills training bodies and local innovation institutions.

All links in the value chain require support to upgrade

This may require trade-offs between various links. For example, adding value in agro-processing and making the most of soft-commodity endowments through building forward linkages has its own specific issues and constraints. Output from food commodity sectors can vary enormously in terms of meeting quality, price and technical specifications. These all relate back to the first stage of agricultural production where productivity, skills and technological capabilities have a critical impact on the volume, quality and price of inputs supplied to the processing industries. Failure to tackle these

issues through appropriate policies and strategic interventions severely constrains attempts to add value in the agro-processing stage and to shift the focal point of local industrialization.

Regional markets may offer more opportunities than traditional markets

Africa's markets may be less demanding than GVCs, allowing local firms to build the production capabilities needed to move into more demanding chains. Regional markets are particularly important for countries without large domestic markets, which underlines the importance of streamlining regional integration in Africa. Some GVCs of course offer more opportunities than others for intraregional trade, notably agro-processing chains, because Africa is fairly rich in supplies and their products tap into final markets among the continent's rising middle class.

Trade agreements are important for new markets and products

African countries could improve market access for their value-added products through agreements with traditional and emerging partners. Their strategy should aim to reduce high tariffs (on cocoa to India for example), remove tariff escalation (in the EU for instance) and remove non-tariff barriers. Tariffs have generally declined, but while several proposals were made to overcome tariff escalation, non-tariff barriers (especially technical barriers for manufactures) have escalated. For example, non-tariff barrier proposals have recently been made in the non-agricultural market access negotiations by several

economies including the EU, US, Argentina, China, Cuba and Japan. African countries therefore need to adopt a unified continental negotiation framework to maximize the development impact of economic and trade agreements.

6.2 FACTORS DRIVING LOCAL LINKAGES

The unevenness of backward and forward linkage development is a function of two primary sets of linkage drivers—structural and country specific—in

a distinction that has major implications for policy (Morris et al., 2012).

Structural drivers refer to the age of the commodity-exploiting sector and sectoral factors such as the requirement for just-in-time and flexible logistics, the type of individual commodity deposits, and the technological complexity of the sector. By their nature these structural drivers are hard for policy interventions to influence. Country-specific drivers refer to more contingent factors that are dependent on national contexts, and are much easier to influence by policy (box 6.2).

BOX 6.2: COUNTRY-SPECIFIC LINKAGE DRIVERS

Examples of these contingent drivers are:

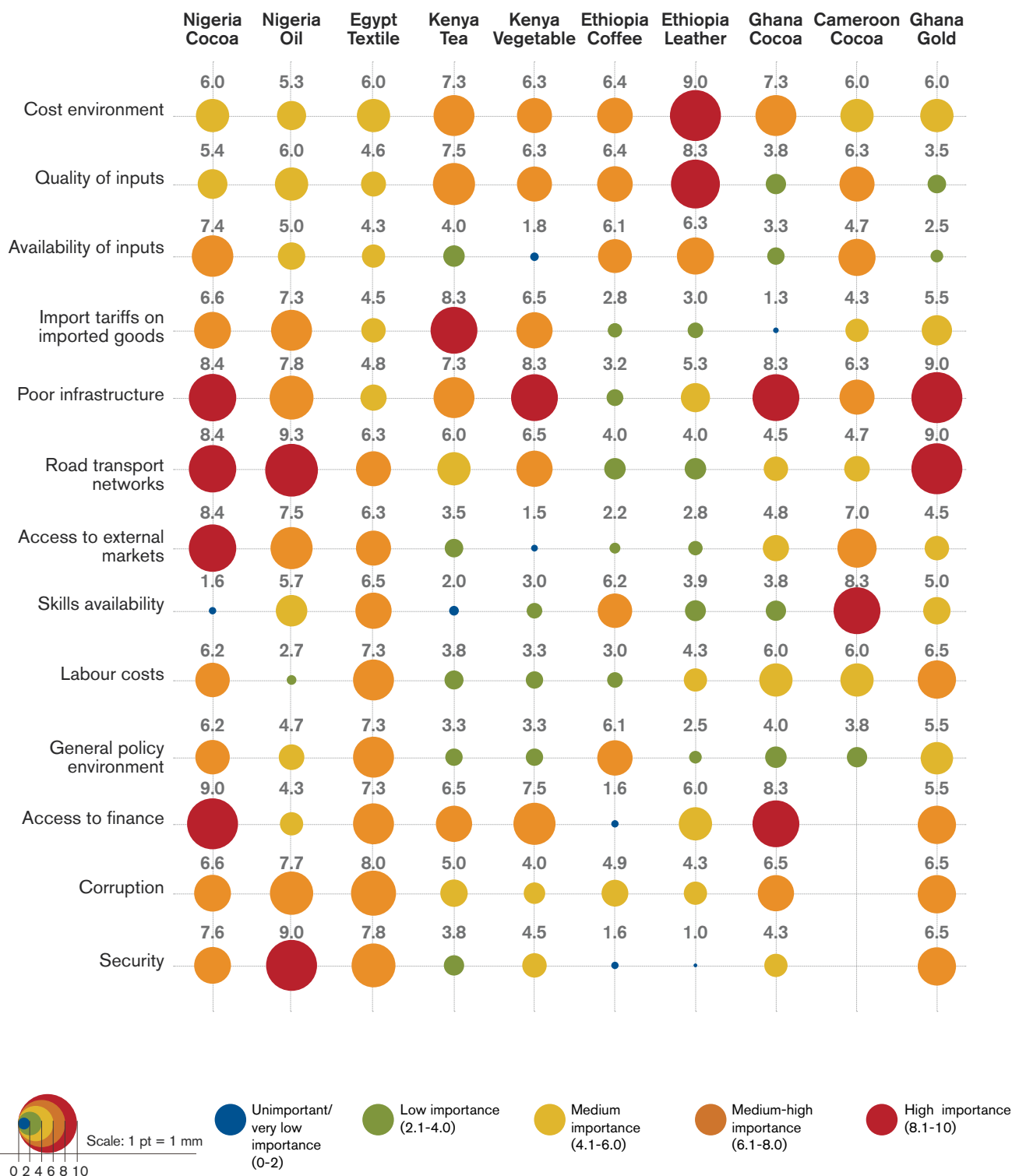
- The nationality of the lead commodity firms, and their approach to developing linkages.
- The end markets and their CSF requirements.
- The nature and quality of hard and soft infrastructure (including poor access to credit institutions), which help (or hinder) linkage development.
- Skills and institutional capabilities, at firm and country level.
- Social and political factors, such as corruption and security.
- Government policies and effectiveness of implementation.

In other words, policymakers must analyse how multiple factors influence the economic terrain of each country. A country-specific industrialization strategy to facilitate local production linkages would depend on the sector, commodity characteristics (linkage possibilities vary), characteristics of particular value chains, CSFs in different value chains, firms' and institutions' capabilities, stakeholders, and state capacity to make the necessary institutional arrangements.

As country-specific drivers are more easily open to influence from industrial policy measures, they are the areas that policymakers should focus on.

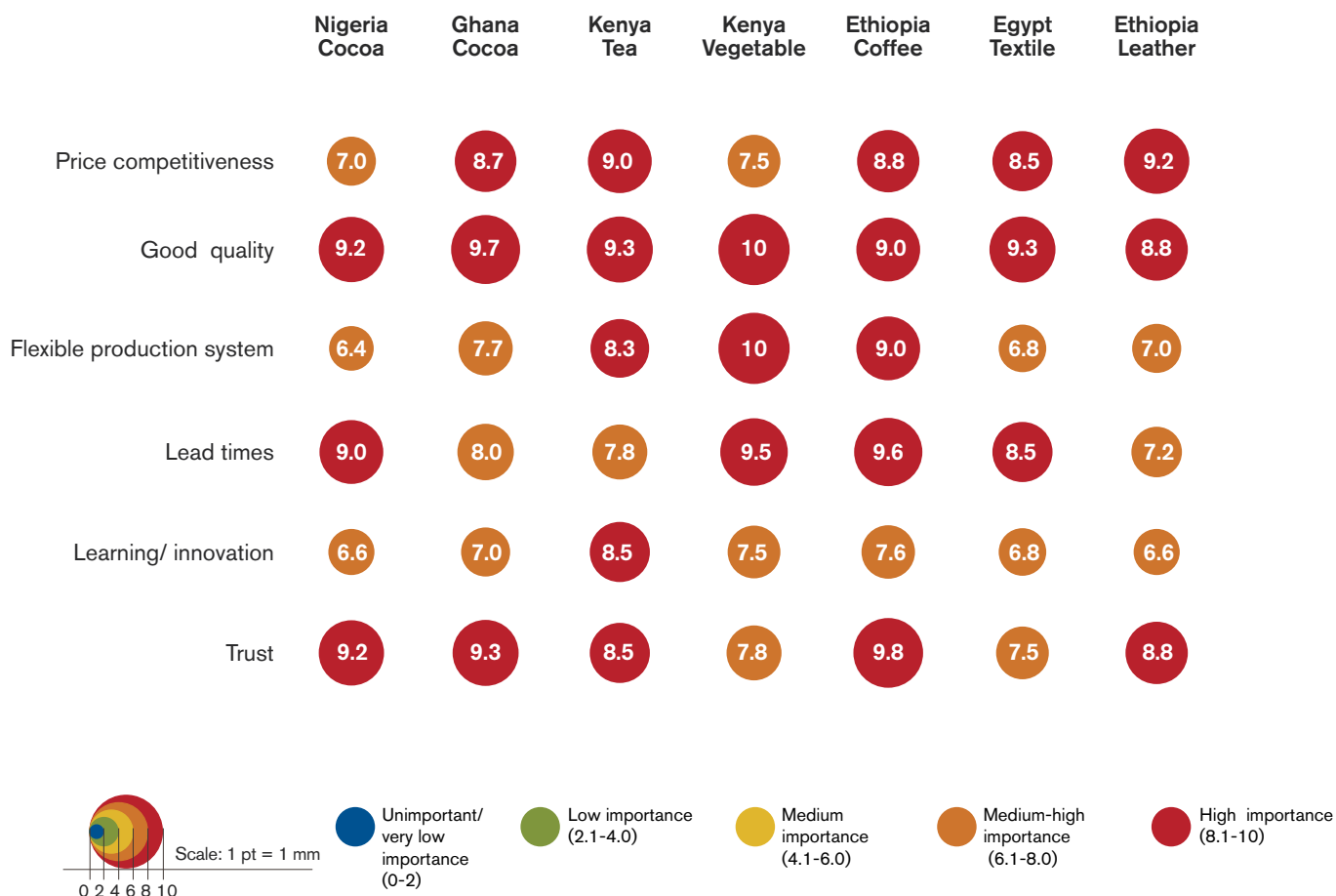
Policymakers cannot, however, make simple, generic solutions for CSFs, which differ widely by country, sector and value chain (figures 6.1 and 6.2) and which have no easily identifiable uniformity.

FIGURE 6.1: VARIATION OF FACTORS AFFECTING LINKAGE DEVELOPMENT BY SECTOR AND COUNTRY



Source: Firm surveys in chapters 4 and 5.

FIGURE 6.2: VARIATION OF CSFs BY SECTOR AND VALUE CHAIN



Source: Firm surveys in chapters 4 and 5.

These figures underline the fact that a “one size fits all” approach would be a mistake. Instead, policymakers need to push through with policies on the basis of evidence for their country, and the sector and value chain under consideration. Policies will also require focused and institutionally grounded implementation strategies, with responsibilities clearly demarcated. And they need to be listed by priority so as to avoid politically driven non-implementable wish lists—given that in the real world, policy decisions revolve around trade-offs and resource availability. Policies must also be backed by transparent budgets to ensure that resources are available and results are achievable. Finally, national governments should

take into account that some steps are better carried out at lower tiers, such as state, provincial or local government, to ensure the necessary institutional intimacy and knowledge-flows between civil servants and firms.

Lead commodity firms are the major drivers of GVCs and hence of linkage development. Many lead firms have structured programmes for supplier development in their global operations. These lead commodity firms embody routines for supply chain development, which hold considerable potential for local linkage development, given appropriate government policy interventions (Morris et al., 2012).

Moreover, foreign-owned lead firms, with roots in the economies of the Organisation for Economic Co-operation and Development, are vulnerable to pressures from civil society organizations in their home countries as well as from local communities in the host country to foster local industrialization, and so can be pressured by host governments to help develop local linkages.

The governance environment and engagement of local communities living near lead firms' commodity production can play a key role in enhancing local linkage development. Often this is played out in corporate social responsibility projects to ensure buy-in from local communities. In addition, many lead commodity firms have signed—often independently monitored—agreements with governments, designed to enhance local procurement. National governments must, though, use the opportunities available in their policy armoury.

This pattern of supply chain development is, however, less evident in new entrants from China. A number of African countries have had considerable success in negotiating bilateral agreements with China on infrastructure construction, industrial training, and supplier development, all of which are conducive to local linkages (although implementation is not always in line with the agreements—this ultimately is an issue for the local state).

Hard infrastructure is a significant country-specific driver: poor transport undermines the capacity of local suppliers to feed into value chains; power utility breakdowns short-circuit operational efficiency and increase costs; and slow telecoms stop local firms from taking advantage of the rapid communication that is necessary to access knowledge-intensive markets. The lead firms have some capacity to cover their own infrastructure needs and to solve their own problems, but less so their suppliers'.

The upshot is that, although lead commodity producers may wish to increase outsourcing, weak infrastructure forces them to either internalize these non-core value-added activities or import from stable foreign suppliers. Logistical efficiency also has a bearing on linkage development, as does soft infrastructure such as business support and trade facilitation.

Solid human resources are a precondition for building linkages. The skill and capability constraint in Africa is a critical determinant of linkages both by lead firms and their suppliers and downstream firms. The main gaps are usually in vocational areas (welders, fitters and turners, drivers of specialist equipment), more advanced engineering skills, and management skills for world-class manufacturing techniques. Although African governments recognize this skills gap, their ability to launch institutionally driven programmes to upgrade suppliers, processors and manufacturers is severely limited. Nearly all African countries depend on international bodies and programmes to build capabilities. As countries attempt to move up the value chain—especially for inputs to the lead commodity producers—demand for skills will necessarily increase. Any successful industrial development process will therefore soon encounter the binding constraint of skills development.

Three broad, overlapping strands are apparent on how African governments view the promotion of linkages from commodities. Many governments express a stated wish to make the most of commodities through linkages but show little strategic thinking beyond that. Others articulate a vision but they interpret “localization” as greater participation by citizens as owners rather than as a deepening of domestic value added.

Only a few put forward some sort of coherent vision, yet because most policies that exist only on paper are very poorly implemented, it is precisely these markers of progress that are needed to turn vision to reality—they should include timetables and benchmarks, positive and negative sanctions, inter-ministerial coherence, human resource capacity and political will.

6.3 A POLICY FRAMEWORK

The ultimate goal of the following nine-point policy framework is to avoid a commodity linkage template, but to help African governments in developing policies and implementation mechanisms to drive their own commodity-based industrialization. A more specific objective is to accelerate the broadening and deepening of production linkages to the particular commodity endowments of each African country—as

discussed in chapter 3—and hence to shift the industrialization curve to the left (see figure 3.5).

1. Adopting a coherent industrial policy

Many high-income countries started industrializing on the basis of their natural resources, gradually developing backward and forward linkages—“one thing leads to another,” per Hirschman (1981). So, the process can be left to the market and the vagaries of time, but for these precursors it was slow and the results hit and miss, and for Africa today the process may (or may not) broaden and deepen linkages

over long decades of commodity extraction (Morris et al., 2012).

So to speed up and deepen the process of value addition and linkage development, African governments need to respond strategically—working closely with other stakeholders—through formulating and implementing industrial policy along the priorities of the Accelerated Industrial Development of Africa (AIDA) Action Plan (see chapter 3). Three broad families of linkage development, where governments can hope to influence the trajectory of local supply, may be identified (box 6.3).

BOX 6.3: INFLUENCING THE TRAJECTORY OF LOCAL SUPPLY

Below are three families of industrial policy interventions to boost local linkages, depending on the ease with which linkages can be developed (box figure).

Low-hanging fruit

The first set of interventions aims to gather the “low-hanging fruit,” where domestic capabilities are such that local firms can produce competitively, and these linkages provide short-term returns to major commodity firms.

Capabilities may be among labour-intensive sectors where low wages are a competitive advantage, or in sectors with high natural protection. (This protection may reflect sectors with rapid degradation of the product, where there is extensive processing loss and where transport-to-value ratios are high.) Suppliers can produce high-quality products reliably at prices that are near the global price frontier.

The priority focus in the short term should be on these low-hanging (or easily graspable) linkages. Examples are capable and competitive local suppliers whose existence is unknown to lead commodity buyers because their purchasing eyes are locked on habitual imports from their home country or other regular suppliers from other countries.

This may simply be an information problem and require buyers to be given information to help match them with potential suppliers. Or it may require government and service institutions to target support at local suppliers to reach the frontier of a buyer’s CSF. Lead commodity chief executives, governments and local industry associations can play a critical role here.

Blossoms

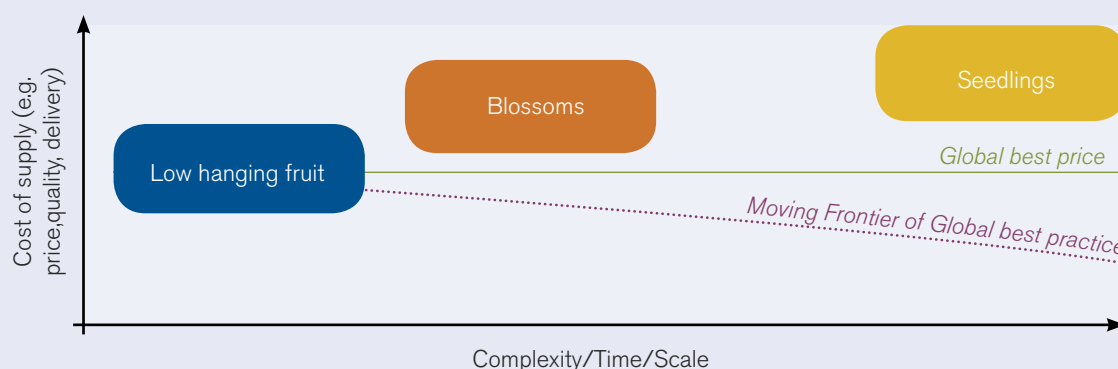
Next are linkages where embryonic capabilities exist and where there is some prospect, with reasonable time-bound support, that local producers will “blossom” and be able to compete with foreign producers in the medium term. The primary barrier is technological, and hence various forms of government innovation and skill-enhancing support are a priority.

Another obstacle is where inputs are critical to the lead firms, such as the refluting of rollers and grinders in the Zambian copper mine production chain. The various country case studies identified the existence of local suppliers who, with some assistance, could rapidly escalate their competitiveness and meet the CSF market requirements of lead commodity firms. Development of local capabilities needs to be approached with realistic and appropriate time frames.

Seedlings

The final area consists of high profile linkages that are beyond feasible reach in the short to medium term. These linkages are ambitious “seedlings,” which government can aim at in the long term. Indeed, those linkages seemingly beyond feasible reach should only be considered as part of innovative long-term industrial strategies with strong R&D support that can help break new ground. Several resource-poor countries such as Japan and Singapore provide good lessons on how well-designed industrial strategies can help such countries to develop industries and products, especially the cars and electronics that were beyond feasible reach at one point.

BOX FIGURE TRAJECTORY OF LOCAL SUPPLY



Source: Morris et al. (2012).

Some recommendations include:

- Design policies to grasp the low-hanging fruit. They may often combine very simple inputs (food, water and accommodation for workers) and more technology- and scale-intensive inputs.
- For embryonic linkages, develop targeted interventions that enable local producers to compete gradually with foreign producers. Many interventions are likely to be on building the national system of innovation, enhancing management capabilities, upgrading workforce skills and focusing on very specific and realistic technology/R&D support activities.
- Give priority to linkages that are within easy grasp or that require embryonic capabilities, policy for linkages beyond feasible reach should focus on long-term R&D that can help countries break new ground and develop new products.

2. Creating institutional industrial policy mechanisms

Best-practice industrial policy, and the mechanisms to effectively implement it, are usually country specific and optimally produced

when governments work with key producer stakeholders—lead commodity producers and local suppliers. Such partnerships are all the more necessary because of the pervasive misalignment between policy and implementation that often occurs in developing countries (box 6.4).

BOX 6.4: THE GAP BETWEEN RHETORIC AND PERFORMANCE

This gap arises from three misalignments. The pervasive failure of governments, lead-commodity firms and other actors in the commodity value chain to work with suppliers and processors is perhaps the most important.

Next, within value chains, lead firms often fail to back up their strategic commitment to broadening and deepening linkages with appropriate structures. With a mine, for example, the potential for misalignment starts early in commissioning and construction where site procurement managers establish sourcing patterns based on what they regarded as best practice (what is familiar to them) from their past activities.

A final, but similar, misalignment is between governments' stated objectives on linkage development and the institutions and structures to promote it. For example, support is often the duty of the ministry that oversees commodities rather than where it belongs—with the ministry responsible for developing industry and services related to commodities.

Governments do not have all the answers—and have to learn. Hence their “leadership” entails not directing the participants but brokering meetings and ensuring that sectional interests are redirected to the collective good. They therefore need an informed picture of the strengths and vulnerabilities of the major lead commodity firms in the sector. Such knowledge will enable them to make sure that these firms actively promote local linkages, and encourage other local and foreign investors to broaden and deepen their forward and backward linkages.

Although these coalitions will inevitably reflect country context (the characteristics of the sector and the existing value chains), they should include all the main corporate participants (the dominant lead commodity firms, first-tier and some second-tier suppliers), governments, and (if possible without being overloaded) representatives of research and innovation institutions.

Experts and specialist service providers within an industry are likely to have insights into what is required and may be particularly helpful in designing and implementing policies.

Such multi-stakeholder coalitions are important for three reasons. First, each party has specific knowledge that it can contribute. Second, they will create an institutional dynamic, build public awareness and a “moral momentum” among private actors, especially lead commodity firms, focusing attention on the importance of local sourcing, local processing and general linkage development. Third, because successful implementation requires key stakeholders to take part, they are better involved in developing the linkage strategy.

Some recommendations include:

- Set up a multi-stakeholder institutional council focused on developing linkages to the commodity sector, led by the most appropriate government department (usually the ministry of industry).

- Charge the council with developing a joint, strategic vision for industrialization, garnering the most reliable and important information, and developing under its supervision an appropriate step-by-step linkage strategy specifying activities, outputs, responsibilities and milestones.
- Commission the council to oversee consultancy research and strategy development plans.

3. Developing local content policy

Local content policies have probably been the single most important policy driver of linkages from the commodity sector. World Trade Organization rules provide some legal leeway to least-developed economies—and many countries find real-life mechanisms to implement such policies.

It is crucial for such policies to be evidence based and well informed rather than ideologically driven. Local content policies to promote domestic value added have often in Africa been conflated with indigenization policies designed to transfer ownership of linkage firms, confusing two issues. The first is the need to expand local value added economic activities, and this may require attracting foreign investment, skills and technologies. The second, equally important, is to develop domestic entrepreneurship—including recognizing specific constraints that women face—and to facilitate its access to value chains. This latter goal requires instruments that range from access to capital to programmes that develop small and medium-sized enterprises.

Any local content policy should be based on the following principles: first, work with the private sector; second, engage the major commodity firms to voluntarily facilitate local sourcing; third, when necessary, use regulations to compel them to increase the breadth and depth of linkages; and finally, ensure that industrial policy has detailed step-by-step implementation measures, including monitoring and evaluation as well as sanctions.

Critical for developing domestic entrepreneurship is to provide access to finance, especially for firms willing to undertake the risks involved in moving beyond importing into more knowledge- and capital-intensive activities. Concessionary finance should therefore be part of any local content policy.

Some recommendations include:

- Ensure that local content policies are concerned with adding value locally rather than satisfying sectional political interest groups.
- Make sure that local content policies address inequality—including gender inequality—in the participation and benefit from the value, rather than perpetuating them.
- Facilitate access to finance by local women entrepreneurs.
- Identify, specify and favour subsectors that are embryonic or within easy grasp rather than beyond feasible reach.
- Remove red tape on local businesses and streamline regulations to allow new enterprises to set up.
- Ensure that policies aimed at building local content are supported by access to suitable concessionary finance through development finance institutions.

4. Raising lead-firm procurement, sourcing and processing

Major commodity firms have the potential to deliver a major impact on local (backward and forward) production linkages. They also have a major responsibility to facilitate them, but even though it is in their interest to procure locally, foster local sourcing and develop local linkages, they rarely see these steps as part of their core business. Procurement managers, struggling to meet externally imposed targets, are often driven by other factors than finding competent local firms to source from. Unless managers receive direction from the top, they will follow sourcing patterns that are most familiar to them. Governments can, though, play a persuasive and regulatory role in ensuring that lead commodity firms facilitate local sourcing.

Some recommendations include:

- Engage with major commodity firms' chief executives to ensure that they develop and publicize a strategic vision committing their company to developing local linkages.

- Require foreign lead firms to report on local sourcing by number of such enterprises, and the degree of local value added, including a clear roll-out plan for future local sourcing. Such a mechanism is likely to focus the minds of their chief executives, engender a climate of moral enforceability and help to encourage local linkages.
- Require lead commodity firms to internalize local procurement practices that should be stipulated and institutionalized as a necessary part of the activities of the company.
- Ensure that contracts with lead commodity firms to extract minerals and energy do not restrict local supply in favour of foreign suppliers as part of any aid package.

5. Running supply-chain development programmes among major commodity firms

It is in the interests of lead commodity firms to outsource many of their supplies and services. Some of them can only be imported but many can be provided locally, and as time goes by, with appropriate domestic policies, local provision can widen greatly. Although lead assemblers in the automotive industry have substantial resources to assist component suppliers upgrade their operations through internal supply-chain development programmes, such practices are extremely rare in energy, hard and soft commodity sectors. The lead firms, especially in mining, have skills that are not aligned to building such capabilities among their suppliers. Some agro-processors such as Nestlé have, though, brought in such skills and capabilities to assist farmer-suppliers.

This creates a major policy gap between interests, intentions, needs and supply-chain capabilities for African governments to fill, in three main ways. First, through a regulatory framework requiring major commodity firms to have supply-chain development reporting mechanisms, creating a moral imperative for them to focus their attention in this area. Second, public-private matching funds to facilitate supply-chain development can make a real impact on local firms' upgrading. Third, private specialist service providers can be encouraged and even subsidized if the government formulates sectoral implementation strategies.

Some recommendations include:

- Liaise with lead commodity firms through industrial policy councils to set up customized and appropriate supply chain development programmes.
- Encourage and assist lead firms in soft commodities to provide large and resource-intensive interventions to expand and upgrade agricultural producers, especially in outputs meeting the necessary quality standards, feeding into selected value chains.
- Focus on target niche markets and ensure quality certification, whether environmental sustainability, speciality products, Fair Trade and so on.
- Set up public-private commodity funding mechanisms to bring in private sector service providers skilled in developing firms' capabilities in backward and forward linkages.

6. Boosting local skills and technologies

Many potential local suppliers and processors are well behind the international competition. They lack adequate skills, technological capacities and the supportive institutions that would enable them to close the gap. Firms' spending to close the gap is often suboptimal, a result of extensive market failure. Hence, public provision can potentially play an important role in meeting these market failures. Skill shortages in many African countries represent often a binding constraint on developing industrial linkages. Lack of sufficient (and appropriate) skills hamstrings local suppliers in upgrading competitiveness, meeting technical requirements, innovating, or adopting world-class manufacturing practices and customer management programmes.

These capability gaps pervade all levels of the local economy. Among managers these gaps are often in operational and financial skills, knowledge of world-class manufacturing and manufacturing excellence, and specialist technical and engineering capability. Gaps in the general workforce refer to artisanal, basic engineering, maintenance, machinist and operator skills.

Closing these gaps requires coordinated firm, government and donor programmes to upgrade training facilities. Suppliers are often caught in a classic coordination problem—they cannot get into supply chains until they exhibit the necessary skills, technology and management capabilities, but they have great difficulty in acquiring these without being involved in supply chain programmes.

Developing backward linkages to hard commodities is particularly demanding of technological capabilities, and so government support is crucial. The case study on South Africa highlights the importance of prioritizing engineering, maintenance and technical skills at all levels, as such skills are more easily portable and play an important role in spinning off horizontal linkages into other ancillary linkage industries. Training programmes aimed at building engineering capabilities at all levels should be undertaken incrementally so as to build and spread the general corpus of these skills throughout the economy. The South African case also demonstrates that even with very high technological skills, declining investment in education, research and specialist mining and engineering institutions can lower a country's competitiveness. Building and maintaining these skills requires a partnership between private and public institutions, such as universities and specialist research centres.

Some recommendations include:

- Create matching-grant programmes for skills development and capability building that can be accessed by local firms.
- Attract international agencies to run skills-building programmes for local commodity firms.
- Create technical training institutions and upgrade curricula to expand the number of technical personnel, artisans and basic maintenance workers, as well as general engineering capabilities ranging from basic maintenance to tertiary skills.
- Offer tax incentives towards promoting R&D expenditures in the private sector. The structure would be left to individual countries—whether tax expenditures or allowable expenses. But the targeted policy outcome would be for firms to invest in R&D, including linking with local academic and research institutions (including polytechnics).
- Make it easier for firms to hire foreign workers with scarce skills, following the examples of Botswana and Mauritius.

7. Addressing infrastructure bottlenecks

The pervasive inadequacy of infrastructure in Africa is a major constraint on industrial development. It affects not only inter-country infrastructure but also feeder roads between agricultural producers and processing centres. With electricity, water, telecoms, information and communications technology and the like, administered prices can hinder expansion of services and affordability of access, undermining the competitiveness—and thus sustainability—of many businesses. Addressing this issue is often the most important factor in aiding the development of both the commodity sector itself and its linkages.

Focusing on infrastructure development has additional employment spin-offs for unskilled and semi-skilled jobs as well as training those with higher artisanal skills.

Some recommendations include:

- Avoid enclave infrastructure interventions aimed only at satisfying commodity producers' needs.
- Use commodity access to leverage favourable financing of infrastructure in bilateral agreements. In some cases transnational corporations in extractive industries can provide infrastructure for their own purposes, which, with government intervention, can be leveraged for use by other enterprises. When the government has financial resources, public-private partnerships can be set up to abet infrastructure provision.
- Make the regulatory framework effective, efficient and business friendly.

8. Coordinating ministries to improve policy implementation

Value chains are cross-cutting; government ministries are not. Ministries normally guard their own mandates, rendering policy coherence and inter-departmental cooperation difficult, despite its critical importance for implementing a commodity-based industrial strategy. Soft commodities tend to fall under the ministry of agriculture, and hard commodities under the mining and oil ministries—but an industrial policy requires input and direction from the ministry of industry.

Industrial policy requires well-targeted use of resources, which are controlled by the ministry of finance. It is therefore critical that national budgets include resources for commodity-based industrial strategies.

Even with the financing, linkage development strategies often stumble at implementation. For example, the ministry responsible for the commodity sector may be charged with designing and adopting the local-content or local-processing requirements, but building firms' capabilities requires interventions under the ministry responsible for industrial development. Similarly, linkage development may require technical and vocational training investment to prioritize certain skills, but the education ministry may have other urgencies. This often happens with technology, as linkage development requires industrial capabilities while public research institutes target innovation in agriculture or health.

In soft commodities, any policy to increase local processing needs to build on agricultural policies aimed at expanding production, improving product quality and developing infrastructure between rural and industrial areas.

Lastly, an important source of misalignment exists between ministries of trade and of industry. Trade negotiating strategies should support national industrial policy goals, but what they secure in multilateral or bilateral trade forums often fails to meet the strategic interests of local processing or supplier industries, so that trade measures on

local content or export taxes may actually constrain policy space for developing linkages.

Some recommendations include:

- Secure a mandate at the highest political level to ensure that the interventions of relevant ministries and agencies are aligned to the national linkage development strategy.
- Create coherence within the government system to ensure that ministries have a local linkage development vision and make institutional arrangements to aid policy implementation and overcome coordination problems.
- Target the agricultural sector in order to raise productivity and quality (through grading and standardizing services) and to help companies specialize in niche markets (such as speciality coffees and high-quality cotton).
- Ensure that trade negotiations are aligned to industrial strategies.

9. Negotiating regional trade arrangements and fostering intra-African trade

Regional markets can play an important role in facilitating local production linkages within and between African countries, partly because they provide learning opportunities and allow domestic firms to build their production capabilities in a staged, step-by-step process. Also, local suppliers providing inputs and services to lead firms are in effect servicing a bounded, easier-to-satisfy market and can use this to build their capabilities. Finally, regional markets allow companies to build economies of scale, specialize a little between countries, and upgrade functionally through building regional “country of origin” branding and thus higher returns. Particularly for soft commodities and speciality products, however, this requires a regional perspective and a realization that not all countries in a region can occupy the same branding space.

Some recommendations include:

- Speed up launch of regional trade arrangements on important areas such as non-tariff barriers, sanitary and phytosanitary measures, technical barriers to trade, harmonization of customs procedures, and so forth.
- Ensure that country members that have not yet done so sign and implement the tariff-reduction schedules envisaged by the Continental Free Trade Area agreement.
- Remove cross-border impediments and facilitate rapid movement of goods and services within a regional trade area through physical infrastructure development and regulatory harmonization.
- Tackle the specific constraints that women face in regional markets in cross-border trade, including violence, corruption and confiscation of goods.

6.4 FINAL WORDS

African governments' adoption of these policy recommendations is only a first, albeit important, step for them to take advantage of the industrialization opportunities provided by the commodity boom. Governments also need to put their own house in order, in the sense of developing their own departments' attitudes and capacity. Most government officials dealing with enterprises have never been inside a factory and have no hands-on knowledge of what firms do—let alone their competitiveness.

Governments therefore have to run training programs to enhance the capabilities and knowledge of their own civil servants, for without skilled human resources in state bodies it will be hard to convince lead commodity producers and local firms that they are serious. And without political will and capacity, these recommendations will probably remain—no doubt compelling—words on paper, but will have little impact on the trajectory and speed of industrialization. In which case, Africa will have lost the chance of “making the most of its commodities.”

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