Methodology for the 2021 Access to Seeds Index

March 2021

Access to Seeds Index

World Benchmarking Alliance

Foreword

Agriculture plays a central role in reducing poverty and hunger in developing countries. More than 90% of farmers in these countries operate on a small scale, as small commercial and subsistence farmers. According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), smallholder farmers produce up to 34% of our global food supply and account for roughly 30% of global crop production. However, two-thirds of people who are hungry live in rural areas locked in cycles of hunger because they cannot produce enough food – or enough nutritious food – for their households and communities.

United Nations (UN) Sustainable Development Goal (SDG) 2: Zero Hunger aims to end hunger, achieve food security, improve nutrition, and promote sustainable agriculture. But a good crop starts with a good seed. Farmers must have access to quality seeds of improved crop varieties to unleash the potential of the rural economy and improve food security in developing countries.

The Access to Seeds Index began its work in 2012. It was inspired by the success of the Access to Medicine Index, which leverages transparency and business contributions to bring about social change in the pharmaceutical sector. A diverse group of stakeholders were consulted from seed companies, seed associations and farmer organisations to non-government organisations (NGOs), governments, academics, and members of civil society. They concluded that a seed index could help encourage the seed industry to contribute to food security and economic development.

The index bridges the gap between seed companies and smallholders. It highlights the efforts of leading global, regional and national seed companies to improve access to seeds for smallholder farmers in emerging economies. So far, Access to Seeds Index has published 2 indices in 2016 and 2019.

In 2021, we will assess 72 seed companies on 32 indicators of their performance in six measurement areas. These areas reflect stakeholders' expectations of the seed sector in relation to improving smallholder farmers' access to quality seeds of improved varieties. This report describes the updated index methodology, including the review process, and an overview of provided feedback during the public consultation period from December 2020 to January 2021. The resulting index will be published during the 2021 UN Food Systems Summit.

Fulfilling the diverse needs and demands of smallholder farmers cannot be done by the private sector alone, so we are calling on other stakeholders that play a role in creating the right conditions for the market to flourish. These stakeholders include governments, NGOs and farmer organisations. We encourage them to join forces with seed companies, using the outcomes and insights from the index to accelerate smallholder farmers' capacity to gain knowledge and adopt new technologies that will enhance productivity.

We look forward to working on this with all of you.

Alice Ingabire
Lead Access to Seeds Index – World Benchmarking Alliance

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Executive summary

According to the Food and Agriculture Organization (FAO), in 2020 – five years after committing to SDG 2 - Zero hunger, to achieve food security, end all forms of malnutrition and promote sustainable agriculture – the world was still 'off track' to achieve this objective by 2030. Two billion people, a quarter of the global population, experienced hunger or did not have regular access to nutritious and sufficient food in 2019. More than 1.5 billion people couldn't afford a diet that meets the required levels of essential nutrients, and over 3 billion couldn't even afford the cheapest healthy diet. Disruptions to food supplies due to COVID-19, and lost income and remittances as a result of the pandemic, mean that households across the globe face increasing difficulties accessing nutritious food. These factors are also making it even more difficult for poorer and vulnerable populations to have a healthy diet.

Quality seeds of improved varieties have enabled farmers in advanced agricultural systems to triple their yields. What is the seed industry, strategically placed at the start of the food value chain, doing to help smallholder farmers in food insecure regions to achieve similar results? The Access to Seeds Index aims to shine a light on this question. In 2021, the index will benchmark 72 global, regional and national field crop and vegetable seed companies on their efforts to make their products available to smallholder farmers in three regions. Of these companies, 31 were selected in South and South-east Asia (SSEA), 32 in Eastern and Southern Africa (ESA), and 37 in Western and Central Africa (WCA). To assess investments by globally active seed companies 13 global seed companies of the 72 will be included in all three regional indexes. Furthermore, this is the first index to include an evaluation of the efforts of five advanced seed-producing cooperatives in WCA.

The selection criteria for the 2021 company scope are: (1) regional presence or a dominant position in one country; (2) physical presence and business activities in the region; (3) an integrated seed business model; and/or (4) peer recognition as a leading company.

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Company headquarters
The Access to Seeds Index covers 72 seed companies.

Overview of the measurement areas

The index will measure company activity in the six areas that are considered key for increasing access to quality seeds of improved varieties for smallholder farmers in the index regions.

A. Governance and strategy: This measurement area evaluates whether companies have strategies in place to help improve smallholder farmers' access to seeds. It highlights the way in which companies include smallholder farmers in their core business strategies by assessing their governance structures and stakeholder engagement programmes.

B. Genetic resources and intellectual property (IP) management: This measurement area seeks to clarify how companies support the conservation of genetic resources and share the benefits resulting from their use of publicly available genetic material. Furthermore, because national seed laws and other IP regulations differ, and many emerging economies still lack seed and/or other IP laws, this measurement area also seeks to clarify and assess the positions of companies regarding IP in general.

C. Research and development (R&D): This measurement area focuses on companies' R&D efforts, including through partnerships with (local) research institutes. It especially relates to activities that consider local conditions in the indexed region and the key crops for its farmers.

D. Seed production: This measurement area seeks to identify whether companies produce seeds locally and the extent to which smallholder farmers are involved in this process.

E. Marketing and sales: This measurement area assesses how companies make quality seeds of improved varieties available and affordable to smallholder farmers and promote their use.

F. Capacity building: This measurement area focuses on how seed companies invest in local capacity building to ensure that farmers have the right knowledge and tools to realise the full potential of quality seeds of improved varieties.

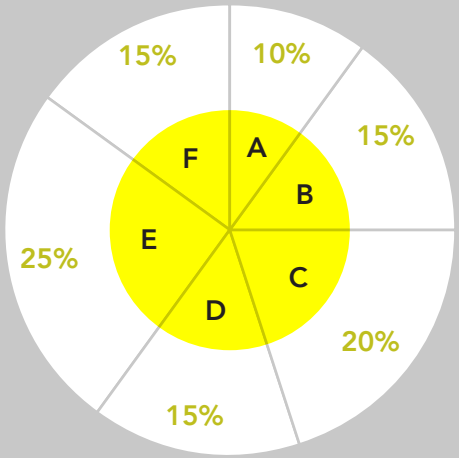
Figure 1: Structure of the six measurement areas

F. Capacity building

F1. Extension services
F2. Programmes for women farmers
F3. Next-generation farmers
F4. ICT
F5. Access to output markets

A. Governance and strategy

A1. Access to seeds for smallholder farmers
A2. Governance and accountability
A3. Stakeholder engagement



E. Marketing and sales

E1. Quality and safety of varieties
E2. Distribution channels
E3. Diverse portfolio
E4. Packaging and labelling
E5. Affordability
E6. Quality assurance and after-sales
E7. Demonstration and promotion strategies
E8. Other agricultural inputs

B. Genetic resources and intellectual property management

B1. Conservation of genetic resources
B2. Access to company genetic resources
B3. Benefit sharing
B4. Breeders' exemption
B5. Farmers' privilege
B6. Licensing

D. Seed production

D1. Seed production activities in index region
D2. Engaging smallholder farmers in seed production
D3. Quality management in seed production in index countries
D4. Social and labour rights in seed production

C. Research and development

C1. Plant breeding activities in index regions
C2. Local participation in breeding/variety development
C3. Variety testing
C4. Developing improved varieties of global crops
C5. Developing improved varieties of local crops
C6. Breeding programme for specific traits

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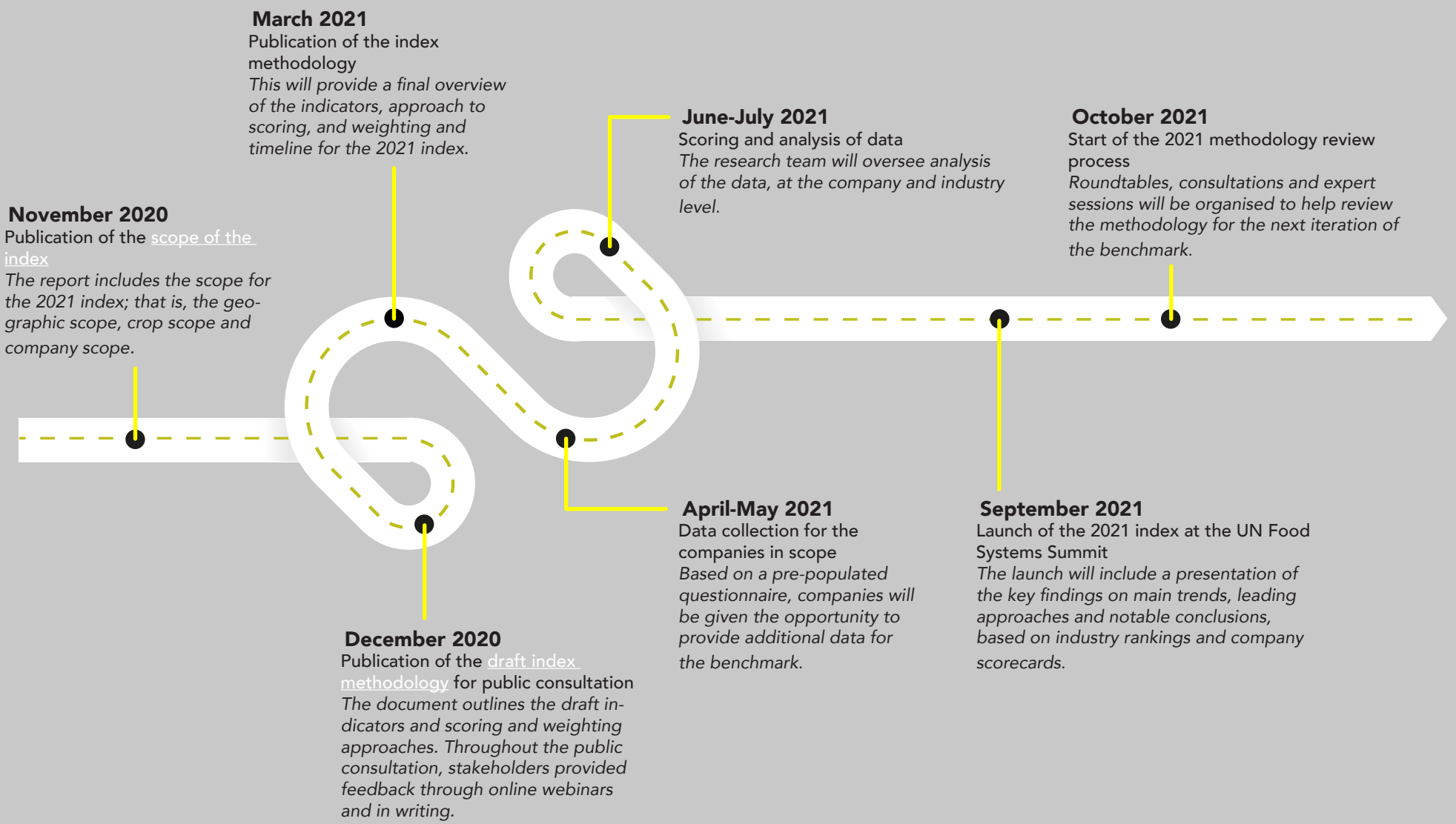
Timeline



Introduction

Insufficient access to quality seeds of improved varieties is still one of the many constraint's smallholder farmers face in diversifying crops and increasing their productivity and income. This makes improving smallholder farmers' access to seeds an essential part of the solution to global food and nutrition insecurity. Increasingly, seed companies are responding to this challenge. However, many smallholder farmers – who account for much of the agricultural activity in regions lacking food security – have not yet benefited.

The Access to Seeds Index is designed to create a better understanding of how seed companies are improving access to quality seeds for smallholders and, in turn, contributing to achieving the United Nations (UN) Sustainable Development Goal (SDGs). Two indexes have been published so far, in 2016 and 2019. These gained substantial and increasing participation by companies in data collection. They also gained significant media attention globally and attracted growing interest from other stakeholder groups.

Overall analysis and a comparison of company performance between 2016 and 2019 indicate the industry's growing recognition of the important role smallholder farmers play in developing regions, and its more responsive approach toward their unique challenges. From local to global seed companies in all regions, the industry has the potential to accelerate access to improved varieties in the coming decade, which could have a substantial impact on food and nutrition security in the countries that need it most.

The 2021 index is being developed as a 'spotlight benchmark' under the World Benchmarking Alliance's (WBA's) food and agriculture transformation. It will continue to focus on and provide deeper insights into the specific contribution of the seed industry to the SDGs, particularly SDG 2: Zero Hunger. The index will focus on the contribution of local and regional companies, and their global peers, in providing access to seeds for smallholder farmers in three regional indexes: South and South-east Asia (SSEA), Eastern and Southern Africa (ESA), and Western and Central Africa (WCA).

This report sets out the index methodology. It outlines 32 indicators for examining and assessing companies' activities across six measurement areas, matching company performance with stakeholder expectations. It provides input from a thorough review of the index methodology, which focused on simplifying and reducing the number of indicators. We thank all stakeholders who provided input and the experts who helped to review and improve the methodology.

How the index works

The index measures and compares the efforts of the world's leading seed companies to enhance the productivity of smallholder farmers. Matching the expectations of stakeholders in and around the seed industry with company performance helps to clarify the role of the industry. It also brings transparency to the contributions of individual companies. Index findings contribute to an informed dialogue on how companies can step up their efforts. This approach has the following four components.

Clear expectations

To encourage the industry to assume greater responsibility for facilitating smallholder farmers' access to seeds, expectations need to be stated clearly and collectively. Initial questions are considered, such as: What is expected of the industry? What role could it play? These questions are asked and answered through multi-stakeholder dialogue, to help formulate a balanced stakeholder agenda.

Objective measurement

The balanced stakeholder agenda is translated into a methodology, with indicators that clearly measure the performance of each company included in the index. For reasons of independence and impartiality, the index has no personal or financial ties to the companies assessed. An Expert Review Committee (ERC), which includes representatives from relevant stakeholder groups, advises on the index methodology.

Positive reinforcement

The index seeks to highlight good practices and recognise leadership in the sector. It rewards companies that take responsibility; develop innovative, inclusive business models; and bring knowledge and expertise to a partnership programme. By improving transparency in the industry, the index seeks to benchmark and improve the performance of seed companies over time.

Transparency and dialogue

The index creates and improves transparency around the roles that individual companies play, by identifying good practices such as development of new products, participation in successful partnerships, and application of innovative and inclusive business models. In doing so, it feeds informed opinion on the role of the private sector, which is essential for a meaningful dialogue about helping smallholder farmers to improve their businesses. As an independent platform, the index brings unique data to the table while complementing research conducted by global organisations, including the World Bank, on enabling agricultural growth and the role of governments. The index aims to bring these information sources together in the dialogue.

Stakeholder responses

The index is a unique resource in the public domain for anyone interested in seed industry activity in the Global South. Research organisations like CGIAR centres with public breeding programmes use information provided by the index to identify private sector partners that can help them bring new varieties to market. The index's findings are also valuable for organisations like the Global Alliance for Improved Nutrition (GAIN), which is interested in increasing the availability of crop varieties with high nutritional value. The FAO team involved in promoting the conservation and use of genetic resources plans to build a long-term relationship with the index, using the index's data to advance its mission.

Among farmer organisations, support for the index continues to grow. At the start of 2013, during a roundtable event in Addis Ababa, Ethiopia, several farmer representatives expressed their reservations about working with seed companies, saying it could harm their autonomy. In 2016, during a second round of consultations, these reservations had disappeared. This was partly because farmer representatives realised that data provided by the index was helping them to engage in informed dialogue with seed companies on how these companies can better serve smallholder needs. In addition, the effects of climate change have brought home the fact that collaborating with seed companies could be a way for farmer organisations to strengthen smallholder resilience.

The African Union (AU) has backed the index from the start. At a seed sector event in Abidjan, Côte d'Ivoire, in October 2016, Janet Edeme, the AU's Director of Rural Economy and Agriculture, said, "For achieving food and nutrition security, there is a continued need to measure the performance of the seed sector and keep our heads of state as well as all partners informed of the latest developments. We are fortunate that professional initiatives like the Access to Seeds Index are already contributing to that path."

In recent years, the index has informed various regional seed sector development initiatives, such as AfricaSeeds and those of CORAF, and supported efforts by the Common Market for Eastern and Southern Africa (COMESA) to harmonise seed laws and policies.

According to industry magazine European Seed, the index "has influenced the global seed sector in a lasting way". Although some stakeholders in the seed sector were initially skeptical of the index, the magazine wrote, "the fact remains that the index created more awareness on access to seeds in developing countries and on the role seed companies can play in improving smallholder farmer productivity".

In June 2019, the International Seed Federation invited the index to present its findings at the World Seed Congress. At this event in Nice, France, the secretary-general of the federation thanked the index for helping to put the role of the seed industry in sustainable development and global food systems transformation on the agenda.

Media coverage of the 2019 Access to Seeds Index

The 2019, the index was featured by over 450 international, regional, national and local media. These included mainstream and specialised media, such as seed magazines, agriculture news outlets, and business and financial publications. This was an increase in coverage compared to the 2016 index, indicating a stronger interest from journalists and the broader public in the seed industry and its role in developing regions. With greater focus on the importance of inputs, including seeds, for the sustainable intensification of food production and renewed attention for nutritious diets, this interest is very likely to continue growing.

Members of the research team appeared on prime-time television in all three index regions, including ANC News' morning show in the Philippines covering the SSEA index, Kenya's KBC One for the ESA index and The Senegalese evening news (RTS1) for the WCA index.

The index also received extensive coverage in top-tier newspapers, including a double-page spread in The Guardian Nigeria dedicated to the WCA index. The piece was accompanied by an extended background article. In November 2018, Devex published an article titled "Which seed companies are looking out for Asia's smallholder farmers?" and the Thomson Reuters Foundation wrote "Millions of small Asian farmers miss out on seeds resilient to climate change". An overview of the media coverage of the 2019 index can be found on the Access to Seeds Index website.

Integration into the World Benchmarking Alliance for greater impact

The positive response to the 2019 index made it clear the index has played a role in improving the transparency of the seed industry. It has also encouraged progress on key issues across the industry and provided a welcome evidence base for dialogue. However, to sustain and broaden this impact and embed the index in the wider sustainable development context, it was necessary to build partnerships with a broader coalition. As a result, the Access to Seeds Foundation integrated its model with WBA. WBA will now release the index as a 'spotlight benchmark' under its food and agriculture transformation. The purpose of the index is unchanged, however. It will continue to focus on and provide deeper insights into the specific contribution of the seed industry to the SDGs, in particular SDG 2: Zero Hunger.

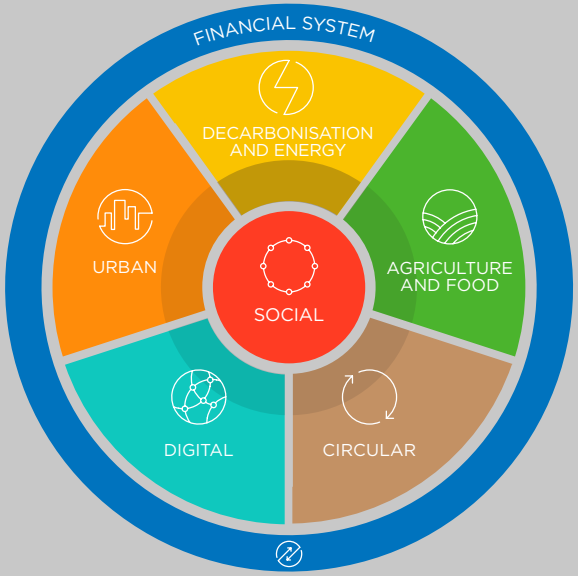
About the World Benchmarking Alliance

WBA is a diverse and growing group of organisations from across the globe, motivated by the common ambition to create a world that works for all – as embodied by the SDGs. We share the vision that achieving these goals requires a systems perspective, as each of the 17 SDGs is interlinked. We also agree that to accomplish systemic transformation, the private sector has a key role to play.

WBA uses a systems approach to develop benchmarks, placing a strong emphasis on transforming the systems that have the greatest potential to drive economic, environmental and social progress. Systems thinking helps us make better sense of the issues and identify the most influential companies in each system. By 2023, WBA will have benchmarked 2,000 companies – the SDG2000 – across seven systems transformations that we believe are vital for putting our society, planet and economy on a more sustainable and resilient path over the next decade and beyond (see Figure 2). Benchmarks will be produced for all seven systems, of which food and agriculture is one, with accompanying methodologies helping to support systems change.

Social transformation sits at the core of the model because it represents topics, such as human and labour rights, that are fundamental to achieving the SDGs, irrespective of the sector or transformation. For this reason, all SDG2000 companies will be assessed on these topics.

Figure 2: WBA's seven systems transformations



Integration into the World Benchmarking Alliance for greater impact

World Benchmarking Alliance

WBA's food and agriculture transformation

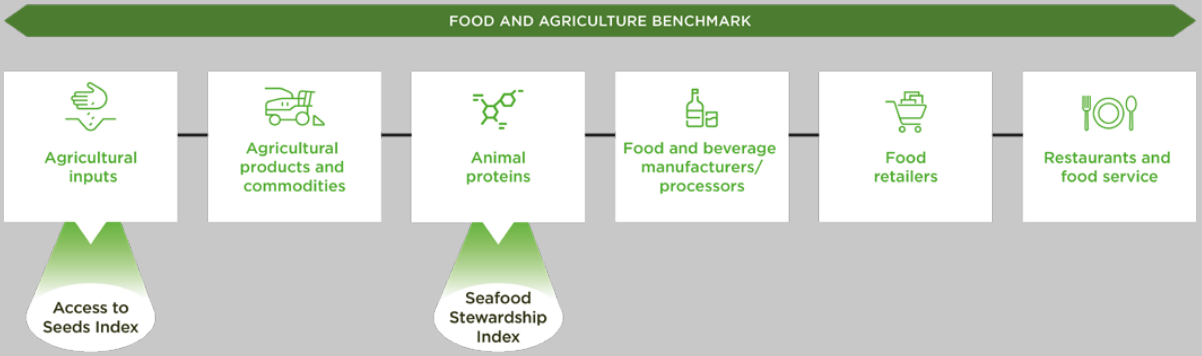
For a food systems transformation, action is required across all sectors and industries in the food system. Given that the system is highly interwoven, business leadership is vital to ensuring all companies play their part, acknowledging their purpose and strengths within the value chain. Good leadership will provide better access to healthy diets and help us to create a healthy planet and a system that leaves no one behind. Within WBA's food and agriculture transformation, the Food and Agriculture Benchmark takes a broad approach that includes maintaining the Access to Seeds Index and the Seafood Stewardship Index in parallel, to provide in-depth assessments of the seed and seafood industries.

The Food and Agriculture Benchmark and spotlight benchmarks

The Food and Agriculture Benchmark takes a holistic approach to food systems transformation, assessing companies throughout the food value chain on a broad set of indicators under its four measurement areas: governance, nutrition, environmental and social. As such, it seeks to unravel the role and performance of the companies and industries in scope, and provide evidence on where companies are showing leadership and stewardship, and where they are lagging.

The benchmark focuses on breadth in terms of company scope and performance against the indicators. It also acknowledges the need to gain an in-depth understanding of the role of particular industries and issues within the food value chain, notably through spotlight benchmarks. The Access to Seeds Index and the Seafood Stewardship Index serve such a purpose, providing in-depth assessments of the performance of the seed and seafood industries. Both spotlight benchmarks are developed under the umbrella of the food and agriculture transformation but operate in their respective ecosystems of industry and stakeholders. WBA seeks to align methodologies where needed and where possible, to accommodate a comparison of results and ensure clarity for companies in scope. In the second half of 2021, in addition to the third Access to Seeds Index, the second Seafood Stewardship Index will be published alongside the Food and Agriculture Benchmark.

Figure 3: Scope of WBA's Food and Agriculture Benchmark and spotlight benchmarks



Integration into the World Benchmarking Alliance for greater impact

The Food and Agriculture Benchmark will broadly assess the performance of 350 keystone companies – that is, companies with a disproportionate influence on the food value chain – on their contribution to global food systems transformation. Among them are several large seed companies that are also within the scope of the index. Whereas keystone companies shape markets, smaller companies – globally operating ones as well as local businesses – play a central role in the last-mile delivery of products and/or in specific markets.

Alignment with the Food and Agriculture Benchmark

The measurement framework within the index methodology was based on multi-stakeholder dialogues and research. As a spotlight benchmark, the index aligns, where relevant, with indicators included in the Food and Agriculture Benchmark. This ensures linking pins for a synergetic analysis at the level of the overall benchmarks, and at a company level for those companies that are included in both. The indicators have been adjusted where needed for an analysis of topics specifically relevant to seed companies.

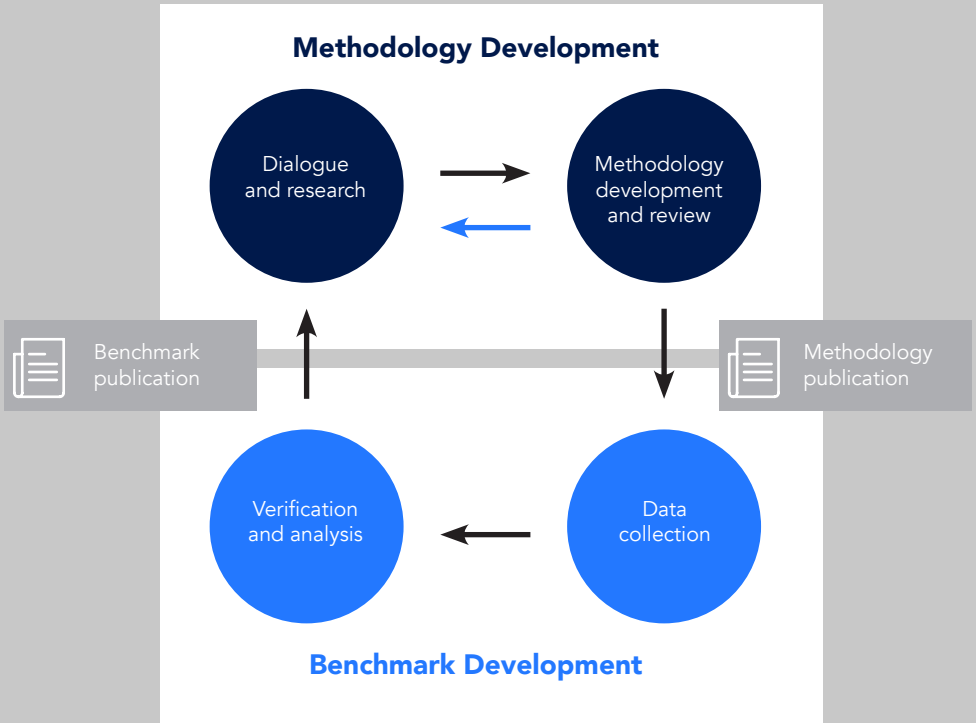
Table 1: Alignment of indicator topics in the index with the Food and Agriculture Benchmark

Access to Seeds Index	Food and Agriculture Benchmark
A1. Access to seeds for smallholder farmers	A1. Sustainable development strategy
A2. Governance and accountability	A2. Governance and accountability for sustainable development
A3. Stakeholder engagement	A3. Stakeholder engagement
B1. Conservation of genetic resources	B6. Soil health and agrobiodiversity
D4. Social and labour rights in seed production	D19. Child labour D20. Forced labour D21. Living wage D22. Health and safety
E1. Quality and safety of varieties	C6. Food safety
E4. Packaging and labelling	C3. Clear and transparent labelling
E5. Affordability	C2. Accessibility and affordability of healthy foods
E8. Other agricultural inputs	B7. Fertiliser and pesticides use
F5. Access to output markets	D23. Farmer and fisher productivity and resilience

Process and timelines

The benchmark is published in accordance with the benchmark cycle (see Figure 4), from methodology development to data collection, analysis and publication. With the review of the methodology – through stakeholder input and expert advice – the cycle starts again. Public consultation on the methodology for the 2021 index kickstarted this process, and will lead to the publication of the index in the second half of 2021. Throughout the year, companies will be informed about key engagement opportunities, timeline changes and development updates.

Figure 4: WBA Benchmarking Cycle



Expert Review Committee

The development of the methodology for the index is overseen by the global multi-stakeholder ERC (see Table 2). The global ERC provides strategic guidance, recommendations and advice on the scope, structure and content of the index methodology. The diverse composition of this ERC ensures that different viewpoints and perspectives are considered. In addition to the global ERC, the research team seeks advice from regional ERCs throughout the development of the indexes. Some global ERC members are also members of regional ERCs. The composition of all global and regional ERCs can be found on the Access to Seeds Index website.

Table 2: Members of the Global ERC as of March 2021

Ajay Vir Jakhar	Chairman, Bharat Krishak Samaj (Farmers' Forum, India)
David Spielman	Senior Research Fellow and Programme Leader, Rwanda Strategy Support Programme at International Food Policy Research Institute (IFPRI)
Luigi Guarino	Director of Science, The Global Crop Diversity Trust
Michael Halewood	Principle Scientist, Leader of Genetic Resources and Seed Policies Group, Alliance of Bioversity International and International Centre for Tropical Agriculture
Ram Kaundinya	Independent consultant
Stephen Mugo	Independent consultant
Thomas Osborn	Former (retired) senior officer for Seed Policy, FAO Seed and Plant Genetic Resources Service

Process and timelines

2019–21: Methodology review and public consultation

The methodology for each iteration of the index is the result of extensive stakeholder engagement and expert review. It is refined and improved based on lessons learnt from previous indexes as well as changing expectations around the role of the seed industry. For this methodology review, the index team engaged with a variety of stakeholders within the industry. Roundtable conferences were organised after the publication of the 2019 index, to open the dialogue on the index findings and help to create an understanding of the role the seed industry can and should play.

Companies provided feedback at industry events in 2019, including at the African Seed Trade Association (AFSTA) Congress in Nairobi, Kenya; the Seed Connect conference in Abuja, Nigeria; the World Seed Congress in Nice, France; SeedWorld in Bangalore, India; and the Asian Seed Congress in Kuala Lumpur, Malaysia. In 2020, they also provided responses at an AFSTA event in Zambia and the Indian Seed Congress in Delhi, India. In addition, farmer organisations provided feedback during three roundtables, held in Dakar, Senegal in April 2019; Kathmandu, Nepal in November 2019; and Nairobi, Kenya in November 2019.

The draft methodology was published on 16 December 2020, for a six-week public consultation period. During this time, the index held three webinars to seek input, invited all stakeholders to provide written feedback, and convened the ERC to discuss the draft methodology and provide guidance on the key consultation questions.

March 2021: Methodology publication for the index

Based on feedback from the public consultation and ERC input, the methodology was finalised. Annex I provides an overview of the main feedback received and how this has been addressed in the final methodology.

April–May 2021: Data collection for companies

The data collection for the benchmark is due to start at the beginning of April 2021. Over about eight weeks, companies will be invited to respond to a survey in a carefully managed process that ensures equal treatment of each company. To facilitate the process, a user-friendly online data collection platform will be used. Each survey will be pre-filled by WBA researchers based on publicly disclosed corporate information. Companies are given the opportunity to review and add additional data. All data used for the benchmark is collected from the public domain or can be made public. The 2021 index will include corporate data from 2018–20.

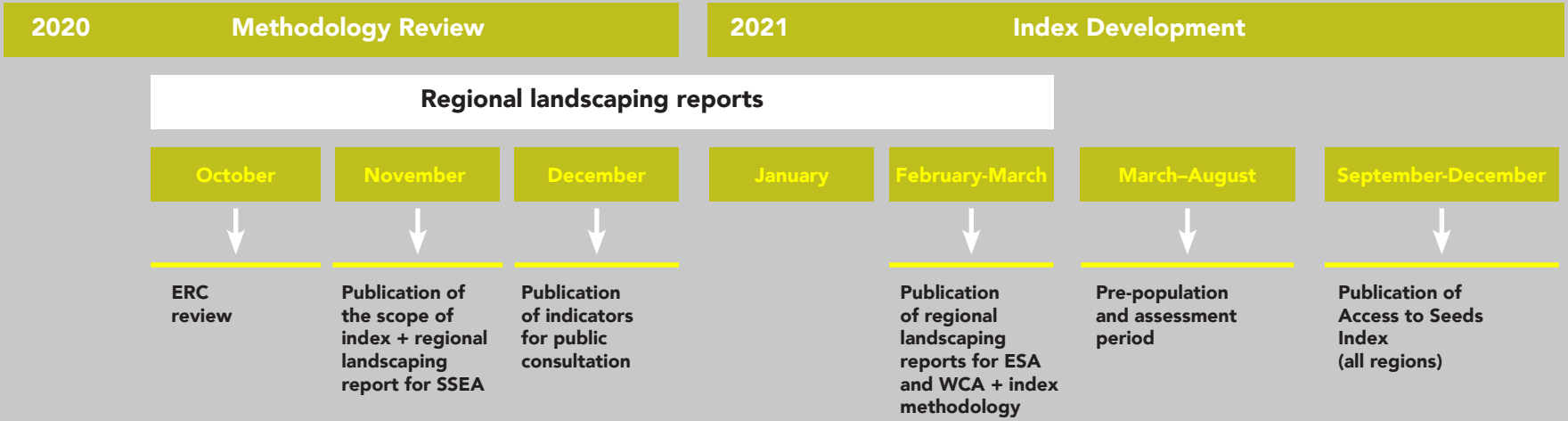
June–July 2021: Data analysis and scoring

Analysis of the data, at both company and industry levels, is overseen by the index research team. For verification purposes, the researchers conduct an extensive quantitative and qualitative check of each indicator for each company. Scoring is carried out according to scoring guidelines, approved by the WBA Executive Board, and published alongside benchmark results. Companies that choose not to complete the survey will be evaluated based solely on publicly available information and will not be able to appeal the results.

September 2021: Publication of the 2021 index

The 2021 index is scheduled for publication in the second half of September, during the UN Food Systems Summit. Benchmark scorecards will be shared with companies before publication.

Figure 5: Index development plan



Presentation of results

The 2021 index will include a presentation of key findings on the main trends, leading approaches and notable conclusions, tied to industry rankings and company scorecards. These will include peer to peer or industry rankings, aiming to provide a deeper understanding of industry trends and contributions to key issues. The index will analyse and present data in several ways, such as by measurement area, indicator and geography.

The performance of all companies within the scope of the index will be summarised in an overall ranking per region. This ranking will show aggregated company performance across the measurement areas and an overview of leading practices and areas for improvement. The key findings at the industry level provide insights into how the seed industry is targeting the three regions within the scope of the index, as well as how the activities of global and regional companies compare to and complement each other.

Updating methodologies over time

With 2030 less than a decade away, there is no time to waste. The 2021 UN Food Systems Summit is a vital moment to boost the UN's Decade of Action. Immediately after the index is published, engagement will start with companies and multiple stakeholders, to ensure the index is well positioned for the decade ahead. As preferences evolve, markets shift and science advances, the index methodology will be reviewed and improved to ensure it is dynamic and relevant.

Through continued dialogue and alignment with Allies and stakeholders, the aims of the index will be actively discussed with seed companies, federations and relevant platforms. This will continue to be part of our stakeholder consultation and feedback process to inform methodology and indicator development.

Approach to weighting

The allocation of weight across the six measurement areas was based on a consideration of the following.

Stakeholder priorities: Extensive input on the methodology was received through stakeholder consultation, which contributed to revisions and updates to the measurement areas, and the relative importance assigned to each area.

Business activities that have the greatest impact: Although seed companies engage in a variety of business activities that can have an impact on smallholder farmers, some of those activities have a greater impact than others. For example, companies' research and development (R&D) expertise and capabilities – a core business activity of most companies in the index – create great opportunities to increase smallholders' access to seeds in varieties that are appropriate to their needs.

Weighting distribution

Table 3: Overview of measurement area weighting

Measurement area	Number of indicators	Weight
A. Governance and strategy	3	10%
B. Genetic resources and intellectual property (IP) management	6	15%
C. Research and development	6	20%
D. Seed production	4	15%
E. Marketing and sales	8	25%
F. Capacity building	5	15%

Approach to scoring

Scoring takes place at the indicator level. The index will typically use a three-point scale with one point increments of 0, 1 and 2; or a five-point scale of 0, 0.5, 1, 1.5 and 2. In each case, 2 is the highest score, 1 the mid-point and 0 the lowest. The increments are linear and equal.

Each indicator is scored against a set of predefined criteria related to the elements outlined in the indicators section below. The elements for each indicator reflect what is expected of the company and what it will be assessed and scored on. Scoring guidelines will be published together with the index results at the launch of the index.

Key outcomes of the measurement area and indicator review

Review and stakeholder dialogues have resulted in several proposed changes to the measurement areas and indicators for the 2021 index compared with the 2019 index methodology. Key outcomes of the discussion are listed below.

A sharper focus in the measurement areas, and fewer indicators

Evaluation of the 2019 index and feedback from key stakeholders proposed reviewing the measurement areas and reducing the number of indicators. A significant outcome of the review is the combination of two measurement areas – genetic resources and IP – with fewer but more focused indicators within the combined measurement area. Further proposed adjustments benefit the alignment with WBA and the role of the 2021 index as a spotlight benchmark under WBA's food and agriculture transformation. The index addresses unique issues within the seed industry, and also covers large, medium-sized and small companies that are outside the scope of the Food and Agriculture Benchmark. The alignment of the index with the Food and Agriculture Benchmark is mainly reflected in the governance and strategy measurement area (see Table 1). Overall, 27 indicators were removed, taking the total number from 59 to 32.

Removing indicator categories from measurement areas

Categorising indicators in each measurement area in four categories – commitment, performance, transparency and leadership – was rather complex. To simplify the methodology, the indicator categories were removed. Depending on data requirements, the former categories are still embedded in the indicators, albeit less explicitly and mainly focused on action-oriented data. Removing indicator categories has been the main driver of reducing the number of indicators.

Cancelling the option of providing data under non-disclosure

WBA seeks to promote the importance of increasing the transparency and accountability of the private sector. As such, the default assumption is to measure public disclosures and increase the amount of information companies share with all stakeholders. To level the playing field for smaller companies within the scope of the index, which often have less external exposure than large globally operating companies, the 2021 index survey will accept information that companies have not published externally but that can be made public via the index. The option to provide information under a non-disclosure agreement will no longer be available.

Continuing to focus on food crops

Some companies and stakeholders have advocated to include forage crops and cotton in the crop scope. However, 2019 data indicates that only a few companies within the scope of the index are active in these crops in addition to food crops. While it acknowledges the relevance of these crops for smallholder farmers, the index remains focused on food crops. The 2021 index will only assess companies for their activities in providing access to quality seed for food crops, not for their activities relating to forage crops or cotton.

Adding questions on the implications of COVID-19 for seed business activities

To determine the impact of COVID-19 on seed businesses, the index survey will include questions about the implications of pandemic lockdowns in relation to relevant indicators. However, data collected will not be used for company assessment.

Scope of the 2021 index

The index assesses the efforts of seed companies to improve access to quality seeds for smallholder farmers. To ensure a fair and meaningful analysis, the research scope defines which countries, crops and companies are considered.

Geographic scope

The geographic scope defines the countries in which the index evaluates company activity. As 'access' is primarily a challenge in developing countries, the index primarily focuses on low- and middle-income countries, in line with WBA's framework for assessing impact in developing countries.

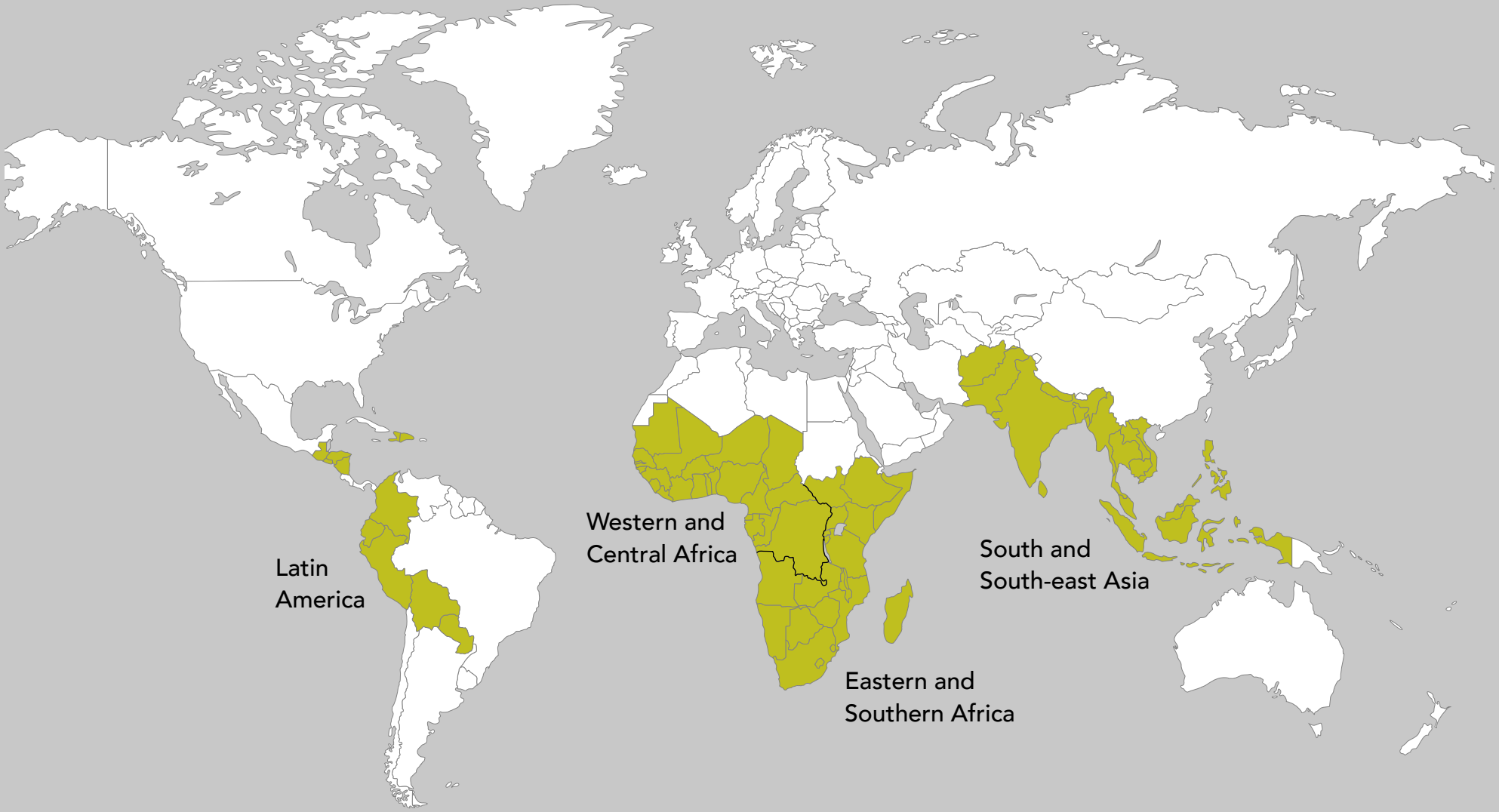
Recognising that seed companies generally take a regional approach when entering emerging markets, the index has from the outset identified four regions relevant for measuring companies' efforts to reach smallholders. These regions were identified by matching the challenge of hunger, poverty and yield gap with agricultural potential. The geographic scope for the 2021 index is similar to the 2019 index. To facilitate comparability and to measure the progress of the industry's approaches in these regions and countries, no major changes have been made to the geographic scope.

According to the results of the 2020 Global Hunger Index, 92% of the index countries have a moderate to alarming food security burden. Although a few countries have a lower food security burden, the challenges resulting from the COVID-19 pandemic are severely impacting multiple countries and territories in the regions, with grave concerns for the exacerbation of poverty and hunger levels.

Table 4: Geographic scope

Regions and countries included in the 2021 index	Change in geographic scope
Latin America Bolivia, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras and Nicaragua, Paraguay, Peru	No change
South and South-east Asia Afghanistan, Bangladesh, Cambodia India, Indonesia, Laos, Myanmar, **Malaysia**, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam	Malaysia was added to the scope following the advice of regional stakeholders. Due to its location, the country is important for the South-east Asian seed trade
Eastern and Southern Africa Angola, Burundi, Eswatini, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Rwanda, Somalia, South Africa, South Sudan, Uganda, Tanzania, Zambia, Zimbabwe	No change
Western and Central Africa Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Democratic Republic of Congo, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Republic of the Congo, Senegal, Sierra Leone, The Gambia, Togo	No change

Scope of the 2021 index



Scope of the 2021 index

World Benchmarking Alliance

Crop scope

The index focuses on smallholders' access to quality seeds for major field crops and vegetables (so called global crops). In addition to global crops, the index also evaluates company activities in local crops, sometimes referred to as orphan or underutilised crops. While other crops are also relevant for smallholders, such as cotton and forage crops, the index's focus is on food crops for direct human consumption.

Global field crops and vegetables

The index investigates whether companies have specific crops in their portfolios of value to smallholder farmers, as well as where companies see opportunities to develop suitable varieties tailored to regional conditions and preferences. Global crops were selected based on the total area harvested in index countries, according to FAOSTAT (2018). Field crops with a harvested area over 5 million hectares were selected, while vegetables with a harvested area over 150,000 hectares were selected. In addition, only crops that featured in at least two of the top 20 lists of major crops for each of the four index regions were selected. This review of area harvested has not resulted in any change to the list of global field crops and vegetables compared with the 2019 index.

Global field crops

Table 5: Area harvested in index countries in sub-Saharan Africa, Latin America, and South and South-east Asia. Source: FAOSTAT, 2018

Field crop	Crop type	Area harvested in ha (2018)
Rice, paddy	Cereals	127,513,961
Maize	Cereals	65,577,919
Wheat	Cereals	44,618,700
Millets	Cereals	28,385,371
Sorghum	Cereals	28,257,072
Beans, dry	Pulses/legumes	26,085,394
Soya bean	Pulses/legumes	20,091,990
Groundnut	Pulses/legumes	19,405,035
Chickpea	Pulses/legumes	13,631,692
Cowpea	Pulses/legumes	12,199,426
Sesame	Oil crops	7,591,022
Pigeon pea	Pulses/legumes	6,983,656
Potato	Roots and tubers	5,334,401
Sunflower	Oil crops	2,893,776

World Benchmarking Alliance

Global vegetables

Table 6: Area harvested in index countries in sub-Saharan Africa, Latin America, and South and South-east Asia. Source: FAOSTAT, 2018

Field crop	Area harvested in ha (2018)
Onion	2,766,388
Tomato	2,006,033
Okra	1,949,424
Pepper (hot)	1,570,632
Pumpkin	1,014,343
Squash	
Gourd	
Eggplant	863,884
Cabbage	801,621
Green pea	688,756
Green bean	623,322
Pepper (sweet)	615,525
Cauliflower	541,443
Watermelon	422,401
Cucumber	395,679
Lettuce	246,715
Carrot	201,387
Melon	175,013

Local crops

Due to their geographic specificity, many local crops are currently not included or included only to a limited extent in the portfolios of commercial seed companies. The list of local crops in Table 7 – traded by seed companies as reported for the 2019 index – is non-exhaustive and provides an indication of the kind of local crops seed companies could have in their portfolios.

Table 7: Non-exhaustive list of local crops in the index regions

Crop	SSEA	ESA	WCA
African eggplant		✓	✓
African hot pepper		✓	✓
Amaranth	✓	✓	✓
Black gram	✓		
Brede mafane		✓	✓
Bush sitao	✓		
Cassava		✓	✓
Celosia		✓	✓
Choisam	✓		✓
Cluster bean	✓		
Crotalaria		✓	
Ethiopian mustard		✓	
Faba bean		✓	
Hairy nightshade		✓	✓
Jew's mallow		✓	✓
Jew's mallow		✓	✓
Kailan	✓	✓	✓
Kangkong	✓		✓

Crop	SSEA	ESA	WCA
Komatsuna	✓		
Lablab	✓		
Lentil	✓	✓	
Linseed		✓	
Mizuna	✓		
Mung bean	✓	✓	
Mustard (including heading and leaf mustard)	✓	✓	✓
Pea eggplant	✓		
Roselle		✓	✓
Spider plant		✓	✓
Sukuma		✓	
Teff		✓	
Tinda	✓		
Vegetable chrysanthemum	✓		
Winged bean	✓		
Yam			✓
Yardlong bean	✓	✓	✓

Company scope

The index assesses the efforts of seed companies to improve access to quality seeds for smallholder farmers. Although the ongoing mergers and acquisitions in the seed industry at the global level would suggest otherwise, the industry is highly diverse and locally driven. It is composed of a small group of global leaders and a long tail of small and medium regional and national companies. The index therefore also assesses the importance of regional and national companies.

The 2021 index is the third edition of the index. It will assess the performance of a total of 72 companies, providing insights at industry and company levels and from regional and country perspectives. It comprises three regional indexes: SSEA, ESA and WCA.

With the ongoing consolidation in the seed industry and the growth of regional seed companies, the 2019 company scope was reviewed to incorporate these changes. New companies were added to the list as a result of desk research and suggestions made by regional consultants. The selection criteria for the 2021 company scope are: (1) regional presence or a dominant position in one country; (2) physical presence and business activities in the region; (3) an integrated seed business model; and/or (4) peer recognition as a leading company. To assess investments by globally active seed companies in the three regions, all 13 global seed companies meeting the criteria will be included in all regional indexes.

Seed-producing cooperatives

Seed sectors, notably in the Global South, are highly diverse. Seed-producing cooperatives play an important role in the seed sector, particularly in Western and Central Africa. Although their reach and capacity are relatively limited, their role in local communities is vital. Many cooperatives are part of the formal seed sector. Through their collaboration with (global) agricultural research institutes, they aim to increase smallholders' adoption of improved varieties. Moreover, cooperatives often focus on crops that are missing in company portfolios but are important for local food security, such as legumes, plantains and cassava. At the request of the regional Expert Review Committee for WCA, a scoping report on seed cooperatives was published as part of the documentation of the 2019 index.

In 2021, the index aims to include an evaluation of the efforts of five advanced seed-producing cooperatives from WCA. These cooperatives were selected based on input from local partners in the region. All of them partner with national or international research institutes to test and select varieties and work with local seed companies, NGOs or government agencies to distribute the seed.

Company scope

Table 8: The 31 companies included in the 2021 SSEA Access to Seeds Index

Company	Country
Acsen HyVeg	India
Advanta*	United Arab Emirates
BASF*	Germany
Bayer*	Germany
Bejo*	Netherlands
Bioseed	India
BRAC Seed and Agro Enterprise	Bangladesh
Charoen Pokphand Group	Thailand
Corteva Agriscience*	United States of America
East-West Seed*	Thailand
Enza Zaden*	Netherlands
Indo-American Hybrid Seeds#	India
JK Agri Genetics#	India
Kalash Seeds	India
Known-You Seed	Taiwan
KWS*	Germany

Company	Country
Lal Teer Seed	Bangladesh
Limagrain*	France
Mahyco Grow	India
Namdhari Seeds	India
National Seeds Corporation	India
Nongwoo Bio	Republic of Korea
Nuziveedu Seeds	India
Punjab Seed Corporation	Pakistan
Rallis India	India
Rasi Seeds#	India
Rijk Zwaan*	Netherlands
Sakata*	Japan
Syngenta Group*	Switzerland
Takii*	Japan
Vinaseed	Vietnam

* Globally active companies assessed for their investments in all three regions
# New regionally headquartered companies added to scope

Company scope

Table 9: The 32 companies included in the 2021 ESA Access to Seeds Index

Company	Country
Advanta*	United Arab Emirates
Agriscope Africa (East African Seed)	Kenya
BASF*	Germany
Bayer*	Germany
Bejo*	Netherlands
Capstone Seeds	South Africa
Corteva Agriscience*	United States of America
Darusalam Seed Company	Somalia
Demeter Seed	Malawi
EABC	Ethiopia
East-West Seed*	Thailand
Enza Zaden*	Netherlands
Equator Seeds	Uganda
FICA Seeds	Uganda
Hygrotech	South Africa
Kenya Highland Seed	Kenya

Company	Country
Kenya Seed Company	Kenya
Klein Karoo Africa	South Africa
KWS*	Germany
Limagrain*	France
Mukushi Seeds#	Zimbabwe
NASECO	Uganda
Novalliance Group	France
Rijk Zwaan*	Netherlands
Sakata*	Japan
Seed Co	South Africa
Starke Ayres	South Africa
Stewards Globe#	Zambia
Syngenta Group*	Switzerland
Takii*	Japan
Victoria Seeds	Uganda
Zamseed	Zambia

* Globally active companies assessed for their investments in all three regions
# New regionally headquartered companies added to scope

Company scope

Table 10: The 37 companies and cooperatives included in the 2021 WCA Access to Seeds Index

Company/cooperative	Country
Advanta*	United Arab Emirates
Agriplus Mali	Mali
Antika Company#	Ghana
BASF*	Germany
Bayer*	Germany
Bejo*	Netherlands
BILOHF	Côte d'Ivoire
Coopérative Agricole de Bama◊	Burkina Faso
COOPROSEM◊	Mali
Corteva Agriscience*	United States of America
Da-Allgreen Seeds	Nigeria
East-West Seed*	Thailand
Enza Zaden*	Netherlands
FAGRI#	Burkina Faso
Faso Kaba	Mali
Ferme Semencière AINOMA	Niger
GAWAL	Nigeria
Heritage Seeds	Ghana

Company/cooperative	Country
ICS#	France
Jirkur Seed Cooperative Society◊	Nigeria
KWS*	Germany
Limagrain*	France
M&B Seeds#	Ghana
Maslaha Seeds	Nigeria
NAFASO	Burkina Faso
Novalliance Group	France
Premier Seed	Nigeria
Rijk Zwaan*	Netherlands
Sakata*	Japan
SEDAB	Senegal
Seed Co	South Africa
SEEDPAG◊	Ghana
SOPROSA	Mali
Syngenta Group*	Switzerland
Takii*	Japan
Union Madda Ben de Falwel◊	Niger
Value Seeds	Nigeria

* Globally active companies assessed for their investments in all three regions
# New regionally headquartered companies added to scope
◊ Seed-producing cooperatives

Measurement areas and indicators

The following sections describe the indicators within each measurement area. The indicators follow a standard format:

- **Measurement area:** one of the six measurement areas considered crucial for increasing access to quality seeds of improved crop varieties for smallholder farmers in index regions
- **Indicator:** sets out the topic-specific outcomes expected of the company
- **Rationale:** sets out how the seed industry can contribute to the topic
- **Element(s):** sets out the elements each company will be assessed against for the respective indicator.

A. Governance and strategy

This measurement area evaluates whether companies have strategies in place to help improve smallholder farmers' access to seeds. It highlights the ways in which companies include smallholder farmers in their core business strategies, by assessing their governance structures and stakeholder engagement programmes.

A1. Access to seeds for smallholder farmers

- **Indicator:** The company has embedded objectives and targets for increasing access to seeds for smallholder farmers' in its strategy and business model.
- **Rationale:** Seed companies can help to increase smallholder farmer productivity in a sustainable way by increasing farmers' access to knowledge, technologies, improved varieties, and quality seeds. Strategies articulate how companies will contribute, based on their portfolios, assets, and capabilities.
- **Elements:**
  - The company has a strategy to help provide smallholder farmers in index countries with better access to seeds.
  - As part of its strategy, the company identifies and prioritises the issues on which it has impact, within IP management, genetic resources, R&D, seed production, marketing and sales, and capacity building.
  - The company sets realistic but ambitious objectives and targets that cover issues on which it has impact, within IP management, genetic resources, R&D, seed production, marketing and sales, and capacity building.
  - The company periodically reviews the strategy, objectives, and targets to ensure they remain aligned for changing contexts and reports performance against the targets.

A2. Governance and accountability

- **Indicator:** The company has a governance system that includes board or highest-level responsibility and accountability for its objectives and targets relating to access to seeds. Board members have objectives, targets and incentives relating to access to seeds for smallholder farmers', to reward the effective delivery of relevant company strategies and initiatives.
- **Rationale:** A board governance structure that links access to seeds for smallholder farmers objectives and targets to roles and remuneration is important to ensure the accountability of the company in relation to its contribution to such objectives and targets.

- **Elements:**
  - The company assigns decision making and oversight responsibility for access to seeds for smallholder farmers to the highest governance body.
  - The company links performance criteria in remuneration policies for members at the highest level of its governance body to its objectives for topics related to access to seeds for smallholder farmer.

A3. Stakeholder engagement

- **Indicator:** The company engages with stakeholders on issues relating to access to seeds for smallholder farmers' and incorporates the outcomes of these activities in its strategy and operations.
- **Rationale:** Stakeholders may raise concerns that could influence medium- or long-term financial or operating performance or create acute short-term financial impacts through losing a licence to operate, reputational damage, changes to customer demand, and disruption to business viability. Regularly engaging with stakeholders, such as local communities, governments, academia and nongovernmental organizations, contributes to the company's understanding of diverse and frequently opposing perspectives, potentially drives innovation and helps to shape robust and inclusive approaches. Companies are expected to proactively engage in multi-stakeholder dialogue and initiatives related to building an environment that supports access to seeds for smallholder farmers. For instance, companies can contribute to this through lobbying activities; being involved in national, regional, and international seed associations; and helping to advance local seed sectors. Complaints, disputes and significant adverse impacts raised by stakeholders are expected to be addressed and resolved. Engagement processes are expected to produce a clear output or action, and an acknowledgement of how stakeholder inputs are used.
- **Elements:**
  - The company describes its process for identifying relevant stakeholder groups, at global and local levels, including communities it impacts, civil society, business partners and governments – and how it engages these groups.
  - The company discloses the process of stakeholder engagement, and regularly reports on how it integrates the outcomes of this engagement, including the identified risks and opportunities, into its strategy to provide access to seeds for smallholder farmers.

B. Genetic resources and intellectual property management

Genetic resources are fundamental for developing new varieties for sustainable food production. However, agricultural practices can impact existing genetic diversity, with negative consequences for the present and the future. This measurement area seeks to clarify how companies support the conservation of genetic resources and how they share the benefits resulting from their use of publicly available genetic material. Seed companies use IP protection to generate a return on R&D investment. However, IP protection, ranging from plant breeders' rights to patents, can restrict established practices in the seed industry, such as further breeding by other actors and on-farm seed saving. Furthermore, because national seed laws and IP regulations differ, and many emerging economies still lack seed and/or IP laws, this measurement area also seeks to clarify and

assess the positions of companies regarding IP in general. This includes their activities relating to patents and how companies provide access to their products in countries where regulations are still under development.

B1. Conservation of genetic resources

- **Indicator:** The company is involved in programmes and/or initiatives that encourage conservation of a diverse set of crops and their genetic resources used by smallholder farmers in index countries, such as collaboration with and/or support for international, national and/or community genebanks.
- **Rationale:** Conservation and use of a diverse set of crops and genetic resources in index countries are vital for seed companies and smallholder farmers. Seed companies can help preserve local crop diversity and the local seed system by supporting community agrobiodiversity management initiatives, such as community seed banks. Additionally, companies can help preserve and sustainably use agricultural biodiversity by, for example, engaging with local governments; supporting community, national and international genebanks; and using local landraces in their breeding programmes.
- **Elements:** The company assists public (international and national) genebanks to conserve and use the germplasm of crops grown in index countries. It undertakes activities to help conserve and use the genetic diversity of crops in local seed systems and/or for in situ conservation of local agrobiodiversity in index countries, including its own genetic materials or those of local companies it acquires.

B2. Access to company genetic resources

- **Indicator:** The company makes genetic resources available for developing varieties that are useful for smallholder farmers.
- **Rationale:** It is important for breeding companies, public research institutes and smallholder farmers to have access to genetic resources, so they can develop varieties or identify landraces or minor local crops that are tailored to local conditions and crop preferences. Support for better access to company genebanks can facilitate the development of new varieties appropriate for smallholder farmers.
- **Elements:** The company undertakes activities to support its position on making old varieties and/or other germplasm, including that of companies it has acquired, available without restrictive conditions to public genebanks, NGOs or other entities for the benefit of smallholder farmers in index countries. The company contributes its own germplasm to collaborative projects aimed at developing varieties that are useful to smallholder farmers and places these materials under the multilateral system of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

B3. Benefit sharing

- **Indicator:** The company shares monetary and/or non-monetary benefits as outlined in international treaties such as ITPGRFA, the Nagoya Protocol to the Convention on Biological Diversity, and national laws.
- **Rationale:** Benefit sharing refers to how companies share the results of their use of publicly available genetic resources, thereby contributing to efforts to promote their conservation and use. Benefit sharing includes monetary and non-monetary contributions to conservation and use

of genetic resources. It includes both mandatory benefit sharing as required by law, and voluntary benefit sharing.

- **Elements:** The company undertakes activities to support monetary and/or non-monetary contributions within the framework of international and national laws – for example, through contributions to the ITPGRFA's Benefit-sharing Fund or the Global Crop Diversity Trust, and/or other international and national programmes and initiatives – and specifies the amounts of contributions.

B4. Breeders' exemption

- **Indicator:** The company allows the use of crop varieties protected by plant breeders' rights for further breeding, and refrains from using restrictive measures such as contractual clauses.
- **Rationale:** Breeders' exemption makes crop varieties protected by plant breeders' rights available for further breeding, although this access can be restricted through the use of contractual clauses.
- **Elements:** The company clarifies its position regarding breeders' exemptions.

B5. Farmers' privilege

- **Indicator:** The company allows the saving, use, exchange and sale of non-branded farm-saved seeds by smallholder farmers in index countries, and refrains from employing restrictive measures such as contractual clauses.
- **Rationale:** The long-established farmers' privilege allows on-farm seed saving, use, exchange and, in some countries, sale of (non-branded) seed by smallholder farmers. This privilege can be restricted by seed companies – for instance, by the use of contractual clauses.
- **Elements:** The company clarifies its position regarding non-branded farm-saved seeds by smallholder farmers in index countries.

B6. Licensing

- **Indicator:** The company offers royalty-free licensing and/or lower-price licensing of protected material for use in index countries.
- **Rationale:** Tailored or royalty-free licensing strategies can improve access to patented varieties, traits, methods and technologies for national agricultural research institutes, local seed companies and NGOs, thereby promoting the development of new varieties appropriate to the needs of smallholder farmers.
- **Elements:** The company offers royalty-free and/or lower-price licensing for the benefit of smallholder farmers in index countries and discloses the conditions under which this takes place.

C. Research and development

This measurement area focuses on companies' R&D efforts, including through partnerships with (local) research institutes. It especially relates to activities that consider local conditions in the index region and the key crops for farmers in the region. These activities include adapting global crops for local use, and breeding programmes for local crops to improve such characteristics as pest and disease resistance and climate resilience.

C1. Plant breeding activities in index regions

- **Indicator:** The company has its own breeding activities and/or participates in collaborative breeding activities in index regions.
- **Rationale:** Companies can increase the availability of a diverse set of crop varieties that meet the needs and preferences of smallholder farmers in index regions, and strengthen local research capacity, through their plant breeding activities in the region. Such activities can focus on global and/or local crops.
- **Elements:** The company has its own breeding activities and/or participates in collaborative breeding activities in the index region. The company also invests in building the capacity of local plant breeders in the region.

C2. Local participation in breeding/variety development

- **Indicator:** The company has mechanisms in place to ensure the participation of local farmers, consumers and other stakeholders in its breeding programmes in index regions, to understand and consider their knowledge, preferences and feedback.
- **Rationale:** Specific needs, preferences and knowledge can be incorporated into companies' breeding programmes by involving local farmers, consumers and other stakeholders in variety breeding and selection.
- **Elements:** The company has a system in place that helps inform its breeding programmes with participation and feedback from local farmers, consumers and other stakeholders in index countries, with specific attention to feedback from women farmers.

C3. Variety testing

- **Indicator:** The company conducts multi-locational research station and on-farm trials to determine the suitability of varieties for smallholder farmers in index countries. This includes varieties that are not yet widely grown in the country that are in the company's portfolio (including the portfolios of other companies for which the company is an agent) and/or from public research institutes.
- **Rationale:** Testing of varieties that are already available but not yet grown in a country, either from the company's own collection or from research institutes, is a fast route to determining if varieties are suitable for the market. By conducting variety trials and on-farm demonstrations, for example, companies can test varieties in their existing portfolio for suitability in index regions.
- **Elements:** The company has variety trial locations in index countries and provides details of the source of varieties – that is, the company's own breeding programmes, other breeding programmes (such as those of other companies for which the company is an agent) and/or public research institutes

C4. Developing improved varieties of global crops

- **Indicator:** The company has its own breeding programme and/or a collaborative breeding programme with the objective of developing varieties of global crops appropriate for smallholder farmers in index countries.
- **Rationale:** Plant breeding activities focused on global crops demonstrate companies' commitment to the needs and preferences of smallholder farmers in index regions. Plant breeding is the starting

point for increasing the availability of improved varieties of global crops in index regions. Dedicated breeding programmes for global crops demonstrate a high level of commitment to helping smallholder farmers.

- **Elements:** The company has global crops in its portfolio for which it has active breeding activities for smallholder farmers. The company uses landraces and other local genetic materials in these programmes.

C5. Developing improved varieties of local crops

- **Indicator:** The company has its own breeding programme and/or participates in a collaborative breeding programme that includes breeding and screening of varieties of local crops appropriate for smallholder farmers in index countries.
- **Rationale:** Plant breeding activities focused on local crops demonstrate companies' commitment to the needs and preferences of smallholder farmers in index regions. Plant breeding is the starting point for increasing the availability of improved varieties of local crops in these regions. Dedicated breeding programmes for local crops demonstrate a high level of commitment to helping smallholder farmers.
- **Elements:** The company has local crops in its portfolio for which it has active breeding activities for smallholder farmers.

C6. Breeding programme for specific traits

- **Indicator:** The company's breeding programme targets specific traits useful to smallholder farmers in index countries. These include production under low-input conditions; early maturity to avoid drought; local taste and cultural preferences; pest and disease tolerance and resistance; increased crop robustness; climate change resilience; and nutritional value.
- **Rationale:** Dedicated plant breeding programmes targeting specific traits important to smallholder farmers can significantly improve crop yield, performance and acceptance, even under low-input conditions and in marginal agro-ecologies. These traits include tolerance to abiotic stresses such as heat, drought, flooding and salinisation, and tolerance to biotic stresses such as pests and diseases. Similarly, the development of improved varieties with specific traits that increase a crop's nutritional value can contribute significantly to food and nutrition security.
- **Elements:** The company has breeding programmes focusing on traits important for smallholder farmers such as:
  - early-maturing varieties to avoid drought
  - tolerance or resistance to biotic stresses
  - tolerance or resistance to abiotic stresses (for example, drought and heat tolerance)
  - improved nutritional value
  - longer shelf life
  - local tastes and cultural preferences
  - tolerance to regionally important pests and diseases.

D. Seed production

Through local seed production, companies can address the limited availability of quality seeds while advancing the local seed sector. This measurement area seeks to identify whether companies produce seeds locally and the extent to which smallholder farmers are involved in this process.

D1. Seed production activities in index region

- **Indicator:** The company produces seeds in index countries through its own facilities or by partnering with local companies or farmer organisations.
- **Rationale:** Seed companies have extensive skills and experience in seed production that can be very useful for advancing local seed sectors. Global companies that produce seeds in local production facilities can create employment opportunities and encourage knowledge transfer. Through partnerships with local seed companies and farmer organisations, companies can transfer advanced technologies and strengthen local expertise.
- **Elements:** The company has seed production locations in index countries and is involved with local players – such as farmer organisations, intermediates and local companies – in these activities.

D2. Engaging smallholder farmers in seed production

- **Indicator:** The company involves smallholder farmers in its seed production in index countries.
- **Rationale:** Seed companies can encourage local seed production in index countries by engaging with smallholder farmers to produce seeds under fair contractual arrangements. Working with smallholder farmers generates income and helps to build capacity.
- **Elements:** The company engages with smallholder farmers in seed production activities in index countries. The company offers formal contracts, either directly or through intermediates, to smallholder farmers, detailing arrangements for product prices and sharing profits and risks.

D3. Quality management in seed production in index countries

- **Indicator:** The company has management systems in place to ensure quality throughout its seed production processes in index countries.
- **Rationale:** Seed quality depends on a comprehensive approach to quality assurance based on international standards. To ensure consistent quality, seed companies and their local partners or contract growers should have robust seed quality management systems in place in index countries. These systems should cover seed production, post-harvest handling, storage, processing and packaging.
- **Elements:** The company has internal and/or external quality management systems in place to ensure consistent quality in the seed production process. It lists the percentage of company seed production covered by internal and/or external quality management systems in index countries.

D4. Social and labour rights in seed production

- **Indicator:** The company respects the social and labour rights of workers in seed production in index countries.
- **Rationale:** Companies should respect social and labour rights and adhere to international social and labour standards in producing seeds in index countries. This includes the right not to be subject to forced labour and child labour, respecting the health and safety of workers, and paying workers a living wage.
- **Elements:** The company respects the right not to be subject to child labour and forced labour, as well as the health and safety of workers, and it pays workers a living wage. The company monitors compliance with these issues in index countries, including by its subcontractors in seed production.

E. Marketing and sales

This measurement area assesses how companies make quality seeds of improved varieties available and affordable to smallholder farmers, and promote their use. This could include offering tailored packaging and building trusted distribution networks, as well as providing demonstration activities that promote their use.

E1. Quality and safety of varieties

- **Indicator:** The company has protocols in place in accordance with international best practices to ensure biosafety and increase product suitability and quality when marketing improved varieties in index countries.
- **Rationale:** Various index countries have legislation and regulations regarding the testing of new varieties, but the national institution's capacity to implement the regulations is weak or, in some cases, non-existent. It is the role of seed companies to ensure that only varieties suited to local conditions are released into the market. This can be done through professional variety testing and adherence to internationally adopted quality control protocols and codes, including biosafety codes.
- **Elements:** The company has protocols for ensuring the quality and safety of varieties when launching new varieties in index countries, and for introducing new varieties in index countries that lack approval and registration protocols. Those companies that market genetically modified seeds in index countries adhere to specific national (or in their absence, international) biosafety protocols and codes for genetically modified organisms.

E2. Distribution channels

- **Indicator:** The company has established dedicated distribution channels and/or agrodealer networks in index countries that make its seeds accessible to smallholder farmers, including in remote areas.
- **Rationale:** When companies enter a new market, they can use an existing distribution network or create new distribution channels. This is particularly relevant when trying to reach smallholder farmers in remote regions.
- **Elements:** The company has distribution channels and established networks to service smallholder farmers in index countries and specifies how it reaches smallholder farmers in remote areas.

E3. Diverse portfolio

- **Indicator:** The company has made a diverse portfolio of seeds, seed types and varieties available to smallholder farmers in index countries.
- **Rationale:** Companies can enhance access to seeds by offering a diverse portfolio of crops and varieties. This includes offering open-pollinated varieties alongside hybrids. By considering the diverse needs of smallholder farmers, companies can build the resilience of their business activities.
- **Elements:** The company makes diverse seed types and varieties available for the crops in its portfolio.

E4. Packaging and labelling

- **Indicator:** The company packages its products in quantities appropriate to the needs of smallholder farmers in index countries. Additionally, its packaging includes information in a local language with pictograms, and manufacture and expiry dates.
- **Rationale:** Companies can offer tailored packaging appropriate to the needs of smallholder farmers. Seed packaging should include clear instructions and warnings in the local language, with pictograms.
- **Elements:** The company offers seed packages to smallholder farmers in appropriate sizes, with instructions in local languages and pictograms, and including track-and-trace systems.

E5. Affordability

- **Indicator:** The company is involved in programmes directly or through partnerships that help make seeds more affordable to smallholder farmers in index countries, such as by providing credit and insurance services.
- **Rationale:** Smallholder farmers generally require smaller quantities of seeds and a pricing strategy adapted to their local situation. Companies can also improve affordability by partnering with other organisations to introduce finance or insurance services.
- **Elements:** The company has programmes that include microfinance, insurance schemes, credits, tailored cost models and optional collective bargaining and purchasing for smallholder farmers in index countries.

E6. Quality assurance and after-sales

- **Indicator:** The company has implemented management systems to maintain seed quality throughout the distribution system and ensure counterfeit seeds are not sold under its brand in index countries. It also makes grievance mechanisms available to smallholder farmers in index countries.
- **Rationale:** Companies can take steps to maintain seed quality throughout the distribution system and to ensure that counterfeit seeds are not sold under their brand in index countries. These steps include customer feedback and grievance mechanisms for smallholder farmers.
- **Elements:** The company has management systems to maintain seed quality during distribution and sales. These include certified quality assurance systems to ensure germination/vigour and seed health,

monitoring of distribution networks, and assurance that seeds are not sold beyond their shelf life. It also has programmes to prevent the distribution of counterfeit seeds and to provide after-sales support.

E7. Demonstration and promotion strategies

- **Indicator:** The company has programmes including field days, demonstration services and promotional activities, to create awareness of products suitable for smallholder farmers in index countries.
- **Rationale:** Demonstrations and other promotional activities – including field days and initiatives targeting lead farmers and involving local communities – improve local knowledge about different varieties and their potential. During demonstrations and on-farm trials, the use of adjacent technologies such as agrochemicals, fertilisers and irrigation can be introduced to create awareness for smallholder farmers in index countries.
- **Elements:** The company undertakes demonstrations and/or promotional programmes in index countries, to encourage smallholder farmers to use new varieties. This includes approaches to reach women smallholder farmers.

E8. Other agricultural inputs

- **Indicator:** The company makes an effort to ensure that smallholder farmers in index countries have access to the necessary agricultural inputs other than seed, and that they learn about appropriate and sustainable use of these inputs.
- **Rationale:** Companies can help smallholder farmers access other agricultural inputs, such as fertilisers and pesticides, and support them in the appropriate use of these inputs.
- **Elements:** The company promotes the use of other agricultural inputs, such as fertilisers and pesticides, in appropriate quantities and with instructions suitable to smallholder farmers, to ensure appropriate and sustainable use.

F. Capacity building

This measurement area focuses on how seed companies invest in local capacity building to ensure that farmers have the right knowledge and tools to realise the full potential of quality seeds of improved varieties. This area presents many opportunities for public–private partnerships.

F1. Extension services

- **Indicator:** The company offers agricultural extension services to smallholder farmers in index countries buying their seeds. These services can be provided directly or through local public or private partners.
- **Rationale:** Extension services are activities that build the capacity of smallholder farmers. These include the use of improved varieties and the appropriate application of other agricultural inputs and sustainable business practices. Companies can offer extension services themselves or in partnership with local organisations.

- **Elements:** The company offers extension services that include providing agronomic advice, crop protection advice and weather data platforms. It tracks the number of smallholder farmers reached, and specifies whether activities are carried out alone or in partnership.

F2. Programmes for women farmers

- **Indicator:** The company supports programmes, directly or through partnerships, designed to enable women farmers in index countries to access and use quality seeds and adjacent technologies.
- **Rationale:** Companies can engage women farmers in agricultural training, address the specific demands of women farmers and organise tailored programmes for this target group.
- **Elements:** The company has tailored programmes targeted at women or in which more than 50% of the participants are women and tracks the number of women farmers reached.

F3. Next-generation farmers

- **Indicator:** The company has programmes in place to engage next-generation farmers in agriculture, such as support for formal education programmes and/or institutions.
- **Rationale:** Companies can engage next-generation farmers in agriculture and organise tailored programmes for this target group. Companies thereby support formal agricultural education programmes and/or institutions for next-generation farmers in index regions.
- **Elements:** The company has tailored programmes for next-generation farmers and tracks the number of next-generation farmers reached.

F4. Information and communications technology (ICT)

- **Indicator:** The company supports, directly or through partnerships, initiatives that advance the use ICT by smallholder farmers in index countries to help build their capacity and inform their decision making.
- **Rationale:** ICT and mobile services provide numerous opportunities for smallholders to grow as entrepreneurs – for instance, by offering access to agronomic support and technical information. By collecting and aggregating data from farmers, ICT also enables companies and other actors to better understand the demands and needs of smallholder farmers.
- **Elements:** The company has ICT programmes in index countries that build the capacity of smallholder farmers by providing information about topics such as seed prices and farming practices, and weather-related alerts.

F5. Access to output markets

- **Indicator:** The company is engaged in developing the food value chain in index countries, through direct or collaborative involvement in initiatives that link smallholder farmers to output markets.
- **Rationale:** Most farmers grow crops not only for their own use but also for commercial sale. Seed companies can help farmers increase their profitability by linking them to output markets and/or assisting in developing a local or regional market. Companies can partner with other organisations to offer farmers training in post-harvest handling and product hygiene.
- **Elements:** The company has programmes to improve smallholder farmers' access to output markets and/or partners with other organisations in the food value chain serving the same purpose.

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WBA is funded by a group of governments, foundations and philanthropic organisations that share our vision for the future. We thank our funders, especially the Dutch Ministry of Foreign Affairs, for their support, without which none of our work would be possible. A full list of WBA's funders is set out on the final page of this report.

Our continually growing alliance of nearly 200 organisations represents civil society, business networks, financial institutions, and multilateral organisations. SDG 17: Partnerships for the Goals is at the core of our alliance. We would like to thank our Allies for their support and expertise, and we look forward to continuing our collaboration throughout the development of the third index.

Annex 1: Review and consultations

From 16 December 2020 to 31 January 2021, WBA consulted with stakeholders on the draft methodology for the index. All interested stakeholders were invited to share their comments via email or an online feedback form. A cornerstone of the WBA's approach is to actively listen to and respond to stakeholder conversations, so we also held three online public consultations in January 2021.

A total of 19 stakeholders across multiple backgrounds and geographies participated in the public consultation webinars. Additionally, we received written feedback from 10 stakeholders: six represented companies within the scope of the index and the remaining four included seed associations and federations.

Table 11: Overview of key feedback received

Feedback	How we addressed the feedback
General Why is the index only focused on the role of smallholder farmers?	Achieving SDG 2 starts with enabling farmers to produce more food in the regions that are considered food insecure. Smallholder farmers dominate agriculture in the regions where hunger is greatest. However, their productivity significantly lags behind farmers in more developed regions, in large part due to a lack of access to quality seeds. The Access to Seeds Index has been set out to assess seed company contributions to this challenge, as many smallholders have yet to be reached.
General Why will the index no longer accept data provided by companies under a non-disclosure agreement?	Increasing transparency and corporate disclosure by companies is one of the aims of the index. As such, the index only considers publicly available information, or information that companies are willing to make public through the index (such as information published in scorecards and the index's key findings).

Annex 1: Review and consultations

Feedback	How we addressed the feedback
Scope of the index Will the 2021 index include a global ranking, as it did in the 2016 and 2019 iterations?	The 2021 Access to Seeds Index will show the performance of global, regional and local seed companies in the regions of Western and Central Africa, Eastern and Southern Africa, and South and South-east Asia. As a spotlight benchmark under the umbrella of WBA's food and agriculture transformation, it will do a deep dive into these three regions, which have high levels of food insecurity. The Food and Agriculture Benchmark will broadly reveal the performance of 350 keystone companies – that is, companies with a disproportionate influence on the food value chain. The benchmark team will assess the companies' contribution to global food systems transformation, including seven of the largest seed companies, which will also be assessed through the Access to Seeds Index. Results of the index will be presented in a number of ways, such as by measurement area, indicator and geography, allowing for meaningful comparisons across regions, including the performance of companies active in all these regions.
Scope of the index Is the development of a regional index for Latin America considered?	Access to seeds for smallholder farmers is a challenge in many parts of Latin America. This is why the region was included for assessment in the 2016 and 2019 index iterations. While Latin America continues to be a region of interest for the index, no regional index is foreseen for the 2021 iteration. A landscaping exercise for Latin America has not (yet) been carried out. To understand the global picture, the 2021 index will continue to ask globally active companies for their presence/operations in Latin America. The information shared by companies can be a useful contribution towards potentially building a regional index for Latin America in the future.
Scope of the index How will the index ensure a fair comparison between globally active companies, regionally focused companies and seed-producing cooperatives?	Scoring criteria have been developed for each indicator and are designed to highlight leading practices within the industry. Companies can make certain commitments regardless of the size and scope of their operations. In those cases where size and scope of the companies play a role, we address these differences by taking a scaled approach to scoring. This approach will be reflected in the scoring guidelines, which will be published alongside the index. Seed-producing cooperatives are a recent addition to the regional index for Western and Central Africa, considering the important role they play in providing access to seeds in the region. Based on the responses we receive in the data collection phase; we will evaluate the best possible approach for presenting results within the index.
Weighting distribution	Feedback shared indicated a general agreement on the proposed weights per measurement area. Please refer to Table 3 in the 'Approach to weighting' section
A. Governance and strategy A.3. Does the index assess company involvement in seed associations?	As the role of national, regional and global seed associations is considered important for access to seeds, active company involvement is included in indicator A.3.

Annex 1: Review and consultations

Feedback	How we addressed the feedback
A. Governance and strategy Do companies need to provide codes of business conduct as part of this measurement area?	In measurement area D. Seed production, indicator D.4., ensures the provision of relevant codes of business conduct related to company seed production activities. WBA recently formulated its social transformation framework, including a common set of core social indicators to assess the 2000 (SDG2000) most influential companies across all sectors and industries in WBA benchmarks. The indicators focus on companies meeting the societal expectations of business conduct to leave no one behind; that is, respecting human rights, providing and promoting decent work, and acting ethically. The Access to Seeds Index will explore integration of these indicators for future iterations.
B. Genetic resources and IP management B.2. There is no legal obligation worldwide to share the companies' varieties in the multilateral system (MLS). How does the index assess company approaches related to this?	WBA acknowledges that companies do not have a legal obligation to share their varieties in the MLS. However, it is seen by stakeholders as a leading practice that benefits smallholder farmers. As such, it is an element for this indicator. Please refer to the 'Approach to scoring' section.
B. Genetic resources and IP management B.5. Definition/description of farmers' privilege is not in line with UPOV 91 [International Union for the Protection of New Varieties of Plants] Convention.	Reference to the UPOV 91 Convention was not included as most countries in scope are not members of UPOV, and some countries have sui generis seed laws. Therefore, a more general description of farmers' privilege has been used.
B. Genetic resources and IP management B.6. Does the indicator focus on licensing in or licensing out?	Indicator B.6. focuses on licensing of companies' own protected material to users; that is, licensing out. Licensing-in opportunities for companies with public research institutes or that collaborate with other companies is considered in measurement area C. Research and development, indicators C.4. and C.5.
D. Seed production D.1. The quality of seed production processes, particularly in the index regions, should be deemed more important than the number of seed production locations.	In this measurement area, the index focused on both quality management in seed production and the extent to which seed companies are contributing to advancing the local seed sector in regions where they operate, by having seed production locations and by engaging smallholder farmers in these activities.

Annex 2: Definitions and descriptions

Access to seeds strategy: A strategy that aims to increase access to seeds for smallholder farmers, and incorporates the following six dimensions: availability, affordability, suitability, capability, profitability and autonomy.

Agricultural biodiversity: The diversity of crops and their wild relatives, trees, animals, microbes and other species that contribute to agricultural production.

Benefit sharing: The fair and equitable sharing of benefits derived from using plant genetic resources obtained from collections under the multilateral system of the International Treaty on Plant Genetic Resources for Food and Agriculture.

Biosafety protocols and codes: Any legislation, regulation or policy intended to regulate and control the transfer, handling and use of living modified organisms that may have adverse effects on biological diversity. Such a system aims to ensure the safety of human and animal health, and an adequate level of environmental protection.

Breeders' exemption: An exception to the breeders' rights (see below), allowing plant breeders to use freely protected plant varieties for developing new and distinct plant varieties.

Breeders' rights: Rights granted to the breeder of a new variety of a plant species that give the breeder exclusive control over the propagating material (including seeds, cuttings, divisions and tissue culture) of that new variety for a number of years.

Collaborative research: Research that involves cooperation with researchers, institutions, organisations, communities, farmers and/or farmer organisations.

Ex situ conservation: Conservation of plant genetic resources for food and agriculture outside their natural habitat.

F1 hybrid: A hybrid of two homozygous parent lines. The F1 hybrid combines desired traits of both parent lines and has a uniform phenotype.

Farmers' privilege: The practice allowed by most seed laws to farmers harvesting and saving seeds of protected varieties for at least their own future use.

Farm-saved seed: Seed that is produced on a farm, usually for the purpose of re-sowing on the same farm.

Formal seed system: A framework of public and private institutions, and well-defined methodologies, linked together by their involvement in or influence on the multiplication, processing and distribution of seeds of improved varieties.

Genetic resources or germplasm: Any material of plant origin, including reproductive and vegetative propagating material, containing functional units of heredity.

Annex 2: Definitions and descriptions

Global Crop Diversity Trust: An independent international fund with the objective of providing a permanent source of funds to support the long-term ex situ conservation of germplasm. This includes characterisation, documentation, evaluation and exchange of related information, knowledge and technologies.

Field crops or staple crops: Plants grown for food that constitute the dominant part of the human diet and supply a major proportion of energy and nutrient needs.

Vegetable crops: Any of various herbaceous plants having fruit, seeds, roots, tubers, bulbs, stems, leaves or flower parts that are used as food.

Improved variety: A new variety of plant that produces higher yields or higher-quality crops, or provides better resistance to plant pests and diseases while minimising pressure on the natural environment.

In situ conservation: The conservation of ecosystems and natural habitats, and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated plant species, in the surroundings where they have developed their distinctive properties.

Index country: Any country covered by the 2021 Access to Seeds Index. Please refer to the 'Geographic scope' section for more details.

Informal seed system: An informally structured mechanism – such as retaining seeds on-farm from previous harvests, or farmer-to-farmer seed exchange including based on barter or social obligation – that enables farmers to fulfil their seed requirements.

Intellectual property rights: The rights given to persons over the creation of their minds, which the law protects from unauthorised use by others. IP is protected by, for example, patents, copyright and trademarks, which enable the creators to earn recognition or financial benefit from what they invent or create for a certain period of time. Industrial IP is protected primarily to stimulate innovation, design and the creation of technology. This category includes inventions (protected by patents), industrial designs and trade secrets, and also plant variety rights.

Intermediates: Also called middlemen, commission agents, seed organisers or seed coordinators. An intermediate is an independent businessperson who mediates between a company and smallholder farmers contracted for seed production.

International treaty: The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), which strives for the conservation and sustainable use of plant genetic resources for food and agriculture, and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity for sustainable agriculture and food security.

Annex 2: Definitions and descriptions

Living wage: There are numerous definitions of a living wage, but the core concept is to provide a decent standard of living for workers and their family. A living wage is sufficient to cover food, water, clothing, transport, education, health care and other essential needs for workers and their family, based on a regular work week not including overtime hours.

Lobbying: Any activity carried out to influence a government or (public) institution's policies and decisions in favour of a specific cause or outcome.

Local crops: A diverse set of small crops that tend to be regionally important but are not traded around the world and receive little or no attention from commercial breeding companies. They often have a strong cultural significance and can be vital for the livelihood of smallholder farmers in developing countries. They are often called 'orphan' or 'neglected' crops.

Measurement area: One of six measurement areas in which the companies included in the 2021 index are assessed. These are governance and strategy; genetic resources and IP management; R&D; seed production; marketing and sales; and capacity building.

Multilateral system: A structure, provided by the IT-PGRFA, through which participating parties (130 countries and the European Union) agree to provide facilitated access to genetic resources for food and agriculture, and to share the benefits arising from using these resources on a complementary and mutually reinforcing basis.

Multiplication: Seed production.

Next-generation farmers: Youth, often children of smallholder farmers, that are likely to become the farmers of the future, and hence also potential future customers of seed companies.

Open-pollinated variety (OPV): A variety naturally cross-pollinated by insects, birds, wind or water, or by self-pollination from male and female flower parts on the same plant.

Phytosanitary system: Any legislation, regulation or policy that aims to prevent the introduction and/or spread of pests of plants and plant products, or to limit the economic impact of regulated non-quarantine pests.

Public genebank: A collection of seeds and other plant reproductive material, primarily of cultivated plants and their wild relatives. The mandate of a genebank is to conserve these collected plant genetic resources and provide access to them.

Quality assurance: A set of tests, measures and procedures, normally based on international and/or national certification standards, to assure the consistent quality of seeds throughout the processes of development, testing, production and packaging.

Quality seed: Seed that consistently meets required standards of genetic and physiological purity (viability and vigour) and good health.

Annex 2: Definitions and descriptions

Remote areas: Remote areas in countries are those areas of farming communities that are difficult to reach, often due to lack of road infrastructure. Hence smallholder farmers in these regions have very limited access to inputs and markets, and often to extension services and modern communication tools.

Technology: The application of scientific knowledge through which the genetic and physical characteristics of seeds are improved. It involves activities such as variety development, evaluation and release; seed production; seed processing and treatment; seed storage; seed testing; seed certification; seed quality control; and seed marketing.

Variety: A plant grouping within a single botanical taxon of the lowest known rank, defined by the reproducible expression of its distinguishing and other genetic characteristics.

Annex 3: WBA guiding principles

WBA developed a set of principles to guide its work and reflect its values and mission (see Figure 6). These principles were formed in collaboration with global stakeholders throughout the consultation phase, and were refined based on input and feedback from roundtable consultations, online surveys, and expert meetings.

The principles are divided into three categories: operational principles that explain how WBA functions; benchmark development principles that address how the benchmarks are designed; and content principles that cover what the benchmarks assess. Currently, the guiding principles reflect the outcomes and findings from WBA's global consultation phase. However, the world is changing rapidly, and additional insights and perspectives are likely to emerge over time. Consequently, these principles may evolve – in consultation with stakeholders – to reflect new findings and realities.

Annex 3: WBA guiding principles

Figure 6: WBA guiding principles

Operation principles	
Inclusive	WBA actively engages with and involves all stakeholders in building Alliance and the benchmarks.
Impartial	WBA and its benchmarks are equally responsive to all stakeholders.
Independent	WBA and its benchmarks are independent from the industries and companies they assess.
Focused on impact	WBA and its benchmarks promote dialogue and measure impact on the SDGs to create positive change.
Collaborative	WBA collaborates with stakeholders and Allies to enhance alignment of corporate performance with internationally agreed sustainability objectives
Free and publicly available	WBA is a public good, and its benchmarks and methodologies are free and publicly available to all.
Benchmark development principles	
Relevant	WBA benchmarks focus on sustainable development issues most relevant to industries' core businesses and on the industries and companies that can make the most significant, actionable and unique contributions to these issues.
Clear in methond and intent	WBA benchmarks are transparant about their methodology, development processes and results.
Complementary	WBA benchmarks build upon the work done by others, adding further value with a focus on SDG impact.
Responsive and irative	WBA benchmarks are updated regularly to reflect evolving stakeholders expectations, policies, developments and company performance.
Content principles	
Balanced	WBA benchmarks assess both positive and negative impacts that companies might have on the SDGs.
Reflective of societal expectations	WBA benchmarks reflect the extent to which companies performance on relevant SDG's aligns with stakeholders expectations.
Forward looking	WBA and its benchmarks engage and asses companies on their current perfomance on the SDGs and on exposure to sustainability risks and opportunities

Annex 4: Alignment with other benchmarks, standards and reporting initiatives

The index indirectly aligns with the following benchmarks, standards and initiatives. However, its indicators have been adjusted, where needed, for an analysis of topics specifically relevant to seed companies.

Table 12: Overview of alignment with key sources and stakeholders

Measurement area	Key sources and stakeholders
Governance and strategy	• Global Reporting Initiative • Sustainability Accounting Standards Board • SDG Impact Standards for Enterprises (2020) • Sustainable Development Goals Disclosure Recommendations (2020) • World Economic Forum – Toward Common Metrics and Consistent Reporting of Sustainable Value Creation
Genetic resources and intellectual property management	• Bioversity International (Agrobiodiversity Index) • Food and Agriculture Organization, Sustainability Assessment of Food and Agriculture Systems Guidelines • International Treaty on Plant Genetic Resources for Food and Agriculture • Convention on Biological Diversity
Research and development	• Food and Agriculture Organization Corporate Statistical Database • Food and Nutrition Security Results and Indicator Framework (2019) – Dutch Ministry of Foreign Affairs
Seed production	• International Labour Organization • WBA's Corporate Human Rights Benchmark • Global Reporting Initiative • KnowTheChain • United Nations Global Compact • United Nations Guiding Principles
Marketing and sales	• Access to Nutrition Foundation • Global Reporting Initiative • Refinitiv • Coller FAIRR Protein Producer Index Methodology (2020) • Committee on World Food Security and the Food and Agriculture Organization – Principles for Responsible Investment in Agriculture and Food Systems • Food and Nutrition Security Results and Indicator Framework (2019) – Dutch Ministry of Foreign Affairs
Capacity building	• Committee on World Food Security and the Food and Agriculture Organization – Principles for Responsible Investment in Agriculture and Food Systems • Food and Nutrition Security Results and Indicator Framework (2019) – Dutch Ministry of Foreign Affairs

References

1. Access to Nutrition Foundation. Available at: https://accesstonutrition.org/ [accessed July 2020]
2. Bioversity International (Agrobiodiversity Index). Available at: https://www.bioversityinternational.org/fileadmin/user_upload/AA_Publications/Methodology_Index_1.pdf [accessed October 2020]
3. CFS-FAO Principles for Responsible Investment in Agriculture and Food Systems. Available at: http://www.fao.org/3/a-au866e.pdf [accessed November 2020]
4. Convention on Biological Diversity. Available at: https://www.cbd.int/ [accessed June 2020]
5. Corporate Human Rights Benchmark. Available at: https://www.corporatebenchmark.org/sites/default/files/CHRB%202020%20Methodology%20AGAPEX%2028Jan2020.pdf [accessed September 2020]
6. FAIRR Protein Producer Index Methodology (2020). Available at: https://www.fairr.org/index/methodology/ [accessed November 2020]
7. Food and Agriculture Organization Corporate Statistical Database. Available at: http://www.fao.org/faostat/en/#home [accessed June 2020]
8. Food and Nutrition Security Results and Indicator Framework (2019) – Dutch Ministry of Foreign Affairs. Available at: https://www.dutchdevelopmentresults.nl/theme/food#food_agriculture [accessed June 2020]
9. Global Reporting Initiative. Available at: https://www.globalreporting.org/how-to-use-the-gri-standards/resource-center/ [accessed November 2020]
10. International Labour Organization. Available at: https://www.ilo.org/global/lang--en/index.htm [accessed July 2020]
11. International Treaty on Plant Genetic Resources for Food and Agriculture. Available at: http://www.fao.org/plant-treaty/en/ [accessed June 2020]
12. Know the Chain. Available at: https://knowthechain.org/wp-content/uploads/2020-KTC-FB-Benchmark-Report.pdf [accessed November 2020]
13. Scope of the 2021 Access to Seeds Index. Available at: https://assets.worldbenchmarkingalliance.org/app/uploads/2020/11/WBA-ATSI-Scope-of-the-2021-Access-to-Seeds-Index.pdf [accessed November 2020]
14. SDG Impact Standards-Enterprises. Available at: https://sdgimpact.undp.org/assets/SDG-Impact-Standards-for-Enterprises-DRAFT-for-first-consultation.pdf [accessed November 2020]
15. Sowing Hope: Child labour and non-payment of minimum wages in hybrid cottonseed and vegetable seed production in India. Available at: https://arisa.nl/wp-content/uploads/SowingHope.pdf [accessed July 2020]
16. Sustainability Accounting Standards Board. Available at: https://www.sasb.org/standards-overview/download-current-standards-2/ [accessed November 2020]
17. Sustainability Assessment of Food and Agriculture Systems (SAFA Guidelines). Available at: http://www.fao.org/3/a-i3957e.pdf [accessed June 2020]
18. Sustainable Development Goals Disclosure Recommendations. Available at https://www.ifac.org/system/files/publications/files/Adams_Druckman_Picot_2020_Final_SDGD_Recommendations_updated.pdf [accessed November 2020]
19. The State of Food Security and Nutrition in the World. Available at: https://docs.wfp.org/api/documents/WFP-0000117811/download/?_ga=2.112214340.154932427.1600262855-878163561.1600262855 [Accessed November 2020]
20. United Nations Global Compact. Available at: https://www.unglobalcompact.org/what-is-gc/our-work/social/labour [accessed October 2020]
21. United Nations Guiding Principles. Available at: https://www.ungpreporting.org/wp-content/uploads/UNGPReportingFramework_2017.pdf [accessed June 2020]
22. World Economic Forum – Toward Common Metrics and Consistent Reporting of Sustainable Value Creation. Available at http://www3.weforum.org/docs/WEF_IBC_ESG_Metrics_Discussion_Paper.pdf [accessed November 2020]

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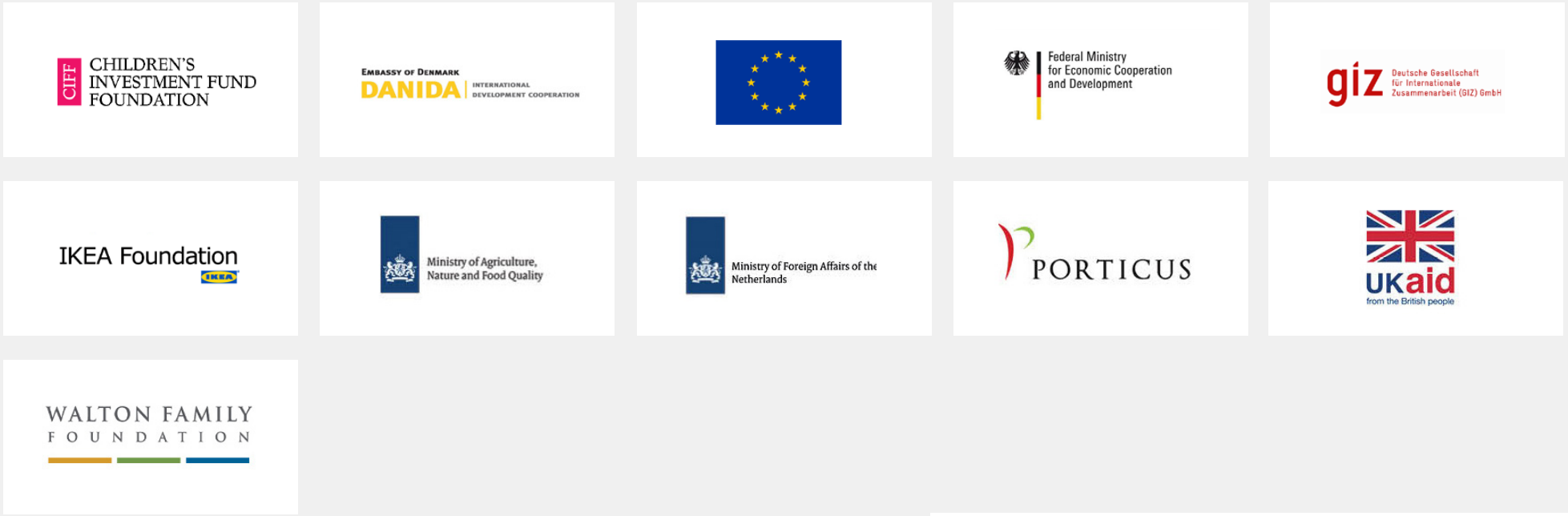

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