



نزرع للغد

ICBA

AGRICULTURE FOR TOMORROW

STRATEGY 2013-2023

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Foreword

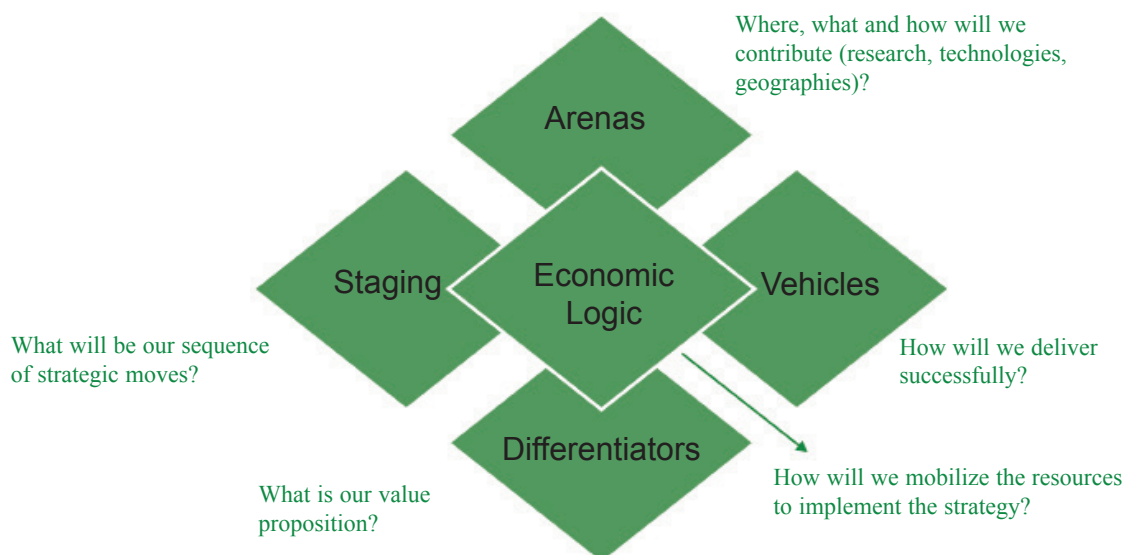
Since its founding in 1999, through the visionary leadership of the Islamic Development Bank (IDB) and the Governments of the United Arab Emirates (UAE), the International Center for Biosaline Agriculture (ICBA) has led the way in research on problems and solutions for agricultural productivity in saline conditions. Fourteen years on we can see that much has changed – technologically, socially and politically.

Although ICBA is proud of its achievements, there is still much to be done. To ensure food security, by 2050 the agricultural sector must produce enough food for a population of 9.1 billion, while providing employment and environmental services, and adapting to climate change. Studies have shown that to increase world production by 2050, we will have to increase agricultural production in marginal environments.

As ICBA concluded its second strategic phase, it embarked on a round of strategic planning exercises with stakeholders and partners. The resulting ICBA Strategy 2013-2023 is the product of six months of deliberations and consultations with a wide range of stakeholders. As part of this process, ICBA and stakeholders cast the net for new ideas, then considered the pressing needs that ICBA is best placed to address. At a foresight symposium, in November 2012, participants explored alternative futures for ICBA and selected the best – the most robust and the most valuable – innovative ideas to take forward in a new strategy.

The new Strategy takes innovation as a core principle. Applied research will be directed to innovative solutions to food and water security in marginal environments, applying new technologies including biotechnology, developing multiple uses for wastewater and seawater, becoming a pioneering knowledge hub, and extending and deepening our partnerships. With the help of our partners we will innovate, build human capital, and encourage the learning that is fundamental for change.

In developing a unified strategy, we challenged ourselves to answer the following questions¹:



This document outlines our answers to these questions. We are excited to be taking new steps while building on the sound foundations we have already established, and invite you to join us on the journey to 2023.

Mr Fawzi Al Sultan, Chair, Board of Directors

Dr Ismahane Elouafi, Director General

¹ Adapted from Hambrick, D.C. and Fredrickson, J.W., "Are You Sure You Have a Strategy?" Academy of Management Executive, November 2001

1 Building on achievements

Since ICBA was established in 1999, our research has evolved. Initially focusing on salinity, we now take a broad integrated approach to improving agricultural production in marginal environments.

The 2004 external review of the Center showed that ICBA could be justifiably proud of establishing a well-functioning research facility and "putting it on the map". ICBA's mission and mandate addressed important aspects of saline water and agriculture, and their interface, not only in the Gulf countries but also in many developing countries.

The 2010 technical review suggested that ICBA had made significant progress in adapting, transferring, and promoting salt-tolerant crops, forages, trees, shrubs, and grasses. ICBA had succeeded in reaching out to many countries in the region, and beyond, through training workshops and bilateral cooperation projects. The Center had developed an impressive genebank of salt-tolerant plants and contributed to policy, notably through the development of the UAE Water Conservation Strategy.

The review also noted the Center had established links with key regional and international institutions. These included the International Fund for Agricultural Development (IFAD), the US National Aeronautics and Space Administration (NASA), the International Crops Research Institute for Semi-Arid Tropics (ICRISAT), the Arab Fund for Economic and Social Development (AFESD), the International Center for Agricultural Research in the Dry Areas (ICARDA), and the Arab Center for the Study of Arid Zones and Dry Lands (ACSAD), among others. In sum, the review concluded that ICBA was an institution with regional and international standing as a unique center for biosaline agriculture.

“...addressed important aspects of saline water and agriculture”

“...unique center for biosaline agriculture”

2 Marginal environments – the context

The new Strategy considers the dynamics of land and water resources, and the likely impacts of climate change and other challenges to agricultural production and food security in the next decade and beyond.

According to the FAO definition², marginal lands are those having limitations which in aggregate are severe for sustained application of a given use. With inappropriate management, there are risks of irreversible degradation.

These marginal environments have biophysical constraints:

- Soil constraints (texture, low fertility, poor drainage, shallowness, salinity, sodicity)
- Water constraints (saline water, insufficient water: access and quantity)
- Landscape constraints (e.g. steep terrain)
- Unfavorable climatic conditions

And also socioeconomic constraints:

- Absence of markets, difficult access
- Restrictive land tenure, small holdings
- Poor infrastructure
- Unfavorable output/input ratios

Challenges in marginal environments

Marginal environments are some of the most fragile areas in the world and are under threat from the expansion of cultivation, changes in social patterns and climate change

²Adapted from: CGIAR Research Priorities for Marginal Lands, FAO 1996
<http://www.fao.org/Wairdocs/TAC/X5784E/x5784e00.htm#Contents>. Visited March 14, 2013



“Marginal environments suffer from both biophysical and socioeconomic constraints.”

3 ICBA's collaborative advantage

ICBA is among the few international research organizations in the world that work on salinity management systems and address agricultural challenges in marginal environments. ICBA's work reaches countries, including least-developed

countries, in Central Asia and the Caucasus, the Middle East and North Africa (MENA), South

and South East Asia, sub-Saharan Africa, and Gulf Cooperation Council countries.

Over the years, ICBA has gained extensive first-hand, on-the-ground, empirical knowledge and experience of the farming systems of the Middle East, North Africa, Gulf states, and West and Central Asia.

ICBA takes an integrated approach to strengthening the agricultural sector and identifying sustainable solutions for food and nutrition security. ICBA facilitates access to technology, improved germplasm, and relevant policies, strategies, and programs.

3.1 Expertise

The Center has an international team that includes soil, crop and water scientists, and policy and socioeconomic experts. At ICBA we address the challenges in marginal environments – of sustainable production, use of saline and alternative waters, environmental impacts, natural resources assessment and management, and policy and governance.

Our philosophy is based on collaboration with similar organizations, partners, and donors worldwide. The Center has excellent research and training facilities, including an experimental farm, soil, water, and agronomy laboratories, and a genebank of salt-tolerant germplasm with over 11,000 accessions representing 260 species.

Inter-disciplinary teams of scientists bring a range of skills and knowledge to address challenges through relevant, effective, and efficient projects. Our strategy is to implement a "Research to Development Continuum" to make sure that the research results are made available to our clients.

4 Vision, Mission and Values

The ICBA Strategy 2013-2023 expands the range of crops (including crops for biofuels), water quality, and marginal environments that ICBA's work will address. The new vision and mission for the Center reflect these changes.

Our Vision (Our aspiration as an organization)

To be the global Center of Excellence for innovative agriculture in saline and marginal environments

Our Mission (The fundamental purpose of ICBA)

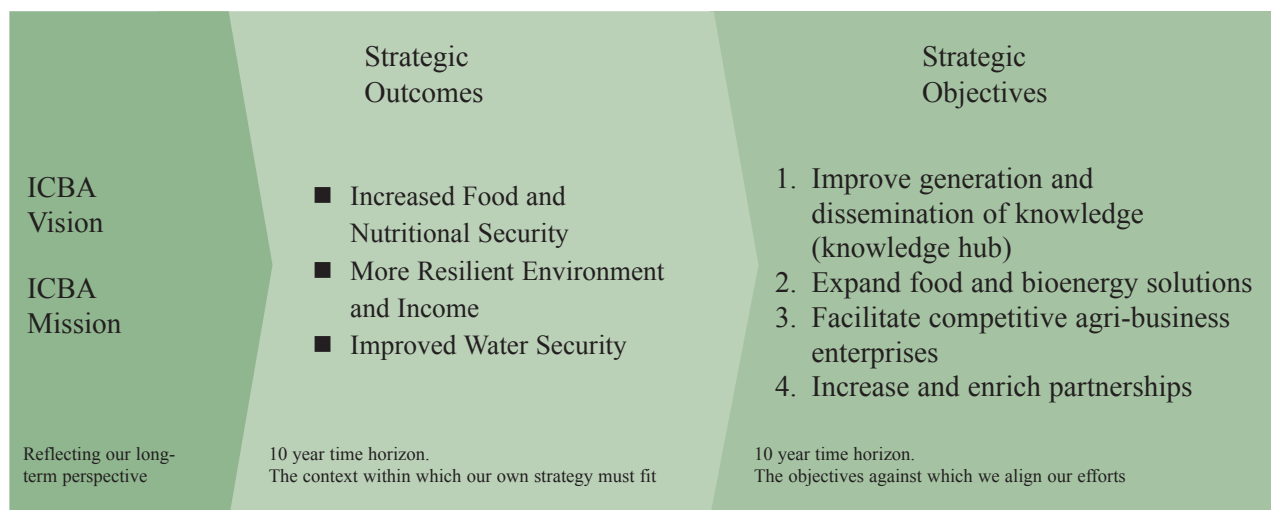
To work in partnership to deliver agricultural and water scarcity solutions in marginal environments

The adoption of a new vision and mission for ICBA brings with it a more explicit commitment to achieving impact. ICBA has identified three

strategic outcomes it will target, as shown in the box below. Derived from this ambition we identify four high-level strategic objectives that we seek to achieve in the coming years.

ICBA is, and will remain, committed to the following values as an organization:

1. Professionalism and integrity: We act honestly and responsibly to help ICBA carry out its mission. We strive to provide quality service to all our stakeholders and partners and aspire to achieve the highest standards of professionalism in our research, communications, fiduciary management, and operations. We take responsibility for our individual and organizational performance.



2. Partnership and teamwork: We value teamwork, sharing knowledge amongst ourselves and our partners to build on our collective strengths and interdependencies. We show mutual respect with all those with whom we work. We are consultative and participative and constantly reach out to new partners who share our mission and values, and work with them in fulfilling our mission.
3. Excellence and innovation: We promote a culture of innovation and are constantly looking for ways to improve our individual and collective ability to meet our mission.
4. Our people: ICBA recognizes the central importance of human relationships, and understands that relationships between and among people are an important vehicle for change. ICBA engages employees as partners. The Center seeks to strengthen relationships among employees in a purposeful effort to promote, restore, maintain, and enhance the well-being of its employees and their families.

5 Guiding Principles

ICBA will focus on research for development, building understanding with stakeholders and government on their issues and needs. We will be guided by the following principles to ensure the Strategy is implemented effectively and consistently:

ICBA as a leader

ICBA will demonstrate leadership in developing leading-edge science, innovations, and policy solutions in agriculture and water management in saline and marginal environments.

ICBA as an innovator

ICBA will develop scientific innovations to combat salinity and other constraints in marginal environments in order to create opportunities for economic development.

ICBA as a partner of choice

ICBA will build strong and effective partnerships and will collaborate with organizations across the globe

to develop solutions for saline and marginal environments. ICBA will be guided by the priorities of national, regional, and international partners.

ICBA's knowledge sharing and learning

ICBA will become a knowledge hub for problems and solutions relating to saline and marginal environments.

ICBA's accountability

ICBA will ensure that the Center is fully accountable for funds received and delivering agreed outcomes.

6 Arenas – what ICBA will contribute

The most important contributions that ICBA will make in the next ten years will be in research innovations and enabling innovations in saline and marginal environments, as shown in our impact pathway (Figure 1). Stakeholder involvement will be crucial in formulating the next generation of agricultural innovation in marginal environments. ICBA will facilitate interactive innovation, through sophisticated networking systems to make the most of collective intelligence and advances.

“No innovation without research and no development without innovation.”

6.1 Research innovations

Research innovations will include developing new and improved scientific tools, testing and adapting technologies, exploring new areas of research, and generating, synthesizing and disseminating knowledge. New areas of research will span the food–water–energy nexus. ICBA will harness new technologies to assess water resources and model

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water use in agriculture.

Our research agenda has been grouped into five innovations and four enabling innovations. The diagram at the end of this section summarizes how our research effort will help us achieve impact. We believe that being explicit in the outputs and outcomes of our research will improve our ability to support development efforts and will deliver on the strategic outcomes we hope to influence.

6.1.1 Assessment of natural resources in marginal environments

Producing more food, fuel, forage, and fiber in marginal environments will only be possible through integrated production systems that practice sustainable management of available resources.

Water security can be achieved by adopting production systems that consume less water. Food and nutrition security can be achieved by diversifying and intensifying production systems, innovative use of poor quality water, and efficient irrigation.

ICBA will continue to assess water, land, crops, and cropping systems in marginal environments, and to analyze and make recommendations for land resource management and restoring degraded land. In collaboration with stakeholders, the Center will design applied research on land management and reclamation. ICBA will continue to explore best management practices for land in marginal environments.

Outreach will include providing technical support to national and regional initiatives related to land use, agro-climatic zoning, and reclamation and use of marginal land. This will cover technical backstopping – monitoring, supervising, and evaluating – for development banks and institutions on agriculture in general, and land management in particular.

6.1.2 Climate change impacts and management

Climate change adaptation is crucial to future agriculture development, especially in marginal environments where the impact is more significant. Multidisciplinary problems require multidisciplinary solutions. ICBA will address this issue from different angles, from water assessment and management to cropping systems adapted to marginal environments

and policy formulation. ICBA over the years has developed special expertise in science policy integration and policy advice in relation to water/land use. ICBA is aiming to be a center of excellence in the area of water management under climate change, through multidisciplinary work, partnership and use of advanced technologies such as modeling, geographic information systems (GIS) and remote sensing.

Water-use efficiency and productivity are pathways for better management of scarce water resources. Therefore, we will scale up our research in those areas. Tapping into other non-traditional sources of water to deal with climate change will become necessary, so we will explore the use of treated wastewater and other sources of water that can be used to increase productivity. In addition, ICBA will enhance its involvement in regional projects to support agriculture for climate change adaptation. Overall, adaptation strategies will remain our main focus and we can expect the need for adaptation to escalate in the future.

6.1.3 Crop productivity and diversification

ICBA will expand its research on crops for marginal environments. This will include introducing new genotypes of nutritious and stress-tolerant crops. ICBA has been instrumental in conserving genetic resources from around the world, and will continue to enrich its gene bank with plant species from marginal environments. Research will combine genetics and genomic approaches to develop new crops through genetic engineering. ICBA will develop biotechnology methods to create crop varieties that will be productive and resilient in marginal conditions, and strengthen the capacity of national partners in multiplying seed of salt-tolerant crops.

ICBA will continue to provide management practices and technologies that are affordable, feasible, and relevant to farmers in marginal environments. To improve incomes, field optimization studies on soil microflora and management systems at ICBA, improving soil quality and fertility using solid waste, and participatory on-farm studies with partners and farmers, will be directed at maximizing crop productivity. ICBA will expand work on cereals, vegetables, and other cash crops using the complete

range of non-fresh water – treated wastewater and low-, medium-, and high-salinity water.

Since its inception, ICBA has generated a significant amount of knowledge on the use of saline water for agriculture. The Center will continue to work on technology solutions to improve water-use efficiency and water productivity. ICBA will establish field and laboratory-based research projects to help farmers adopt new technologies and management practices for irrigated crops. While the Center will continue to develop the use of saline water, research will be expanded to the use of treated wastewater in agriculture and landscaping.

6.1.4 Aquaculture and bioenergy

Integrated aquaculture, based on marine and terrestrial agricultural systems have great potential to boost income under marginalized conditions. ICBA, in partnership with other stakeholders, will work on pilot-scale mariculture projects, growing crops with seawater as an economic model study.

Biofuels have become controversial as a result of their impact on food production on prime farmland. However, the use of marginal environments for growing biofuel feedstock efficiently and with low inputs and acceptable productivity opens up many opportunities for ICBA to expand its program on biofuel crops. This will include undertaking pilot programs and assisting with scaling up seawater-based agricultural systems - integrating marine and terrestrial culture systems. Seawater agriculture – cultivating micro- and macro-algae for biomass and energy production with seawater – with particular emphasis on potential biofuel feedstock will also be explored.

6.1.5 Policies for resilience

ICBA will analyze policies and undertake socioeconomic studies on food and nutrition security, and water and land management at various scales in marginal environments, to provide recommendations to national partners. Work will be directed to assisting in assessing and managing agriculture, water, land, and climate change. ICBA will also assess opportunities for value adding to market chains.

6.2 Enabling innovations – vehicles

to achieve results

Our decisions about 'what' ICBA will do to achieve its mission must also be accompanied by decisions about 'how' we will achieve results. We have identified four enabling innovations or vehicles that we will draw on:

- Strategic alliances and partnerships
- Knowledge transfer
- Agri-business incubation
- Capacity development

6.2.1 Strategic alliances

Strategic alliances and partnerships at different levels and in varying arenas will be key to the achievement of ICBA's mission.

Strategic alliances

ICBA will continue to enhance existing alliances and develop new strategic alliances with core regional and international donors, foundations, and other funding bodies, by developing knowledge and building capacity to support their missions. Through joint efforts and synergies, and by aligning goals and objectives, the strategic alliances will directly address challenges in alleviating food and water insecurity and poverty. ICBA will work with allies to streamline priority areas of research for development.

In the United Arab Emirates (UAE), the Ministry of Environment and Water (MOEW) and Environment Agency Abu Dhabi (EAD) provide more than 70% of ICBA's core budget. ICBA will emphasize our alliance with ministries and agencies in the UAE and provide technical assistance to support developments in agriculture, the environment, water, and land.

ICBA will strengthen alliances with financial institutions that use applied research for development, such as the Islamic Development Bank (IDB), and will build more significant alliances with the African Development Bank (AfDB), the Asian Development Bank (ADB), and the World Bank.

Partnerships

We will continue to work in partnership with national agricultural research and extension systems, international agricultural research organizations, CGIAR Research Programs, educational institutions, international donors, the private sector, civil society,

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and non-governmental organizations (NGOs) to target farmers and rural communities to improve their livelihoods. At the policy level we will ensure there is a close working relationship between those tasked with policy formulation and ICBA's research activities.

ICBA will seek to expand its existing network of partners, and to strengthen collaboration among institutions and research centers in new areas of research and in different regions. Partners will have comparative advantages that bring synergies and add value to research. Partners will include traditional partners, such as research organizations and universities, national governments, and agricultural research stations and extension services, as well as non-governmental organizations, agri-business associations, think tanks and the private sector. ICBA will seek new partners to reflect the changing actors in water and agricultural development.

ICBA will expand collaboration in Gulf Cooperation Council countries. ICBA will engage in policy analysis and advice to ensure that decision makers understand the significance of managing marginal environments, especially in the context of adaptation to climate change.

Approach

A key element in partnerships will be joint planning, design, and implementation to drive adaptation of existing practices and technologies, and to generate and apply new ideas. The participatory approach will:

1. Emphasize collaboration related to marginal environments.
2. Draw on partner complementarities to deal with challenges and address priorities.
3. Build communities of practice for a knowledge hub on marginal environments.
4. Involve all stakeholders, especially extension officers and end-users, to close the gap between available knowledge and its use.
5. Leverage resources and ensure financial efficiency, effectiveness and sustainability.

Effective mechanisms are needed to bring research institutions together to collaborate at country, regional, and global levels. To enhance partnerships

with stakeholders, ICBA is creating a division dedicated to communication and partnerships. The division will build research and development consortiums to proactively address challenges and build relationships across institutions.

6.2.2 Knowledge hub

Strategic alliances and partnerships

Key thrusts

- Continue to strengthen and expand strategic alliances.
- Expand and develop international, regional, and local networks in key areas of scientific development.
- Strengthen partnerships with knowledge users to ensure their needs are reflected in scientific developments and capacity building initiatives.
- Focus on comparative advantages, complementarities, and consultation.

Developing and sharing credible, high-quality scientific knowledge is central to ICBA's work as an applied research center. With a view to becoming known as a center of excellence, ICBA will put more effort into publishing research in top-ranking international journals, ensuring that findings are documented and shared among the research community.

ICBA recognizes that scientific papers are only one form of knowledge and that it is vitally important to translate research findings into appropriate knowledge products to meet the needs of different groups of stakeholders, from farmers to decision makers. The philosophy of open access, sharing and disseminating knowledge in appropriate ways, pervades all ICBA's work.

Building on this ethos of sharing knowledge, ICBA will increase efforts and commit resources to share existing and new knowledge on understanding and managing agricultural systems and water resources in marginal environments. A new initiative, a knowledge hub, will be a focal point for exchanging knowledge – drawing in knowledge and feeding



knowledge into other knowledge repositories.

As a one-stop shop for information on sustainable management and use of marginal resources for agricultural production and environmental protection, the knowledge hub will bring together and link people, broker knowledge, and foster communities of practice, thus ensuring that as many people as possible have open access to research findings and practical advice. The knowledge hub will exploit new digital technologies to enable virtual meetings, workshops, conferences, webinars, and e-forums.

A knowledge repository, user networking platform, and content distribution services will be held in a central database linked to the ICBA website (www.biosaline.org). The knowledge repository will contain open learning materials and information related to

agriculture in marginal environments.

Knowledge transfer

Key thrusts

- Develop ICBA as a knowledge hub.
- Increase the number and quality of science publications.
- Develop and contribute to communities of practice for relevant topics.
- Facilitate knowledge and technology exchange across networks of researchers, levels of government and communities, and build capacity in all sectors.
- Enhance science outreach through training-the-trainers and publications, including peer-reviewed articles.

ICBA

6.2.3 Technology incubator

Developing value chains adds value, lowers transaction costs, diversifies rural economies, and contributes to improving rural household incomes. In this new initiative, ICBA will develop agri-business incubators in marginal environments to stimulate the creation of competitive agri-business enterprises. The idea is to provide technical assistance to innovative ideas and innovative technologies, and to assist them in reaching the market.

Agri-business incubators can help local communities to:

- Raise agricultural productivity
- Link farmers to markets
- Reduce risks and vulnerabilities
- Enhance environmental sustainability

This initiative will help new entrepreneurs and enterprises with technologies and commercialization. Handholding support will range from helping conceptualize viable businesses to setting up and scaling up operations. Services offered will include business mentoring, preparing business plans, support with dealing with rules and regulations, and providing common facilities. Consultants will be available to transfer agricultural know-how and technologies developed by ICBA and other partners.

Technology incubator

Key thrusts

- Assist agri-entrepreneurs to take innovative technologies/ideas from applied research to business opportunities.
- Assist agri-entrepreneurs in the first steps of starting a business.
- Assist in monitoring and coaching.
- Help in refining agricultural technologies.

6.2.4 Capacity building

Capacity building is central to ICBA's activities and spans geographical domains, research areas, and methods. ICBA embeds short- and long-term training courses, workshops, field days, internships, and masters, doctoral and post-doctoral research in core

programs and project activities. Training courses cover managing water and irrigation systems, mapping and analyzing soil salinity, improving crop management practices under marginal conditions, adapting production systems for food, forage, landscape plants and industrial crops in saline areas, soil management, land degradation and environmental impact assessment, policy and socioeconomic analysis, and strategies to adapt to climate change.

ICBA will, with partners, strengthen and enhance capacity building in its mandate region and beyond. Capacity building will continue to be closely linked with research projects. Programs will be focused, and will be delivered in partnership with donors, peer organizations, national programs and the private sector. Particular emphasis will be placed on partnering with universities such as the King Abdullah University of Science and Technology, Saudi Arabia, to strengthen research capacity.

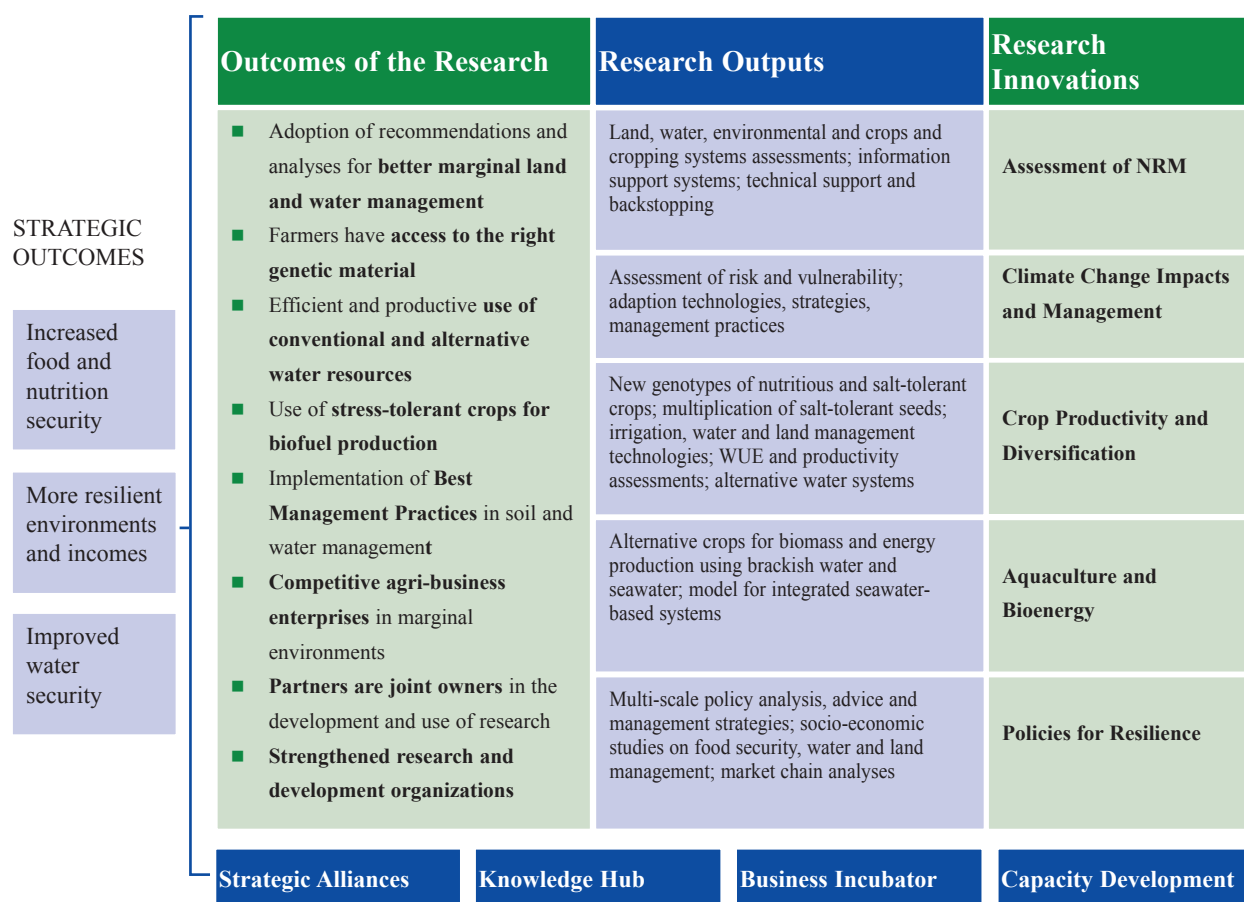
Comprehensive learning programs will be developed for participants in agri-business incubation and the knowledge hub, and in response to needs identified by partners. The Center will work in partnership with donors, peer organizations, national programs, and the private sector to support capacity building activities.

Capacity building

Key thrusts

- Increase emphasis on dialogue with partners and stakeholders to identify capacity-building needs, mutual interests, and opportunities for collaboration.
- Increase the focus on partnering with other capacity-building actors to complement ICBA's skills and experience.
- Work with partners and networks to leverage funds for expanding capacity building.
- Encourage national ownership in research for development capacity-building interventions.
- Open up capacity-building opportunities to an array of audiences.

Figure 1: Pathway to Impact



7 Geographies – where ICBA will contribute

To date, ICBA has been most active in the Middle East and North Africa (MENA), Central Asia and Gulf Cooperation Council countries. Currently ICBA works in 26 countries with significant areas of marginal environments.

ICBA, as a global center of excellence in research for development in marginal environments, will widen the scope of its endeavors. ICBA will play a vital role, and significantly contribute to improving the performance of agricultural systems and adding value to agricultural products in different parts of the world, while sustainably using natural resources. Expanding work to more countries will be determined according to strategic and pragmatic criteria.

Criteria for expanding geographically

- ICBA's ability to contribute significant and sustained input to challenges faced by countries with marginal environments.
- ICBA's ability to foster durable partnerships with government, research agencies, NGOs, and the private sector.
- There is high probability of sustained funding at levels needed to pursue the research required.
- The operational environment is sufficiently secure and conducive to long-term investment.

We recognize the numerous issues faced by different regions and countries in improving the productivity of marginal lands. ICBA has a strong track record in addressing these issues. In looking forward over the next 10 years, ICBA will, with partners, adapt and seek out technologies, practices, and policies that will help address these challenges (see Table 1).

Table 1: Regional and country issues and ICBA expertise

Region	Issues	ICBA's Track Record
Middle East and North Africa (MENA) including Gulf Cooperation Council (GCC) countries	<ul style="list-style-type: none"> ■ Land degradation, soil erosion and salinity ■ Climate-induced impacts with recurrent droughts leading to crop failures and affecting livestock ■ Water scarcity and quality impacts on agricultural production ■ Weak research and extension services hinder progress 	<ul style="list-style-type: none"> ■ ICBA has been active in the MENA region (including GCC countries), introducing biosaline agriculture and related technologies, developing marginal land and marginal water resources, selecting and adapting stress-tolerant crops, introducing improved irrigation management practices, assessing water resources, and planning development of water resources
Central Asia	<ul style="list-style-type: none"> ■ Land and soil degradation and inefficient use of water affecting agricultural production ■ Soil salinity is widespread with fertility problems ■ Low rainfall with extremes of temperatures: summers are very hot and winters very cold ■ Climate change is likely to lead to more frequent and severe droughts in countries such as Kazakhstan ■ Low mechanization leading to lower productivity ■ Lack of capacity (technical and managerial) 	<ul style="list-style-type: none"> ■ ICBA's work in the region introduces and adapts salt-tolerant forage crops and related management packages to farming systems ■ Capacity building of national researchers and farmers
Africa	<ul style="list-style-type: none"> ■ Land degradation, soil erosion, and salinity ■ Lack of investment in irrigation and poor technical skills hinder productive water use ■ Climate-induced impacts with recurrent droughts leading to crop failures and affecting livestock ■ Availability and access to seed of improved high-yielding varieties hampering agricultural productivity, especially for smallholder farmers ■ Lack of capacity (technical and managerial) 	<ul style="list-style-type: none"> ■ ICBA partners with a group of West African countries in a project to improve productivity by introducing small-scale irrigation systems and seed diversification – providing farmers with seed of different varieties and different crops, and teaching them how to produce their own seed
South and South East Asia	<ul style="list-style-type: none"> ■ Agriculture is small-scale, traditional, subsistence farming ■ Yields are low and food insecurity and poverty are major issues ■ Scarce freshwater, frequent floods, and limited application of improved technologies ■ Inadequate irrigation infrastructure and depleted soils affecting agriculture ■ Lack of capacity (technical and managerial) 	<ul style="list-style-type: none"> ■ Reclamation of salt-affected land in Pakistan ■ Use of marginal water for growing horticultural and forage crops in saline coastal areas of Bangladesh ■ Evaluation of bioenergy potential using woody tree species under wasteland conditions in Pakistan, India, and Bangladesh
Latin America and the Caribbean	<ul style="list-style-type: none"> ■ Serious food security and nutrition security challenges ■ Adapting to climate change, the sustainability of agricultural systems and natural resources, and threats to biodiversity ■ Overgrazing, cultivation of unsuitable land, land degradation, deforestation and associated water erosion ■ Salinity and water logging affecting irrigated regions in western Argentina, particularly along the Rio Salado, and in the coastal plain of Peru 	<ul style="list-style-type: none"> ■ To date, ICBA has not expanded work to Latin America and the Caribbean, but there is great potential for the technologies and systems developed by ICBA to be widely applied across the region

Table 2: Strategic interventions in different geographical regions

Strategic Interventions	MENA (including GCC)	Central Asia	Africa	South & SE Asia	Latin America & Caribbean
Assessment of natural resources in marginal environments	XXX	XX	X	X	X
Climate change adaptation strategies and studies	XXX	X	XX	XX	X
Crop productivity and diversification	XXX	XXX	XX	XX	X
Aquaculture and bioenergy	XXX			X	
Policies for resilience	X	X	X	X	X
Strategic alliances	XXX	XXX	XXX	XX	X
Knowledge transfer	XXX	XXX	XXX	XX	X
Agri-business incubation	XXX	X	X	X	X
Capacity building	XXX	XXX	XX	X	X

7.1 Strategic interventions in different geographical regions

With ICBA's on-the-ground experience in the generation and application of research and technical interventions, there is much to offer as the Center moves forward. However, it is recognized that these interventions will be done in partnership and be based on needs. In Table 2, we lay out the strategic interventions we will implement in various geographical regions. The interventions will not all be at the same level or the same intensity and will be subject to discussions and joint agreements with partners.



8 Economic logic- how ICBA will mobilize resources to implement the Strategy

At the heart of a strategy must be a clear plan to secure resources for implementation. The availability, development, and stewardship of financial, organizational, and physical resources will be key to the growth and success of the Center. Funds, staff, partnerships, and other capabilities must be available and not spread too thinly.

Resourcing will be founded on two over-arching strategic imperatives: securing resources to deliver ICBA's mission and investing in development.

8.1 Securing resources to deliver on our mission

To implement the ICBA Strategy 2013-2023 and to achieve ICBA's strategic goals, the Center will nurture existing donors and partners, generate additional financial resources, and access new sources of funding.

The Center will strengthen its culture of communicating with core donors through direct and indirect interactions that focus on our progress and challenges, while seeking guidance on emerging opportunities. For competitive and targeted fundraising, the Center will sharpen its capacity and processes for developing high-quality project proposals.

ICBA will show leadership in communicating that investment in finding solutions for the challenges in marginal environments is warranted to achieve development impact; that it pays to invest in ICBA

and why our research innovations can increase the chances of finding solutions. We will show quantitatively and qualitatively how investments in ICBA and its partners can deliver outputs that contribute to food and nutrition, the environment, income, and water security in marginal environments.

In the first half of 2013 the Center will develop a marketing communications plan which will support ICBA's Vision, Mission, and Strategic Impacts. A marketing communications plan will inspire and inform stakeholders, partners, and donors of the value and opportunities in marginal environments. It will enhance ICBA's reputation and increase demand for and support of ICBA's programs and services.

Securing resources

Key thrusts

- Nurture existing donors and partners.
- Generate additional financial resources.
- Access new sources of funding.

8.2 Organizational development

8.2.1 Strategic staffing

ICBA staff is a valuable resource in realizing the vision set out in the ICBA Strategy 2013-2023. Highly experienced senior scientists will lead research, supported by a substantial number of other scientists and post-doctoral fellows. ICBA will encourage creative staffing arrangements to support research, including full- and part-time employment, secondments, internships, fellowships, and joint appointments with partner institutions.

Staff diversity and gender balance will be critical in nurturing a healthy and vibrant research culture. To achieve our gender and diversity goals, we will develop a gender and diversity strategic plan in 2013. Management and staff will fully participate and will work with the human resources unit in planning and carrying out the gender and diversity strategy.

8.2.2 Partnership culture

Partnerships – among individuals, groups and organizations – are essential if ICBA's work to address the problems of food, nutrition, poverty, and water insecurity in marginal environments is to have an impact. Partnerships require mutual respect, transparency, accountability, shared values, honesty, communication that is understood by all interested parties, cooperation, and opportunities to share and learn. Partnerships among multiple actors with different strengths are at the center of ICBA's approach to research for development and our Strategy emphasizes a culture of working through partnerships.

8.2.3 Change management

Innovation is key to ICBA's development and success; it is central to our research, project implementation, and organizational setup. Innovation is embedded in the Strategy and will manifest itself in the structure and culture of ICBA over the coming years. We will invest time and resources in networks, forums, platforms, and communities of practice that will challenge our thinking, open up new opportunities, and align our actions with our mission. The Center will invest in change to ensure our structure is aligned with our culture, values, people, and behaviors.

“A resilient organization has the capacity to anticipate, learn and adapt.”

Change management

Key thrusts

- Redefine functions where required.
- Clarify roles and responsibilities.
- Lead by example (senior leadership style).
- Communicate internally to keep staff, management, and the Board informed with the right information at the right time, and to solicit input and feedback.
- Establish appropriate rewards and incentives.
- Monitor and evaluate the change process, learning and taking ameliorative action when necessary.

8.2.4 Monitoring and evaluation

Monitoring, evaluation, and impact assessment are priorities to support both organizational learning, and communication and marketing. Monitoring and evaluation (M&E) will provide timely data on program performance, results, and impact. This will allow ICBA to make evidence-based decisions on how best to implement our Strategy over time, and to continuously improve our performance.

The five criteria that will be used to monitor and evaluate our Strategy are set out below. ICBA will develop both qualitative and quantitative indicators to assess our achievements and capture the changes that have occurred as a result of our work. The indicators will be measured and monitored regularly. The outcomes and recommendations will be reviewed by ICBA management and fed into decision-making processes. In addition, every three years, the M&E results will be summarized and reported externally.

Monitoring and evaluation criteria

1. Relevance (doing the right thing)

- To what extent are the objectives identified in the Strategy still valid?
- Are the outputs of the Strategy consistent with the intended impacts and effects?

ICBA

2. Effectiveness (achieving objectives)

- To what extent are the objectives achieved/likely to be achieved?
- What are the major factors influencing the achievement of the objectives?

3. Efficiency (doing things right/use of resources)

- Are activities cost efficient? Are activities achieved on time?
- Are the activities/programs implemented in the most efficient way?

4. Impact (outreach and pace of the Strategy output)

- What is the result of activities/programs? How are stakeholders/clients affected?
- What real difference has the activity made to the beneficiaries?

5. Sustainability (long-term effect)

- Will the benefits of the program continue after funding ceases?
- What are the major factors influencing the achievement of sustainability of the activities/program?

8.2.5 Organizational efficiency

ICBA will strengthen internal capacity for financial analysis in order to base strategic decisions on accurate, up-to-date information on the Center's financial circumstances. In particular, there will be improvements to transparency in the internal allocation of resources and costs, and budget discipline. To ensure this efficiency, the Center is reviewing all its business processes and policies. ICBA will put in place an improved financial system, and standard operating procedures to be developed by Ernst and Young.

As an organization that generates and synthesizes knowledge, which we then share and help apply, information is one of ICBA's most valuable outputs. Information, as we know it today, comes in both electronic and physical form. This means managing information throughout the information lifecycle regardless of source or format – data, paper documents, electronic documents, audio, video or other format. The Center will invest in an information management system that serves both the needs of the Center and its partners and, through the change management process, will invest in cultural change to become a knowledge-sharing organization.

9 Staging the Strategy

The new Strategy implies changes to ICBA's research priorities, structure, and the way the Center operates. The futures scenario work undertaken to prepare the Strategy considered various options. One option was for ICBA to continue its very successful current course. The preferred option, given anticipated global environmental and technological changes in the mid- and long-term, is to expand on ICBA's present mandate, move into new areas and types of research, and shift toward a partnership organizational structure.

The transition to a new mandate will require new skill sets and a more defined approach to partnerships. Change will need to be paced and tackled in stages. Staging and pacing refers to the sequence and speed of strategic change, and identifies decision points, as there are various paths change could take depending on available resources, urgency, and the need for credibility and early wins.

The timeframes are indicative and less concrete towards the end of 2017. Beginning in 2013, ICBA will produce three-year rolling medium-term plans that clearly set out outputs and outcomes. The three-year operational plans will indicate timeframes in detail.

ICBA commits to external reviews of its research and management programs in 2017 and 2022. In the intervening years, management will identify and commission internal reviews of specific research and/or administrative areas.

Staging and pacing

Key thrusts

2013

- Identify and plan research gaps and opportunities.
- Partnership and Capacity Plan.
- Investment in staff and impact assessment.
- Adoption of results-based management.

2015

- ICBA OMICs program (genomics, proteomics, and metabolomics).
- International conference on agriculture in marginal environments.
- Launch of the Knowledge Hub.
- Agri-business incubator set up.

2017

- Review geographic scope.
- Center of Excellence.
- Research program review.





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