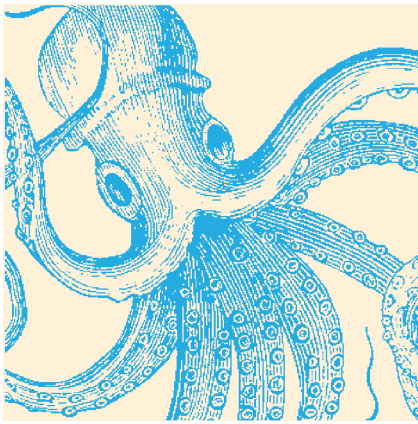




MILANO
FEEDING THE PLANET
ENERGY FOR LIFE

 **CLUSTER**



Guidelines

CLUSTER GUIDELINES

FOREWORD.....	3
CLUSTER EXHIBITION SPACES.....	4
NINE CLUSTERS FOR THEME DEVELOPMENT.....	5
ITINERARIES.....	20
CLUSTERS: THE VALUE ADDED	21
COLLABORATIVE APPROACH.....	22
PARTICIPATION PROCESS	24
ESTIMATED COSTS OF PARTICIPATION	26
HOW TO APPLY – OFFICIAL PROCEDURES.....	28
GLOSSARY.....	31



FOREWORD

As explained in the Theme Guide, Expo Milano 2015 will introduce significant innovations in terms of type and placement of exhibition spaces. Countries will not be grouped by geography but in accordance with elements pertaining to the Expo Theme “Feeding the Planet, Energy for Life”. Expo Milano 2015 S.p.A. (“Organizer”) forecasts that 70 out of the 130 expected participating Countries will be located in the Clusters, making this participation model a key element in the thematic development of the Expo.

These Guidelines provide information on the Clusters for the Participants intending to participate in Expo Milano 2015 with this model. The Cluster Guidelines are to be read in conjunction with the new Theme Guide, the previously issued Special Regulations, and with other publications and annexes that the Organizer will issue on a yearly basis.

With the Cluster Model, Expo will encourage Countries and visitors to compare different cultures and traditions and their solutions to common challenges in the fields of agriculture, nutrition, sustainable development and wellbeing.

The following titles for the 9 Clusters have been conceptualized with the support of the interested Countries and the scientific collaboration of the Faculty of Agriculture of the University of Milan:

THEMATIC IDENTITY

- **Agriculture and Nutrition in Arid Zones:**
The Challenge of Water Scarcity and Climate Change
- **Islands, Sea and Food**
- **Bio-Mediterraneum:**
Health, Beauty and Harmony

FOOD CHAIN

- **Rice:** Abundance and Security
- **Cocoa:** The Food of Gods
- **Coffee:** The Engine of Ideas
- **Fruits and Legumes**
- **Cereals and Tubers:**
Old and New Crops
- **The World of Spices**



CLUSTER EXHIBITION SPACES

The Organizer will develop **9 Exhibition Areas dedicated to the Clusters**. Clusters will be located throughout the entire Expo Site. The size of the Cluster will range from a minimum of about 2,500 square metres to a maximum of about 7,400 square metres. **More than half of the Cluster lot will be devoted to a Common Area, while Countries' Individual Exhibition Spaces inside the Clusters will be developed on two floors.**

Expo Milano 2015 holds **environmental sustainability as a core value** of its mission and operations. The Clusters, as well as the whole site, will be designed in an innovative and sustainable fashion.

Each Cluster will be characterized by **a Common Area for events, exhibitions, food service and commercial activities**, shared by the Participating Countries. **The Common Space is the most innovative feature of these pavilions**, allowing Countries to **extend and enhance their presence** as well as ensuring a **more extensive and elaborate development of the Theme**. It will be designed with the collaboration of the world's finest architects and have clear focus on **sustainability**.

A Theme Statement for the Common Area of the Cluster will be formulated by the Organizer in agreement with all the Countries participating in the Cluster.

Each Country will also have its own distinctive Individual Exhibition Space of 125 square metres (250 square metres maximum on two floors) defined as a "*standard area*", where it can express its rich and unique contribution to the Theme of Expo Milano 2015. Countries also have the option of requesting additional space.

NINE CLUSTERS FOR THEME DEVELOPMENT

The Organizer's **Collaborative Approach** is based on the conviction that the most effective, relevant, and sustainable **proposals come from the Countries themselves**.

Countries' insights into their own specific social and political contexts are a necessary tool for understanding community needs and envisioning inventive solutions to local and global problems. **Through partnership with the Participants, the Organizer provides an innovative framework to carefully and systematically transform these insights into action.** The Cluster approach offers Countries the opportunity to shape the future of their communities and to represent skills that will empower them to grow as individuals and leaders within a global perspective.

Dialogue with Countries has led to the identification of 9 Clusters ensuring a broad and detailed development of the Expo Theme and making it possible for Countries to express and enhance biodiversity in every detail.





Rice: Abundance and Security

Rice is the staple food of nearly 3 billion people, about half the world population. No wonder it symbolizes abundance, as do most grains: "plant one seed, harvest many". Kept dry, rice can be stored almost indefinitely.

Therefore, it also symbolizes security, providing a hedge against future hunger. In Asian traditional cultures, rice is the standard of wealth rather than gold or money.

Rice (*Oryza spp.*) is one of the most widespread crops, representing **one of the most adaptable and versatile cropping systems**. It is the staple food for more than 3 billion people, **more than half of the world population, and it is vital for hundreds of millions of Asians, Africans and Latin Americans living in the tropics and subtropics**. For most of the fast growing world population, rice will continue to be the primary source of energy. It symbolizes abundance and security, providing insurance against future hunger.

Rice is cultivated all over the world. Many countries are focusing the development of their agriculture sector on cereals and especially rice cultivation. Rice can successfully be cultivated under a large range of agro-ecological conditions, from naturally drained upland fields to continuously flooded or submerged deep water (floating rice) lowland fields. Over the 10,000 years that humanity has cultivated rice, hundreds of thousands of different ecotypes, landraces and varieties have been created or selected to suit different environmental conditions and different tastes and preferences.

Recent rice improvements have provided varieties resistant to certain diseases and insect pests, and requiring growth cycles of only 3,5 to 4 months (early varieties). Sustainable agricultural techniques have been designed to improve rice crop yields both for intensive large-scale farming and small-scale labour intensive farming. **Improved rice production technologies, required to face global problems of food security, have created and increased demand for scientists, educators, and food production specialists along the entire rice-based food chain.** Sustainable intensification of rice production at farm/community level and appropriate rice agro-food policies on the national/global level seem today essential for food security and poverty reduction.

This Cluster is located along and faces onto the main Expo boulevard, the Decumanus, and at the present state of planning has a lot area of 3,548 square metres.

Coffee: The Engine of Ideas

Once upon a time... a physician called Sheik Omar had a disagreement with the ruler and was expelled from his home town of Mokka in Yemen. As he travelled through the Arabian Peninsula he happened to boil red beans from a nearby bush. Surprised by the stimulant effects of the drink, he began using it as a drug for his patients and became so famous that the once unfriendly ruler invited Omar back to his country.

The popularity of the black brew spread through Europe, and after the historical "Boston Tea Party" in 1773, colonists in America abandoned tea in favour of coffee.

Through history, cafés have sprung up where people meet, talk, exchange ideas and discuss the issues of their times.

"No one can understand the truth until he drinks of coffee goodness" (Sheik Abd-al-Kadir)

Coffee (*Coffea spp.*) is today one of the most important drinks in the world. It is also a source of income and development for many countries in the world. Several countries are including coffee cultivation in their agricultural development plans. Most commercial green coffee is either the *Coffea arabica* or *Coffea canephora* species, which are referred to as Arabica and Robusta, respectively. Arabica coffee beans are cultivated in Latin America, Eastern Africa, Arabia, or Asia. Robusta coffee beans are grown in Western and Central Africa, throughout Southeast Asia, and to some extent in Brazil. Beans from different countries or regions can usually be distinguished by differences in flavour, aroma and acidity. These taste characteristics are dependent not only on the growing region, but also on genetic subspecies (varietals) and processing. Varietals are generally known by the region in which they are grown, such as Colombian coffee, Java, and Kona.

Coffee is mainly grown as a beverage, though the plant residues can provide fuel (coffee charcoal or wood) and good mulch. Once ripe, coffee berries are picked, processed, and dried. The seeds are then roasted to varying degrees, depending on the desired flavour. They are then ground and brewed to create coffee. Originally, coffee farming was done in the shade of trees that provided a habitat for many animals and insects. This method is commonly referred to as the traditional shaded method, or "shade-grown". Starting in the 1970s, many farmers switched their production method to sun cultivation, in which coffee is grown in rows under full sun with little or no forest canopy. This causes berries to ripen more rapidly and bushes to produce higher yields.



After petroleum, coffee is the second most traded product in the world. In 2009 Brazil was the world leader in production of green coffee, followed by Vietnam, Colombia and Indonesia.

The Cluster is located along and faces onto the main Expo boulevard, the Decumanus, and is currently allotted a lot area of 4,435 square metres.

Cocoa: The Food of Gods



Once upon a time... an Aztec princess, who was left to guard a great treasure while her husband was away to defend the empire, was attacked by enemies. Captured and tortured, she did not reveal where the treasure was hidden. The cocoa plant sprouted from her blood spilling on the soil, and since then the fruit has been regarded as hiding a great treasure in its seeds, as bitter as the suffering of love, as strong as virtue, as red as blood.

Theobroma cocoa has been cultivated for thousands of years now, originally by Aztecs and Mayans. Long time before they invented sugar, the Aztecs mixed the extract of the Theobroma cocoa bean with hot chili pepper to make a bracing drink called "xocolatl".

Used in food, drinks, rituals, and even as a form of currency, cocoa became more and more a symbol of energy, fertility and life.

And... the food of the gods might, just might, be good for you...

Theobroma cocoa is Greek for "the food of the gods," and the common names are taken from the Aztec and Mayan languages. **The Aztecs considered cocoa to be man's inheritance from Quetzalcoatl, the god of the air.** Cocoa seeds were made into a drink with the addition of maize (*Zea mays*) and vanilla (*Vanilla spp.*) or into a sauce (mole) with maize and chili peppers (*Capsicum spp.*).

On his fourth journey, Columbus intercepted a canoe with cocoa, but it was Cortez who observed its use and carried back beans (seeds) to Spain, where it rapidly became a drink for the wealthy by combining cocoa powder (bitter), maize, and vanilla with sugar.

Cocoa has been known as a beverage crop even before tea or coffee. People around the world enjoy chocolate in thousands of different forms. **More than 30 Developing Countries produce cocoa, representing a main asset for their economies. Popular to the tune of almost \$75 billion annually,**

chocolate begins as a tiny blossom on a small tropical tree. Most of the cocoa grown in Africa is of the *Forastero* (Amelonado) variety. The other two varieties of cocoa beans, *Criollo* and *Trinitario*, are grown mainly in Central and South America, and provide a more complex flavour which is ideal for darker chocolates. Cultivars fall into three categories, one of two botanical varieties or their hybrids:

1. The word *Criollo* means “native”, as it is distributed from southern Mexico to South America, north and west of the Andes. Fruits are oblong to ovoid in shape, tapering to a point, and have five or ten longitudinal ridges; seeds have yellowish white cotyledons.

2. *Forastero* means “foreign”, as it was introduced to Mesoamerica from the Amazon basin. The fruits are ellipsoid to round, lacking a pointed tip, and may be furrowed but have a smooth surface otherwise. The cotyledons are violet. Forasteros are higher yielding and more vigorous than criollos, but considered to be of inferior quality. **About 80 to 90 per cent of cacao production is based on the forastero form, due to its superior yield, vigour, and disease resistance.** ‘Amelonado’ is the major West African cultivar, and the predominant type grown worldwide.

3. *Trinitario* (hybrids of criollo and forastero forms). These hybrids, which originated in Trinidad, are sometimes classified as a subgroup of the forastero. Since they are hybrids, they are highly variable from seed, unless the seed is derived from known crosses.

The Cluster is located along and faces onto the main Expo boulevard, the Decumanus, and at the present state of planning has a lot area of 3,548 square metres.

Cereals and Tubers: Old and New Crops

Cereals are the staple food of much of humanity, for their nutritional properties, moderate cost and ability to immediately satisfy hunger. Cereals are historically associated with the origin of civilization and culture of all people.

Quinoa has a long and distinguished history in South America, cultivated in the Andean highlands since 3000 BC. In the Quechua language of the Incas, quinoa is the chisiya mama or “mother grain”.

Nowadays 15 crop plants provide 90 per cent of the world’s food energy intake; moreover rice, maize and wheat are the staples for over 4 billion





people. The staple food in different parts of the world is a function of weather patterns, local terrain, farming constraints, acquired tastes and ecosystems. Crop plants can be part of a diversification strategy to cope with climate change in order to achieve food security; in addition most of them are sources for genetic diversity, fostering the development of new varieties through breeding or genetic engineering.

Most of the global human population lives on a diet based on one or more of the following staples: rice, wheat, maize (corn), millet, sorghum, roots and tubers (potatoes, cassava, yams and taro). Although there are potentially over 10,000 cereal species, only a few have been widely cultivated over the past 2000 years. Most of them are currently underutilized species, i.e., “species with under-exploited potential for contribution to food security, health, income generation, and environmental services”. Nevertheless these crops can help meet a major worldwide challenge: to sustainably increase crop production in marginal lands that are mostly unfit for growing maize, wheat or other high yield crops but that must be used for sustainable food production in the next two decades to respond to growing demand. Although not the “most underutilized” crops, fonio, pearl and finger millet, African rice *Oryza glaberrima*, sorghum and durum wheat do not benefit from the same level of knowledge and genomic resources as model crop species.

Root and tuber crops are second only in importance to cereals as a global source of carbohydrates. They are important staples for over 1 billion people in the developing world and also provide a number of minerals and essential vitamins. Tubers and roots were dispersed by Portuguese and Spanish missionaries and explorers, and by Arab traders. Historically, very little attention has been paid to root crops by policy-makers and researchers, as most of their efforts have been concentrated on cash crops or the more familiar grains. However, considering the quantities of root crops consumed a day, their protein contribution is particularly significant.

Nearly 4,000 different varieties of potato can be found in the Andes, and scientists, economists, and historians are racing to record and preserve the genetic diversity to ensure it does not disappear as suddenly as the Inca Empire did. Andean native potatoes have the capacity to grow in extremely harsh conditions. The many different varieties are also interesting from a nutritional perspective. Genetic diversity within these species is very large and could result from the high ecological and cultural variability that characterizes the Andean area.

In most traditional diets, vegetable soups, meat, groundnuts, and grain legumes are good sources of protein and are frequently used to supplement root crops and compensate for their protein deficiencies

In addition to common cereals, other cereal-like species provide an important contribution to human and animal diet, such as quinoa, buckwheat, and amaranth and represent potential solutions to significant nutritional and agricultural challenges. The nutritional value of quinoa, for instance, has been known for a long time to be superior to traditional cereals and is, in fact, superior to milk solids in feeding trials.

The Cluster is located along and faces onto the main Expo boulevard, the Decumanus. At the current planning stage, it occupies a lot area of 3,820 square metres.

Bio-Mediterraneum: Health, Beauty and Harmony

Mediterranean food is one of those cultural elements that have felicitously helped to preserve the special nature of the Mediterranean, mostly a food-based landscape.

In the Mediterranean, the meal is not merely an act of nourishment, but draws in many aspects of cultural and social life, raised to a level of sanctity.

Three continents meet in the Mediterranean: Europe, Africa and Asia. It is a dynamic interface and a melting pot of civilizations. It is a region of incomparable lands where histories, societies and natural environments are closely blended. There are about thirty States situated around this nearly landlocked sea, with more than 450 million inhabitants, a third of whom dwell on the coasts. The Mediterranean hosts an enormous population in comparison with its tiny size (0.7% of the total surface area of oceans and seas). All countries around the Mediterranean basin share much in terms of character and lifestyle.

Mediterranean foods have evolved and blended over time, producing the wide variety of cuisines that characterizes the region. One of the essential features of the Mediterranean dietary model, which has stood up to the constraints of modern life, is the time spent on meals and the convivial social practices associated with them. Even today, in all Mediterranean countries, people spend more time preparing and eating food than anywhere else on earth.

Cultures following the Mediterranean diet use different types of cultivated and spontaneous plants (some of them came from other regions), thus promoting the use and conservation of agricultural biodiversity.

Mediterranean cuisine is based on a trinity: wheat, olives and grapes.





Wheat (*Triticum spp.*) together with barley (*Hordeum spp.*), are the universal cereals of old world agriculture and were the principal grain stock for the Neolithic agriculture. They are considered the principal 'founder crops' starting food production, assuming the role of staples, in Europe and West Asia. They were domesticated in the Fertile Crescent.

The olive (*Olea europaea L.*) is the most prominent and important fruit tree of the Mediterranean basin. Olives grow in typical Mediterranean climates and the cultivated cultivars and closely related wild oleaster forms are considered as reliable indicators of Mediterranean environment, where the olive was domesticated.

Together with the olive, grapes (*Vitis vinifera L.*) comprise the oldest group of fruiting plants around which horticulture was developed in the Mediterranean basin.

These pillars of the Mediterranean **diet are associated mainly with legumes** (beans, chickpeas, broad beans and lentils), **dried and fresh vegetables** (tomatoes first and foremost), **fruit** (citrus, figs, dates, pomegranates, apricots), and **nuts** (almonds, hazelnuts, pistachios).

Mediterranean foods not only offer considerable health benefits but their cultivation is also perfectly in line with environmental sustainability criteria. Indeed, the various food groups score well not only in terms of their health benefits but also regarding their environmental impact.

The natural and agricultural biodiversity peculiar to the Mediterranean has been the cradle for many civilizations and is well known all over the world through the Mediterranean diet. Vines and olive and fig trees are part of the shared culture of the Mediterranean peoples. Consumer behaviour is reflected in the consumption of 571 kilograms of fresh and processed fruit and vegetables per capita in the fifteen countries in the south and east Mediterranean and of 888 kilograms in the sixteen southern EU countries, compared to a worldwide average of 522 kilos. Fruit and vegetables account for 35% of agricultural exports in southern and eastern Mediterranean countries and 16% for southern EU countries.

The Mediterranean diet is as diverse as the countries bordering the Mediterranean Sea, where **food is a key component of identity and emphasis is placed on freshness, balance, and the pleasure of eating.**

This Cluster is currently assigned a lot measuring 7,330 square metres.

The World of Spices

For the people of the Middle Ages, spices were envoys from a fabled world. The aroma of spices was believed to be a breath wafted from Paradise over the human world.

"No medieval writer could envision Paradise without the smell or taste of spices" (The Medieval Cook, Bridget Henisch).

Spices are often referred to as the non-leafy parts of plants which are used for seasoning and/or flavouring food. They are used as medicines, perfumes, preservatives and even in sacred rituals. They derive from various parts of the plant – seeds, fruits, roots, bark, stems, rhizomes, or flowers (like saffron) – and are normally dried. On the contrary, leafy parts are generally considered herbs, identified as a sub-set of spices. Fresh or dried, they are used in small amounts for flavouring, aroma or colour in cooking.

Herbs and spices hold a special place in world trade. Emperors, kings, senators and the aristocracy made them the mostly highly prized crops of ancient trade routes. The vibrant markets of Babylon and Petra amassed great fortunes by their proximity to the routes used by merchants. The spice trade was so important that it was a catalyst in many historical events, discoveries, wars and inventions. **It has even been cited as an important element in the spread of knowledge and culture. Some historians have suggested that the lucrative trade of spices was in large part responsible for many important developments in navigation, and the exploration and discovery of many parts of the world.**

Spices had many uses but only grew in a few places. Trade was lucrative because demand outstripped supply – spice routes were controlled to restrict supply and raise prices. Merchants grew wealthy and set up networks to acquire and transport spices. Cities and ports that lay along the routes captured revenue from the trade through taxes, tolls and their own flourishing spice markets. Political influence came to bear and wars, conquests and colonial campaigns were waged to control the spice trade.

Herbs and spices are ideal crops for international trade. **They are normally exported in a raw or dried form and are usually easy to store and transport.** Consequently they **do not need expensive infrastructure** such as cold chain management or advanced storage facilities and they are not particularly time sensitive. In addition, they are recognized as high value products that can be produced relatively easily on small farms and do not require investments in advanced technology and machinery. In the last decade, **the annual average growth in spice production was 4.3% and trade in spices grew at an average**



of 5.8% per year. More sophisticated consumers, health-conscious eating habits (and also the rise in the amount of processed foods that use herbs and spices as inputs), rising incomes, increased world trade and globalization are driving this new era of profitability. Total global production of spices has rapidly increased since the 1960s, from 1,7 million metric tons in 1965 to 6,6 million metric tons in 2005.

At the current state of planning this Cluster has a lot area of 4,740 square metres.

Agriculture and Nutrition in Arid Zones: The Challenge of Water Scarcity and Climate Change

As a matter of fact, an ordinary desert supports a much greater variety of plants than does either a forest or a prairie. (Ellsworth Huntington)

What makes the desert beautiful is that somewhere it hides a well. (Antoine de Saint-Exupéry)

One-fifth of the world's population lives in areas of water scarcity. Arid environments are extremely diverse in terms of their land forms, soils, fauna, flora, water balances, and human activities. Because of this diversity, no practical definition of arid environments can be derived. The one binding condition for arid regions is ... their aridity. Aridity is usually expressed by a climatic aridity index that is a function of **rainfall and temperature**. Based on this index three arid zones can be delineated: hyper-arid, arid, and semi-arid.

The hyper-arid zone comprises dry land areas without vegetation, with the exception of a few scattered shrubs. True nomadic pastoralism is frequently practiced in these areas. Annual rainfall is low, rarely exceeding 100 millimetres. The rains are infrequent and irregular, sometimes with no rain over long periods of several years.

The arid zone is characterized by pastoralism and no farming except with irrigation. For the most part, the native vegetation is sparse, being comprised of annual and perennial grasses and other herbaceous vegetation, and shrubs and small trees. There is high rainfall variability, with annual amounts ranging between 100 and 300 millimetres.

The semi-arid zone can support rain-fed agriculture with varying but sustained



levels of production. Sedentary livestock production also occurs. Native vegetation is represented by a variety of species, such as grasses and grass-like plants, forbes and half-shrubs, and shrubs and trees. Annual precipitation varies from 300-600 to 700-800 millimetres for summer rains, and from 200-250 to 450-500 millimetres for winter rains.

Based on climate change projections, greater variability of rainfall and more droughts are expected in arid areas. The challenge of water scarcity and climate change requires efforts to provide better quality of life and adequate nutrition.

The constant interaction between climatic factors and human activities is often decisive in triggering desertification processes. Nevertheless, in certain parts of the world, desertification processes occur in the absence of human activities, where such activities are negligible because of low population density. The natural recurring drought processes, which may be caused by global climatic changes that are difficult to evaluate, may lead to land degradation, thus endangering the peoples in and around those areas, or preventing future land use. It is essential to help local communities confront the situation and adapt to it without making it worse.

Rainwater Harvesting (RWH), Soil Water Conservation (SWC) and Rangeland Management have been promoted and used in many regions of the world as an approach in integrated water resource management. Much of the progress in rain fed agriculture in countries is due to local adaptive research and innovative dialogue which have allowed traditional and introduced techniques to be adapted to local conditions. Often, **the efficiency of land rehabilitation and conservation was increased not by replacing traditional practices with completely different ones, but by identifying elements within these practices that could be improved in the local context.**

This Cluster is currently assigned to a lot area of 4,030 square metres.

Islands, Sea and Food

The first inhabitants on the islands of the Pacific came from Southeast Asia more than 20,000 years ago. They were hunters and gatherers who depended on the plentiful supply of seafood from the ocean that surrounded them. They became known for the great fishing skills they developed.

Island countries are extremely varied in terms of dimensions and natural resources.





There are thousands of islands in the South Pacific Ocean. New islanders who arrived around 3000 B.C. are believed to have introduced agriculture to the Pacific region. Bringing with them seeds and livestock from the Asian mainland, they planted and harvested crops and bred animals. They introduced foods including bananas, coconuts, sweet potatoes, yams, and breadfruit. European explorers of the 1500s brought more new foods to the islands. These included carrots, potatoes, turnips, beef cattle, and sheep. It took a long time until the Western world showed serious interest in the Pacific Islands.

Seafood, particularly fish, has long been the primary dietary staple and source of protein for Pacific Islanders. Nearly 300 varieties of fish are found in the waters of Polynesia alone. Fish is typically eaten raw, poached, or grilled. Root vegetables and tubers, such as taro (also known as a cocoyam), sweet potatoes, and yams, are also central to the diet of the region. A wide variety of tropical fruits are also eaten in large quantities.

The Western Indian Ocean is characterized by rich, diverse and distinct marine and coastal ecosystem. These ecosystems sustain a great diversity of marine life and represent an important food source for most coastal communities. In the island countries of the Western Indian Ocean the land is mainly used for agriculture, although this has been steadily declining due to pressures from population growth and industrial development. The pattern of agriculture varies among the islands depending on climatic conditions for producing particular crops. The islands, however, remain net importers of cereals and staples such as rice and potatoes. Fisheries contribute significantly to the economies of the countries in the region. They also have positive spin-off effects on employment opportunities, income generation, food security, foreign exchange earnings, as well as on other economic sectors and government revenue. Fisheries of the western Indian Ocean are known to be nearly fully exploited. 5,375 species of fish occur in the Indian Ocean and at least 1,607 species are commercially exploited.

The Caribbean region comprises more than 7,000 islands, reefs and cays. The Caribbean islands are remarkable for the diversity of their animals, fungi and plants, and have exceptionally diverse terrestrial and marine ecosystems, ranging from highland cloud forests to cactus scrublands. Some Caribbean islands have terrain that Europeans found suitable for cultivation. Tobacco was an important early crop during the colonial era, but was eventually overtaken by sugarcane production as the region's staple crop. Sugar was produced from sugarcane for export to Europe. The tropical plantation system thus came to dominate Caribbean settlement.

Island countries also have greatly varying economies and levels of development. Some depend on the agricultural sector, on forestry and fishery,

while others rely mainly on the tourism sector.

Fishery offers good income opportunities. The consumption of fish in the island countries is very high, and in several cases fish represents 70% of total exports.

Increasing coastal flooding, soil salinity and erosion may contaminate and reduce the productive agricultural surfaces and threaten the food security of the island population. Agricultural production depends largely on summer precipitation. To overcome obstacles to development in the rural sector investments need to be directed to the recovery and the construction of rural infrastructures such as water management systems, rural transportation, warehousing and cereals processing facilities. Furthermore, diversified agricultural systems are more likely to withstand the pressures of climate change.

Food security and the environment can be improved by strengthening some of the traditional local food systems that have demonstrated their effectiveness in mitigating the effects of calamities. Small traditional systems, including local fishing operations or other food producers, could ensure better nutrition and respect for environment.

According to FAO, island countries need to enhance the contribution of their small enterprises to national development and the reduction of poverty, investing more resources to support them. Widening the contribution of small fishermen to the reduction of poverty and to food security could strengthen fishing capacity, while improvements in local skills and traditional knowledge through a modern, scientific orientation could provide cost-effective solutions to restore traditional food systems and thus increasing economic opportunities.

At the present state of planning this Cluster has a lot area of 2,535 square metres.

Fruits and Legumes

Fruit appears in myths from around the world. Often it is a symbol of abundance, associated with goddesses of fertility, plenty, and the harvest. Sometimes, however, fruit represents earthly pleasures, gluttony, and temptation.

Legumes symbolize coins with their small round shapes. Legumes such as peas, beans and lentils, increase in size when cooked. This signifies that cooked legumes will provide added financial benefits.





Legumes, nuts, fruits and vegetables are a significant part of the daily diet of most human beings around the world, especially as sources of vitamins. Fruits and vegetables can contribute to a healthy lifestyle by providing vitamin C, A, E, thiamine (B1), niacin (B3), pyridoxine (B6), folic acid (B9), minerals, and fibre. Fruits and vegetables also supply magnesium and iron. Legume vegetables and tree nuts (such as almonds, filberts, pecans, pistachios, and walnuts) contribute only moderate amounts of protein per capita in the average diet but their proteins are of high quality and they have a high content of essential amino acids. Nuts are a good source of essential fatty acids, fibre, vitamin E, and minerals. Other important nutrients supplied by fruits and vegetables include riboflavin (B2), zinc, calcium, potassium, and phosphorus.

Fruit trees have held a special place in the annals of human history and the stories of our ancestors from time immemorial. They have become objects of legend and wonder. While fruit-bearing trees may play a central role in myths, they also have become a driver for commerce.

People have been growing legumes as crops for 6000 years. In Switzerland, the lake dwellers who lived between 5000 and 4000 B.C. cultivated peas (*Pisum* sp.) and a dwarf field bean, both legumes. In China, farmers began cultivating soybeans between 3000 and 2000 B.C. Legumes like lentils were also components of the cropping systems of ancient Egypt, and fava beans are mentioned in the Bible.

Most developments and improvements in fruits have been a result of selection and hybridization, but there are still many wild fruits used worldwide. Wild fruits in America were first cultivated after European colonization. Many of the fruits grown in modern times trace their origin to the same part of Asia, home of the earliest civilizations. This is true for most of the Rosaceae family, which features a large number of our most popular fruits: apples, cherries, plums, pears, apricots, raspberries, blackberries and strawberries. Plums and apples still exist in the wild state in the mountains of Western and Central Asia.

Fruit plants became concentrated in the Mediterranean region, where the climate proved ideal for growing them. There they were improved and perfected. The Egyptians, Greeks and Romans knew many varieties. The Middle Ages did not extinguish the knowledge and experience that had been gained in ancient times. **The early settlers brought fruit seeds and plants to America and these have spread over the continent. Commercial fruit growing then became increasing important, particularly on the Pacific Coast.**

In temperate climates fruits are considered more as an agreeable addition to the diet than as a staple food. However, in tropical areas fruits may often be the main, and even the only, source of food. Hundreds of tropical and

subtropical fruits exist, but only some fifty are well known throughout most of the world.

Legumes were mainly domesticated between the Fertile Crescent and the Mediterranean area, except for the soybean (Central–Southern Asia) and bean (Central America). **Food legume crops** represent an important component of agricultural food crops consumed in developing countries and **are considered a vital crop for achieving food and nutritional security** for both poor producers and consumers. As a matter of fact, in dietary terms, food legumes complement cereal crops as a source of protein and minerals while they serve as a rotational crop with cereals, reducing soil pathogens and supplying nitrogen to the cereal crop. **Food legumes also serve as a feed crop in many farming systems and fetch higher prices compared to cereals and are increasingly grown to supplement farmers' incomes.** The important and diverse role played by food legumes in the farming systems and in diets of poor people **makes them ideal crops for achieving the development goals of "reducing poverty and hunger, improving human health and nutrition, and enhancing ecosystem resilience"**.

The legumes are also very important from a nutritional point of view because they are a widely available vegetable food containing good quantities of protein and B vitamins in addition to carbohydrates. Some legumes, such as groundnuts and soybeans, are also rich in oil. They usually supplement very well the predominantly carbohydrate diet based on cereals.¹

This Cluster has currently been assigned a lot area of 7,404 square metres.

¹ Expo Milano 2015 wishes to thank the University of Milan, Faculty of Agriculture, for its precious scientific and technical contributions and research in providing this information.



ITINERARIES

One of the most important elements of the “visitor experience” on which the Expo Milano 2015 concept is based is the creation of a wide array of **Thematic Itineraries**.

Conceived as an **innovative approach to visiting the Expo**, the Thematic Itineraries seek to capture the interest of all types of visitors, who will have the opportunity to choose from several possible routes through the Expo and focus their attention on a specific aspect of the Theme that interests them.

Thematic Itineraries will extend across the Site to accompany visitors on a multi-platform and multimedia experience of Expo Milano 2015. The itineraries will be developed to suit various interests and needs in order to allow visitors to plan and personalize the most appropriate routes through the Site.

Smart Electronic Tickets, which interact with sensors in the Expo Smart City, act as a guide and tool for interaction during the Expo Site tour. They provide specific information geared to the visitor and indicate the path to follow. The use of technological devices and infrastructure will allow for a more interest-focused visit to the Exhibition Site while also serving as a means for directing flows and alleviating potential crowding.

Visitors to the Site will thus be equipped with navigation tools that inform them, for example, how to reach parking areas, avoid queues, where to eat and how to book their visits. These tools will trace out a web of immaterial linkages between Thematic Areas, Participants’ spaces and Event Areas, highlighting elements that reflect a specific perspective on Theme.

A central element of the Itineraries will be the Clusters. A number of itineraries start at the Clusters, linking to all the stand-alone Self-built Exhibition Spaces that touch upon similar aspects of the Theme. All Participants will be required, as part of the Theme Development of their Exhibition Space, to join a certain number of Itineraries. Further information on thematic aspects of the Itineraries and their connections is provided in the Theme Guide.

CLUSTERS: THE VALUE ADDED

1. Countries participating in the Clusters will have multiple opportunities to express themselves and enhance their **visibility** on the Expo Site by:
 - showcasing their contribution to Theme of Expo Milano 2015;
 - displaying their contribution to the Cluster Theme;
 - emphasizing their specific identity in the Individual Exhibition Spaces within the Cluster.
2. In order to encourage participation, the Organizer will provide assistance to Countries invited to the Clusters. The Organizer will **construct the standard 125-square-metre exhibition space free of charge for each Country eligible for assistance** that joins the Clusters.
3. **The Common Exhibition Space, the “square”,** will be:
 - a point of attraction for events, food service, and exhibitions;
 - an element of attraction for investors and sponsors, promoting the involvement of International Organizations and representatives of Civil Society and their collaboration in events and displays;
 - characterized by easy management: Countries will agree on Special Regulations concerning what to include in the common area and how to manage it;
 - responsibility of the Organizer for the construction, furnishing and coordination of the Common Exhibition Space.
4. **Possibility to expand the Individual Exhibition Space:** Countries may request additional space beyond the standard individual space of 125 square metres (part of 250 square metres on two floors). Additional space will be provided at a cost to the Country.

Each Cluster will have its own distinct identity, “a diverse world or a unique village” with specific features, original architecture and organization, and its own distinctive mix of services in the common area, such as food service, markets, events and exhibitions. **Each Cluster will therefore have its own character and lay-out. Common Areas in the Clusters will be appealing**

spaces, differing greatly from one Cluster to another, yet all united in expressing a particular facet of the Expo Theme, which will be a fundamental pivot shared by all.



COLLABORATIVE APPROACH

The concept of the Cluster project has produced extremely positive feedback, and this Participation Model shall be an opportunity for **showcasing technologies and confronting the challenges** of the Expo Theme. Moreover the Organizer is considering **innovative solutions for the management of the Clusters**. One example is the appointment of a Cluster Director who will be responsible for the whole Cluster like a sort of mayor of a small town. This person may be, for example, a top manager from industry or an expert in the particular Cluster Theme, and may be nominated and elected by the Countries participating in the Cluster.

The Common Exhibition Space of the Cluster will provide an occasion for the active participation of the Corporate world, Local Authorities, International Organizations and representatives of Civil Society through events, exhibitions, funding, food services or commercial activities. **The Organizer is already**

involving Local Authorities, Corporate Organizations and Civil Society Organizations to support and collaborate on the development of the Clusters.

Local Authorities are participating in Cluster development with an eye to developing offsite tourism itineraries in areas that have a strong connection with the focus of the various Clusters. For example, the Italian Provinces of Pavia, Vercelli and Lodi have been actively involved in the Rice Cluster Working Group.

The Cluster model will require close dialogue with Countries and representatives of Civil Society both **in the preliminary Cluster design phase and during the Exhibition, for instance in organizing joint events inside the Clusters.**

Civil Society Organizations can provide useful suggestions for developing the Theme of the Cluster. This **early involvement** will be limited to a number of organizations with relevant expertise in the particular Cluster Theme and with well-established working experience in one or more of the Countries participating in the Cluster. Moreover, **during the Exhibition**, Countries and Civil Society Organizations can share Cluster spaces to stage joint events or showcase relevant projects related to the Cluster Theme. In both cases the management of the spaces will require close dialogue between the Organizer, Countries, and representatives of Civil Society.

In order to enhance relations with Civil Society and the local territory, Expo 2015 promotes the involvement of young Volunteers in the Clusters through its **Volunteer Program**.

One of the most important stakeholders in the Cluster Model will be the **private sector**. The Organizer will encourage Companies to come on board and **support** the development of the Cluster Project **both financially and in terms of content**. Leading Companies whose business relates closely to the Cluster Theme can participate by illustrating the evolution of their industry and the solutions that have been adopted or proposed to achieve resource sustainability. By taking part in the Expo, the private sector could highlight its Corporate Social Responsibility in helping to create the Clusters while promoting visibility for its products and learning more about supply-side opportunities from the participating Countries.

The Organizer will call upon **International Organizations** to collaborate in the development of the Thematic Areas and the Clusters. These Organizations will also have multiple options to actively participate in the development of the Expo Theme and take advantage of the unique platform offered by the Universal Exposition to communicate their message to the general public and make their activities (specific and dedicated projects and programs) more

widely known.

The United Nations has already confirmed its participation in Expo Milano 2015. The involvement of UN Special Agencies is particularly relevant to Expo Milano 2015 considering the fact that the Expo Theme directly touches upon at least half of the United Nations Millennium Development Goals, whose target date is precisely 2015. With FAO leading the way, the UN Agencies are being involved in Theme development, providing scientific input and content.

Other specialized International Organizations will be called upon to commit themselves to a specific Cluster, supporting its Countries, theme development, and exhibits. For example, the International Coffee Organization (ICO) and the International Cocoa Organization (ICCO) are natural participants in the Coffee and Cocoa Clusters, respectively.



PARTICIPATION PROCESS

The Cluster Project development process comprises 5 steps: Concept, Country Engagement, Design, Construction, Management.

1) Concept

Expo Milano 2015 is collaborating with the University of Milan to define, develop and expand the Themes of the Clusters. The Faculty of Agriculture is advising the Organizer on the definition of Cluster Themes and the finalization of their concepts, including the Thematic Itineraries.

2) Country Engagement

The Organizer is promoting and convening specific Working Groups for each Cluster. **The Working Groups are discussion panels aimed at the definition, development and finalization of each single Cluster.** Working Group meetings include in-depth discussions of the Cluster Themes and of how the Cluster Project will be planned, implemented, and managed.

The members of the Working Groups are the Organizer, the Countries participating in the Cluster, the Countries potentially involved in the Itineraries branching out from the Clusters, and the Institutions—including International Organizations, the Business Community and representatives of Civil Society—wishing to contribute to the Cluster Project financially, scientifically, and/or thematically.

All Working Group members will contribute to drawing up meeting agendas and participate in discussions and debates, but the **final decisions regarding the Cluster Projects will be taken by the Organizer in close consultation with the Countries participating in the Cluster.**

3) Design

Given the great value of sharing, one of the key pillars of the Cluster project, **the design process should be public and shared among the different players.**

An International Architectural Workshop will take place in September and October 2012 with the aim of drawing out and developing **the most interesting and innovative ideas on these pavilions.**

The Cluster concepts will be finalized by the end of October 2012. The Organizer will produce the Preliminary Cluster Design in the period from October 2012 to March 2013.

4) Construction

The Clusters design process has been launched in September 2012 and a Call for Tenders for construction will be issued after summer 2013.

Countries should thus confirm their Participation in the Clusters as soon as possible in order to:

- Ensure their presence at Expo Milano 2015;
- Share the process from the beginning, taking an active and leading role in Cluster planning and management;
- Contribute to the definition of the Cluster Project;

- Have sufficient time to organize their own Individual Exhibition Space and customize their Participation Project.

5) Management

The Common Area of the Cluster will be planned, designed and developed with the involvement and contribution of participating Countries. The Organizer will coordinate the construction and furnishing of the common area. The Common Area **will be under the responsibility of the Organizer**. Innovative models of management of the Cluster space are currently in the phase of analysis, preparation and development.

ESTIMATED COSTS OF PARTICIPATION

In compliance with BIE regulations, each Country is entitled to one Exhibition Space only: Countries will have to choose between participating in a Cluster or in a stand-alone Self-Built Pavilion.

The cost of a standard 125 sqm Individual Exhibition Space is €290,000.

Countries have the option of requesting extra space in addition to the standard individual space of 125 square metres (250 square metres maximum on two floors). Countries will pay rental costs for the extra space as follows:

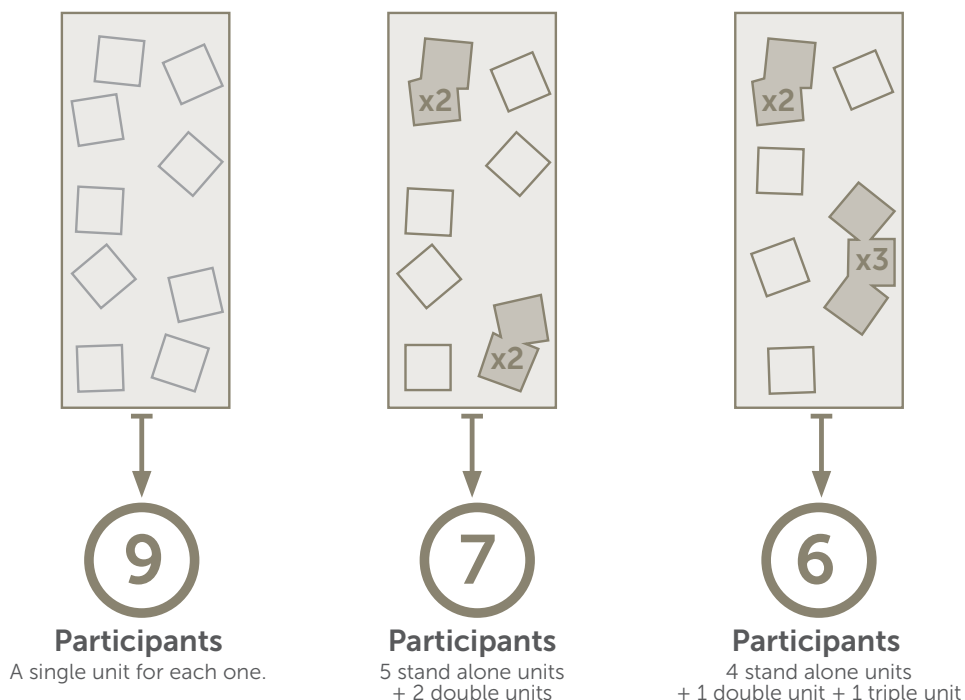
- Countries wishing to **double** the standard Individual Exhibition Space to 250 square metres (500 square metres on two floors) will be asked a rent of €590,000;
- Countries wishing to **triple** the standard Individual Exhibition Space to 375 square metres (750 square metres on two floors) will be asked a rent of €885,000;
- Countries wishing to **quadruple** the standard Individual Exhibition Space to 500 square metres (1,000 square metres on two floors) will be asked a rent of €1,180,000.

BIE Member States will benefit from a 15% discount.

Each Cluster lot is laid out with a number of 125-sqm units, or individual modules.

When Countries request additional space, units are grouped together with the

standard space to create larger Individual Exhibition Spaces for Participants. This logically implies that fewer units will be available to the other Countries participating in the Cluster.



The estimated costs of Participation in a Cluster are presented in the following table by scenario. The information presented in the table is **based on historical budgeting: actual figures concerning furnishing and operation may vary considerably**. The relative figures are average price estimates for the year 2012. Actual costs will depend on the specific styles and materials chosen by Participants for their Exhibition Space design project.

Furnishing costs include expenses relating to the creation of the interior of the Exhibition Space: design, decoration, commercial space, offices, general equipment, etc.

Operation costs consist of utilities expenses, general services, promotion and communications, events and personnel accommodation, etc.

Scenario	Lot (sqm)	Rental Cost	Furnishing Cost	Operation Costs	Total Costs
Scenario 1	125	€ 290,000 *	€ 225,000	€ 350,000	€ 865,000
Scenario 2	250	€ 590,000	€ 450,000	€ 770,000	€ 1,810,000
Scenario 3	375	€ 885,000	€ 675,000	€ 1,160,000	€ 2,720,000
Scenario 4	500	€ 1,180,000	€ 900,000	€ 1,550,000	€ 3,630,000

(*) except for Countries eligible for assistance

HOW TO APPLY OFFICIAL PROCEDURES

The procedure to be followed by a Country wishing to participate in Expo Milano 2015 after receiving an invitation from the Organizer is detailed in the International Participants Guide published in October 2011:

1. The Official Participant shall confirm its participation by providing an official letter of acceptance to the Italian Government via diplomatic channels.
2. The Official Participant shall appoint the Commissioner General of Section and communicate it to the Italian Government via diplomatic channels.
3. The Official Participant shall formally accept the "Cluster Theme Statement" made by the Organizer, and prepare and submit its "Theme Statement" and "Exhibition Space" applications.
4. The Organizer and the Official Participant shall sign the Participation Contract.

Countries choosing to participate in Expo Milano 2015 via the Cluster Model

shall submit a “Theme Statement” referring exclusively to their Individual Exhibition Spaces within the Cluster. The general Theme Statement relating to the Cluster as a whole will be developed by the Organizer with the agreement of the Countries that have confirmed their participation in that specific Cluster.

The Organizer shall allocate the Exhibition Space inside the Cluster taking into account the application and the date of acceptance of the official invitation to participate in the Exhibition. **The Exhibition Space allocation will be confirmed upon signature of the Participation Contract.**





GLOSSARY

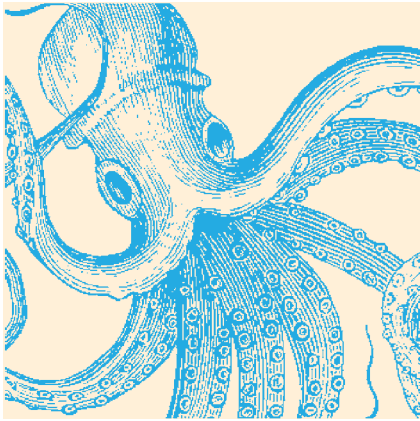
Cluster refers to the innovative Exhibition Model whereby a number of Countries focusing on a prominent, shared and representative theme (as an aspect of the overall Expo Theme) are grouped together within a single architectural facility. In technical and physical terms, it refers to a lot and structure containing individual exhibition spaces constructed by the Organizer and assigned to Official Participants, and a common exhibition area.

Lot refers to the total plot of land assigned to the Cluster, comprising Individual Exhibition Spaces, the Common Exhibition Space and the Accessory Area.

Individual Exhibition Space/Area means the exhibition space inside the Cluster where the Country can develop its exhibition project.

Common Exhibition Space/Area means the common area of the Cluster managed by the Organizer where events, food service and commercial activities will be offered.

Accessory Area is the area of the Cluster lot occupied by setbacks, open space, and pedestrian flow paths.



These Guidelines "Cluster Guidelines"
are protected by Copyright © Expo 2015 S.p.A. - Milano, October 2012

The republication, reproduction or commercial use of any substantial part
of the Guidelines in any manner whatsoever, including electronically, without
the prior written permission of Expo 2015 S.p.A. is strictly prohibited.

This is a non-commercial document.

Renderings by Centro Sviluppo Realtà Virtuale S.r.l.
Cover page: woodcuts and engravings from TATTI G., Della Agricoltura.
In Venetia, Sansovino, 1560

Expo 2015 S.p.A.
Via Rovello 2 – 20121 Milano, Italy
www.expo2015.org

