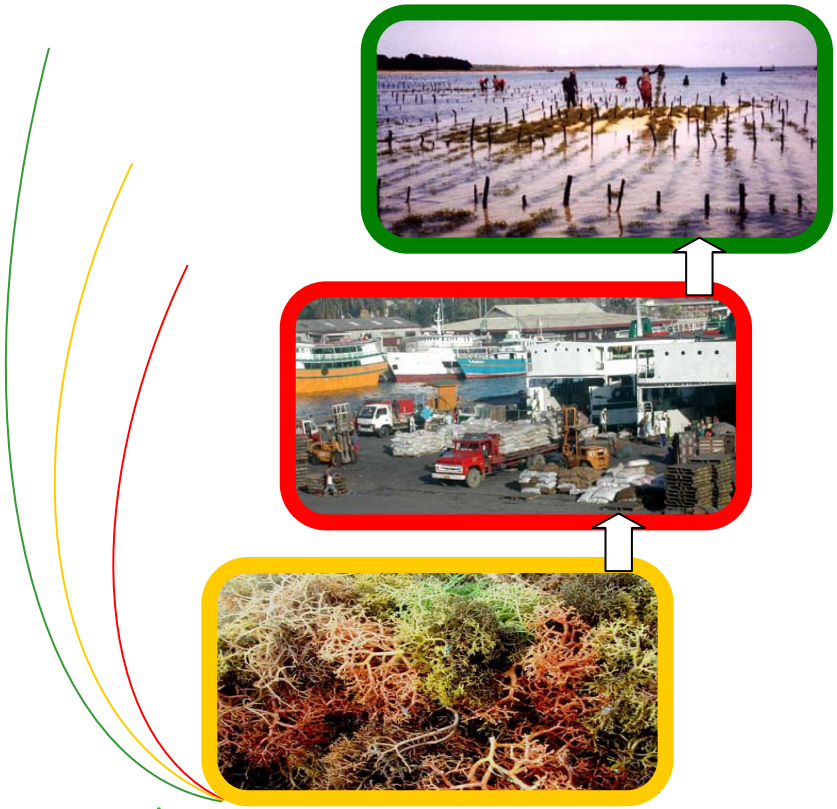
Eucheuma Seaplant Value Chains and SME Alliances



SEAplant.net is an initiative of the International Finance Corporation (IFC) Program for Eastern Indonesia SME Assistance (PENSA).

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Technical Monograph No. 0804-6a

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Eucheuma Seaplant Value Chains and SME Alliances

SEAplant.net Technical Monograph No. 0804-6a

Available in English and Bahasa Indonesia

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SEAplant.net Technical Monograph No. 0804-6a

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This monograph is fifth in a series that is intended for use by anyone interested in eucheuma seaplants in particular and seaplant value chains in general. It is also intended to be of use to people who are interested in the economic development of coastal communities in tropical regions.

The purpose of this monograph is to explain what **SEA**plant.net™ does in the context of seaplant value chain structures. Emphasis is laid on alliance network linkages among small-medium enterprises (SME) and and micro-enterprises (ME). Such enterprises are the foundation of seaplant value chains and are also the focus of IFC PENSA, which supports **SEA**plant.net™.

Some of the material presented here originally appeared in "*The ABC of Eucheuma Seaplant Value Chains*" by Iain C. Neish (SuriaLink Monograph No. 1-0104 - ISBN 983 2893 03 8). That monograph is now out of print and with support from the IFC PENSA program it is being supplanted by the present series of monographs.

Iain C. Neish, August, 2004
Makassar, Sulawesi Selatan, Indonesia

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Opportunities with SEAplant.net™ exist today because:

1. Core seaplant technologies are creating business opportunities at an unprecedented and accelerating rate.
2. South East Asia has comparative advantage for the application of tropical seaplant technologies.
3. Organizations such as international financial institutions (IFI), government agencies (GO) and non-government agencies (NGO) have come to understand and support the critical role of SME in driving economic development.
4. Enabling technologies in the fields of information, communication, transport, alliance management and process control provide tools that permit SME alliances to operate on a "level playing field" with large companies.

SEAplant.net is helping SEAsian SME to cash in on these opportunities by:

1. Providing effective facilitating tools and enabling solutions that assist SME in translating comparative advantage into competitive advantage.
2. Providing means for building competitive advantage based on sustainable value chains that function in a socially and environmentally responsible manner.

Basic concepts that underlie the development of SEAplant.net™ include:

1. Developing a common vocabulary. For many seaplant technical and business people uncertain definitions seem all too common in the business literature. Consequently **SEA**plant.net™ maintains a sets of definitions for key concepts that can be used as a basis for unambiguous communication..
2. Being guided by clear, effectively communicated and fully vested missions, visions and principles. This is the message of "Built to Last". This is the message of Jack Welch. This is a recurring principle of success in all fields of goal-oriented human social action.

3. Understanding value chains means understanding "what is really going on" in any project or venture. In seaplant business as in all business it is a well-tested maxim that if you "take care of the cash flow the profits will follow". Value chains ARE the cash flow - and much, much more.
4. Realizing that micro, small and medium enterprises were, are and always will be a major driver of global resource utilization and economic activity. SEAplant.net is an SME and we at SEAplant.net are fully engaged with the concept that SME alliances are the best way to conduct seaplant business.
5. Recognizing the need for sorting out the plethora of present and potential SME present as "jumbled links" available for assembly into organized seaplant value chains.
6. Understanding that strategic business alliance networks are an increasingly prominent form of business model that is suitable for SME. They are also proven as a successful business formula as demonstrated by the "Lords of the Rim". SME managers must understand how alliance networks function in value chains and build business around the opportunities to be found there.
7. Understanding and facilitating governance is an important resource for strategic alliance network facilitation. Proper governance balance is crucial for effective strategic alliance networks among SME.
8. Knowing that the first links of many value chains are specialty-crop SME. Special locations and specialized knowledge are key sources of their comparative advantage. Understanding how specialty-crop features function and capitalizing on location-special characteristics will give seaplant enterprises competitive advantage.
9. Understanding that "globalization" is here to stay and capitalising on it is essential for the "race to the world and to the future" of SME in seaplant value chains.

Globalization and rapid change are the norm in today's business world. Seaplant enterprises must capitalize on these trends – not be defeated by them.

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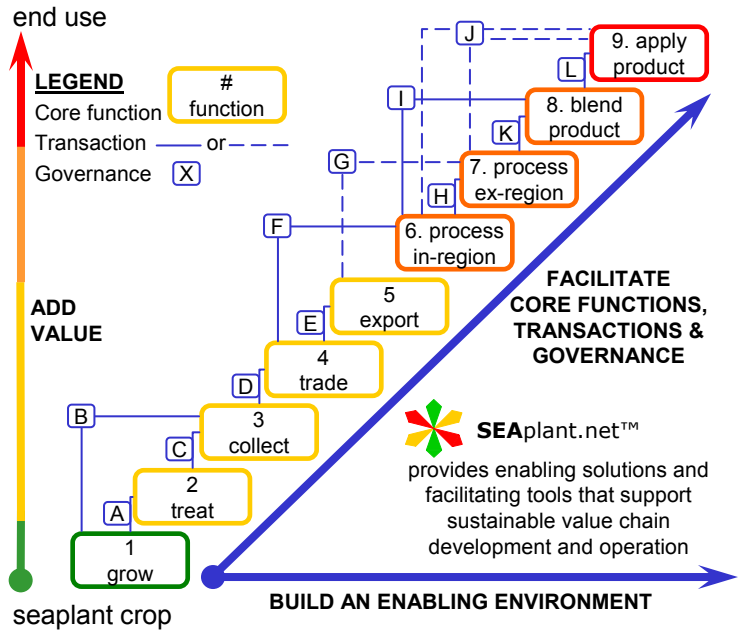
Technology for growing eucheuma seaplants and making PES from them has been more or less in the public domain since the mid-1970s but technology transfer has been piecemeal and quality problems are commonplace. Commercial eucheuma seaplant farming became commercially significant in the mid-1970s and this led to commerce in alkali-modified whole plants. This was rapidly followed by the advent of "chips" and it rapidly became obvious to several value-chain participants that powdered, blended "processed eucheuma seaweed" (PES) was suitable for a wide range of applications and was significantly cheaper than clarified extracts in some applications. Petfood stabilization was the first major application for PES but food-grade products rapidly followed and the production of clarified carrageenan extracts from PES raw material is also now an established technique.

During early stages of industry development much technology transfer involved informal or dubious mechanisms such as "pirating" of staff.. These approaches tended to provide yesterday's technology and failed to address tomorrow's needs. **Initial sources of know-how and technology transfer included:**

1. **The spread of "colagar" technology** to eucheuma seaplants.
2. **Internal development** by existing industry players and intentional technology transfer to their suppliers.
3. **Movement of technical staff** from established industry players to aspiring new players.
4. **Manufacturers and consultants selling previous clients' technology** along with their equipment and services.

Today core technologies are creating seaplant business opportunities at an accelerating rate. The tools of biology and genetics complement the development of materials, bioreactors and other tools to deliver rapidly developing opportunities for seaplant technologies. Furthermore, emerging enabling technologies provide tools such as information technology; communication & transport systems; alliance management systems; and process control systems.

Value-chains are series of value-adding functions that connect through governed transactions and result in the supply and sale of products.



A generalized seaplant value chain structure is shown above. Some people find it useful to view value chains as "ladders" or "stairs" where each core function represents an upward step.

In order for sustainable value chains to operate an enabling environment must be built, maintained and improved. The enabling environment is a world of legal and hierarchical structures; trust networks; the physical environment; and the social environment For most enterprises this means dealing with an array of stakeholders… including alliance network partners.

Operation of value chains within enabling environments is facilitated by tools that include information technology (IT); legal documents; communication and transport systems; metamediary websites; analytical services; and engineering design services.

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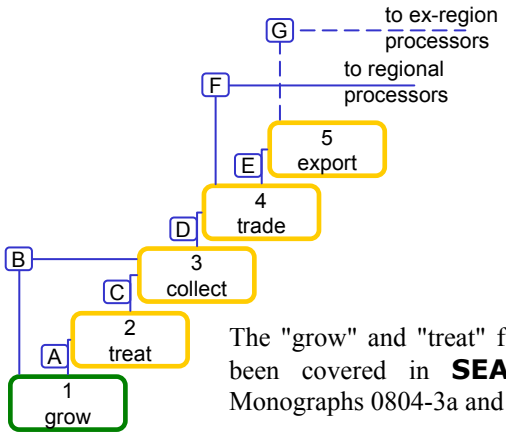
Foundation links of seaplant value chains (below) connect the "grow" function with post-harvest treatment (PHT) functions and the series of collecting, trading and export functions that get seaplant raw materials to processors.



The "grow" and "treat" functions have been covered in **SEA**plant.net™ Monographs 0804-3a and 0804-4a.

As crops leave the hands of farmers they go first to individuals or enterprises that undertake the "collect" function and (in some cases) other core functions. As value chains "mature" in particular geographic regions there is a tendency for complexity to develop. Some of the more frequently observed trends include the following:

1. Successful farmers become collectors and/or branch into trading and transportation functions.

2. Enterprises that are successful in performing one function (e.g. trading) tend to expand vertically downward (into collecting) and/or upward (into exporting and processing).

3. There is a proliferation of seaplant types and farming methods.

4. "PHT trading games" proliferate and the imposition of quality standards becomes difficult.

5. Traders assume a significant role in manipulating supply.

6. Process plants proliferate near seaplant sources.

7. Opportunistic farmers go in and out of farming depending on market conditions.

Eucheuma seaplant value chains are unusual with respect to the rapid rate at which expansion and contraction can occur in response to market forces. Lack of transparency in eucheuma seaplant markets can cause "false signals" that induce market oscillations and lead to value-chain "noise".

Collector Alex Yusof strikes a deal (right) using his "picul stick" on a beach near Zamboanga, R.P. He buys fresh cottonii from farms in front of the beach then salts it down (below, foreground), dries it and sells the dry, sacked material to Zamboanga traders. This collector is also a substantial farmer and finances other farmers.

In some regions farmer groups (e.g. "kelompok petani" in Indonesia) collect rather than individuals or commercial enterprises. Successful farmers commonly expand into treatment, collection and trading functions.

Sad to say, some collectors are accused of playing "PHT trading games" and of lending money on unfair terms. As in many industries "the middleman" is accused of a multitude of sins but the fact is that the "collection" function is essential and trustworthy collectors are a crucial link in the value chain.

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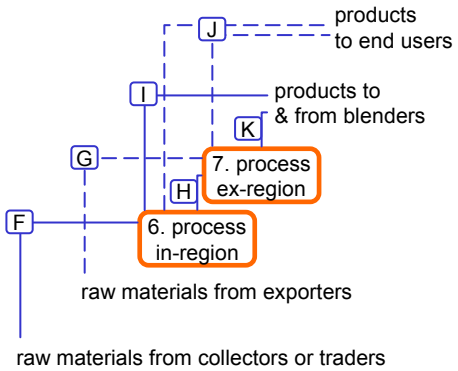
Process functions of eucheuma seaplant value chains may occur either within or outside the same jurisdictional region as seaplant farms. Process facilities tend to cluster close to seaplant sources or close to markets.



During early stages in the development of eucheuma seaplant value chains virtually all finishing links occurred outside the tropical regions where farms are located. Until the late 1970s cold water carrageenophytes were dominant raw materials in the carrageenan industry, most processing was done in the USA, Europe or Japan and the market was dominated by three companies, namely Marine Colloids (now FMC), Copenhagen Pectin (a.k.a. GENU; now CP-Kelco) and Sanofi (now Degussa). These companies shared world markets essentially on a 4:2:1 ratio, and smaller producers played a role in small market niches.

The advent of eucheuma seaplant cultivation and consequent development of PES technology caused a shift in value chain dynamics that is still underway. The advent of massively expandable raw seaplant sources and technology for making PES caused a step-change in the industry and the increasing availability of enabling solutions is making it possible for small regional manufacturers to compete on an increasingly "level playing field" especially if they tie up with skillful blenders that have a strong position in their regional market niches.

There is a growing trend for eucheuma seaplants to enter international commerce as "chips" or "meal" rather than as DES. minimization of PHT trading games is one incentive for this trend and economics of production are another. The desire to avoid expensive effluent treatment in developed urban areas is a further incentive for using modified materials as raw material.

Supply proximity can give comparative economic advantage to local processors.

Sources of comparative advantage include:

1. The PES process does not have significant economies of scale and low-cost human resources can confer a substantial advantage.
2. Only about 20-35% of raw eucheuma seaplant composition is realized as finished product so transport cost savings result from processing near seaplant sources.
3. Processing close to seaplant sources also provides savings in the form of quality retention; process control; inventory control; and minimization of processing steps.

There is an emerging trend for strategic alliance networks to develop among processors. Consequences of alliance network development include:

1. "Tolling" and barter arrangements occur among processors in different jurisdictions.
2. SME are increasingly able to realize competitive advantage based on local comparative advantages.
3. Alliance networks have increasing access to enabling solutions formerly available only to large multinational firms.
4. Eucheuma seaplant value chains are steadily spreading into emerging markets such as China, India, SEAsia and South America.
5. Entrepreneurial and innovative initiatives are better able to achieve sustainable success.

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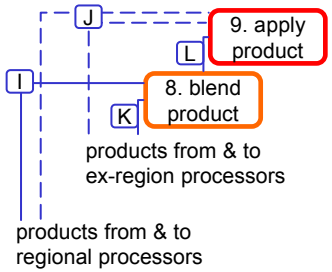
End links connect processing core-functions with the blending, distribution, marketing and sales functions that lead to the application of carrageenan end products.



Most processors do some blending but specialized blending houses play a major role in eucheuma seaplant value-chains. Most carrageenan applications require that two or more types of gum be blended with salts, sugars and other products to create the mix that is used in end products.

Many kappa carrageenan applications require blends with synergistic glucomannans or galactomannans. These indlude carob (locust bean) gum, cassia and konjac gum. Some large, sophisticated customers such as petfood manufacturers prefer to purchase standardized blends of "pure PES" which they combine with other gums and ingredients at the point of final product manufacture but this is more the exception than the rule in other industries.

Marketing, sales and distribution functions are part and parcel of the blending function because most carrageenan is sold as a "specialty chemical" or "ingredient solution". The "magic" introduced at the level of processing and blending provides the competitive edge for biopolymer "solution providers".

The effective application of biopolymers is often more art than science so blending and applications skills are a valuable core-competency.

The front line of carrageenan marketing is often cooperative R&D among blenders and end-users. The R&D staff of leading solution providers have broad and deep knowledge that can be of substantial use to enterprises developing new products. In extreme cases the solution provider may do almost all of the product development work for a customer.

There is substantial inertia once suppliers are chosen and approved for particular products. The biopolymer component of a product is usually a small percentage of the product composition (e.g. about 0.5%) and may represent a small proportion of final-product cost but the biopolymer usually has a pronounced impact on product quality. This means that users are reluctant to switch suppliers or to tinker with the biopolymer mix once a product line has been established (see McHugh, 2003 pp. 48 & 71 for elaboration of this point). One product failure at the level of a full-scale plant run can be far more expensive than the slight saving to be achieved by buying a cheaper gum.

Expertise has dispersed in recent years. When eucheuma seaplant cultivation became commercially successful in the mid 1970s the carrageenan industry was dominated by relatively few companies based in the E.U., Japan and the U.S.A. Since then the following trends have taken place:

1.Several innovative SME that initially developed carrageenan value chains were absorbed into large companies.

2. Operating priorities of these large companies caused outward migration of staff with an innovative orientation.

3. Several SME were founded as the availability of eucheuma seaplant and expertise fueled industry growth.

4. "Globalization" based on the availability of cheaper and better communication and information technology is enabling industry players to innovate with renewed vigour.

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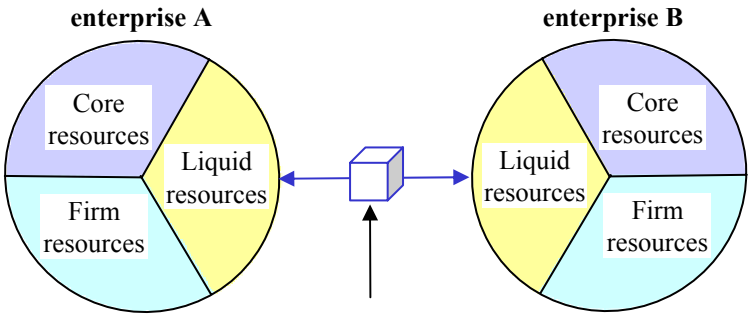
An enterprise is a business entity that possesses resources and is recognized as having the legal capacity to undertake business transactions.



Cubes denote governance systems;
Lines denote transaction flows

Core resources are the basis of an enterprise's competitive advantage. They often referred to as "core competencies" or "unique resources". It is an important aspect of core resources that they comprise the unique "inelastic" component of resources that enable an enterprise to operate beyond the dictates of simple supply-demand dynamics in the market environment.

Core resources:

1. include the collective assets, skills, talents and know-how that confer competitive advantage to the enterprise.

2. include ownership of highly desirable land, water and harvest rights that can be an essential component of the resource base for specialty crop SMEs.

3. are the result of strategic asset placement or of strategy-driven learning built through continuous improvement and enhancement over several years.

Core resources are closely held in-house except when the enterprise participates in strategic alliances. The combination of enterprises' complementary, compatible or synergistic core resources is an essential determinant of whether an alliance is truly "strategic" as opposed to being "tactical".

Firm resources support business functions of an enterprise.
They are so designated in the sense that they are "solid" and are necessary for the effective functioning of an enterprise.
Tangible firm resources are readily governed by enforceable legal means and include:
1. Financial capital (e.g. saved funds & other negotiable papers).
2. Physical property (e.g. equipment, buildings, land and goods.
3. Intellectual property (e.g. brands, patents, trademarks).
4. Legal property such as concessions and quotas.
5. Intellectual structural capital such as databases, information systems, libraries, processes and documents.
Intangible firm resources include attributes and activities not readily reduced to physical objects or legal documents such as:
1. Intellectual human capital including non-core support competencies, experience, knowledge.
2. Customer capital such as goodwill, customer relationships, brand recognition/value/loyalty, reputation.
3. Organizational capital such as investors, allies, suppliers, communities, partners and other stakeholders.
4. Social capital such as trust, mutual understanding, shared values and behaviors that bind networks.

Liquid resources are media of exchange.
They can be used by business organizations as they undertake transactions. Like firm resources they can be in the form of tangible or intangible resources.

The difference between "firm" and "liquid" resources is that firm resources are retained as long-term assets of the enterprise but liquid resources are designated for exchange during the conduct of transactions.

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Small, medium enterprises (SME) and micro enterprises (ME) predominate in most seaplant value chains.

The term "SME" covers a wide range of business types, from the self-employed to multinational publicly listed companies. SME are enterprises with fewer than 250 employees and with an annual turnover not exceeding ECU 40 million or an annual balance-sheet total not exceeding ECU 27 million.

The term "micro" can refer to enterprises involving as few as one person. Family farms are generally examples of micro enterprises. Such enterprises are virtually the sole form of enterprise producing eucheuma seaplant crops.

SME and ME tend to be closely held among members of one or a few extended families; tend to be owner operated; and tend to keep critical core competencies such as technical knowledge within the owner group as much as possible.

SEAplant.net provides facilitating tools and enabling solutions to alliance networks among micro, small and medium enterprises. This is consistent with the mission of the PENSA program of the International Finance Corporation (IFC) which supports SEAplant.net and other SME linkage programs in Indonesia.

IFC PENSA
PENGEMBANGAN USAHA
PROGRAM FOR EASTERN
INDONESIA SME ASSISTANCE

SEAplant.net is an initiative of the International Finance Corporation (IFC) Program for Eastern Indonesia SME Assistance (PENSA).

The PENSA program is funded by the IFC and the governments of Australia, Canada, Japan, the Netherlands and Switzerland.

PENSA program activities are aligned closely with the work of governments, with the private sector and with non-government organization (NGO) initiatives throughout eastern Indonesia. In Indonesia, as in other tropical Asian countries, large foreign companies buy much seaplant production but an abundance of informal micro- and small- businesses tend to dominate the foundation links of seaplant value chains. To quote the PENSA website, http://www.ifc.org/pensa :

"There are few businesses in the middle - the formal, stable enterprises averaging 20-100 employees. Many of PENSA's services are geared toward this under-represented small-medium sub-sector. This group has the stability and the flexibility to adjust to the nation's volatile economic, political, and business climate. However, they are not well-served by existing markets and institutions. PENSA products and services... aim to expand financial access for all small- and medium- sized businesses. Part of the work involves technical assistance and capacity building efforts that leverage the capabilities of the International Finance Corporation, the World Bank Group, donors, NGOs, the business community and partners."

SEAplant.net is one of several projects that is being launched in support of the Agribusiness Linkages program of PENSA.

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It is an important aspect of seaplant value chains that they belong to a segment of global commerce that produces "specialty" crops.

Typical specialty crop value chains involve a high-value, low-volume market profile and they often involve a high proportion of SME. Besides seaplant value chains, examples of specialty crop value chains are those producing fresh and processed forms of plant and animal products including (but not limited to) meat, eggs and dairy products; fruits, vegetables; breeding stock, pets and laboratory test animals; horticultural, silvicultural and landscaping crops; herbs, spices, flavors, fragrances, dyes, fibers and biopolymers; dietary supplements, plant stimulants, pharmaceuticals and nutraceuticals.

The specialty crop segment of global commerce includes millions of SME that possess legitimate ownership and/or proprietary rights to geographic locations that possess special characteristics. For example, in the case of seaplant value chains farming must usually be undertaken at sites:

1. close to suitable water sources; often marine coastal sites.

2. in close proximity to suitable human resources.

3. having oceanographic and meteorological profiles that permit profitable year-around farming.

4. with economically attractive logistics features.

Such sites can be hard to get. With open-sea sites, for example, many jurisdictions have no formal concession systems or licensing procedures for sea farming ventures. The acquisition of usage privileges for the best seaplant farming sites are generally reserved for *bona fide* local SME with the necessary characteristics and "clout". Access to such privileges is a crucial core resource that these SME bring to strategic alliance networks.

Sustainable production of specialty crops requires:

special farm sites
+
specialized knowledge, skills and talents.

"Specialty" crops have characteristics that differentiate them from the "staple" crops normally listed on commodity exchanges. Production tends to be limited and specialty crops or products tend to be graded and priced on the basis of quality. Many seaplant value chains sell into markets where their products have a derived demand (e.g. biopolymers) so the development of new products and markets requires joint innovation among suppliers and customers. Many seaplant products are blends of several base products that are sold as "solutions" with a high intellectual property component. Also many seaplant products such as nutraceuticals, bioactive substances and foods are subject to stringent regulatory controls and standards.

Markets for seaplant products are globally dispersed so seaplant value chains tend to involve transactions across trans-jurisdictional boundaries. The profusion of legal systems (many poorly developed), the lack of law and order in areas key to the industry (e.g. seaweed production areas in the southern Philippines and remote areas of Indonesia) and the wide variety of linguistic and cultural demarcations results in a situation where legal or hierarchical governance systems are not a practical option in forming business organizations. **Therefore trust relationships such as strategic business alliances can be essential to long-term business success.**

The formation of trust in such alliances is a function of the person-to-person relationships known as "relational social capital".

Trust exists by virtue of relationships among people within allied enterprises. Building such relationships can entail the expenditure of a great deal of time, effort and expense during periods of trial and error. SME tend to be owner-operated so time and effort are among the most limited and valuable assets of SME managers. However, although building trust-commitment-based strategic alliances can be costly and risky and trust must be effectively managed, it turns out that trust relationships, once formed, become valuable long-term core resources for SME intent on retaining their independence as they participate in global value chains.

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A business transaction is defined as a logical unit of business that is conducted by two or more business organizations; that involves the transfer of liquid resources (media of exchange) according to mutually accepted systems of governance; and that reaches an equilibrium point that generates a computable success or failure state.

Transactions and Nash-equilibria

Nasar (1998) has told how John Nash developed a concept of equilibria in strategic games that is now one of the basic paradigms in the social sciences and biology. It is especially applicable to human interactions such as the "deal making" that is involved in the development and consummation of business transactions. Nash's insight was that one or more equilibrium points are reached in any game that involves a mix of co-operation and competition and that involves two or more players. Prior to the insights of Nash, "min-max" theories had dominated game theory. However, these theories were applicable only to games in which there is no possibility of co-operation among players and the outcome is a "zero-sum" or a "win/lose" result.

Nash defined equilibrium as a situation in which no player could improve his or her position by choosing an alternative available strategy. He proved that for a certain very broad class of games of any number of players, at least one equilibrium exists so long as one allows mixed strategies. Some games have several equilibria.

Strategic business alliance participants should remember that Nash equilibria exist for most transactions. Efficient progress toward "win-win" equilibrium points is a desirable outcome for co-operative transactions. It is not feasible to calculate Nash equilibrium points for all strategic business alliance transactions but it is useful for SME managers to remember that the path to equilibrium points must be transparently undertaken in light of alliance success or failure determinants. These include adaptation, relationship bonds, termination costs, shared values, communication, opportunism, satisfaction and co-operation.

Transaction cost issues provide one rationale for the formation of strategic alliances. Transaction cost economics assume that enterprises' management decisions center on minimizing the sum of transaction costs incurred from activities necessary for an exchange (e.g. writing and enforcing a contract) and production costs incurred from coordinating activities in-house (e.g. learning, organizing, and managing production).

Internalization procedures such as mergers, acquisitions and internal development can control transaction costs effectively.

Market exchanges bear transaction costs and avoid production costs.

Strategic business alliances combine the features of internalization and market exchanges by partially internalizing exchanges. There are therefore conditions where cost considerations or operational constraints make strategic alliances more attractive than full internalization. Transaction economics provide a partial rationale for alliance formation but as Das (2000) points out, the transaction cost rationale neglects the important role of value creation in alliances. A resource-based view incorporates transaction economics and also includes value creation.

Markets for seaplant products are globally dispersed so seaplant value chains tend to involve transactions across trans-jurisdictional boundaries. The profusion of legal systems (many poorly developed), the lack of law and order in areas key to the industry (e.g. seaweed production areas in the southern Philippines and remote areas of Indonesia) and the wide variety of linguistic and cultural demarcations results in a situation where legal or hierarchical governance systems are not a practical option in forming business organizations.

Trust/commitment-based transaction governance mechanisms can be essential to sustainable success by enterprises participating in seaplant value chains.

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Governance systems are the mechanisms by which enterprises and transaction systems are directed and controlled.

According to OECD (1999) the structure of business governance systems is such that: :

1. They specify the distribution of rights and responsibilities among different participants in value chains, and alliance networks such as managers of partner enterprises and other stakeholders.

2. They spell out mutually agreed rules and procedures for making decisions on business affairs.

3. They provide the structure through which business venture objectives are set and the means of attaining those objectives and monitoring performance.

One of the critical enabling solutions for any value chain or alliance network is the development and support of clearly understood governance systems. Three governance systems applicable to SME alliances are

1. Legal governance systems such as contracts, certificates, deeds, financial reports and other written legal instruments that specify sanctions in relation to compliance

2. Hierarchical governance systems such as explicitly defined systems of authority, rank and layered reporting relationships.

3. Trust governance systems such as established patterns of personal integrity, trust and commitment between individuals and among groups.

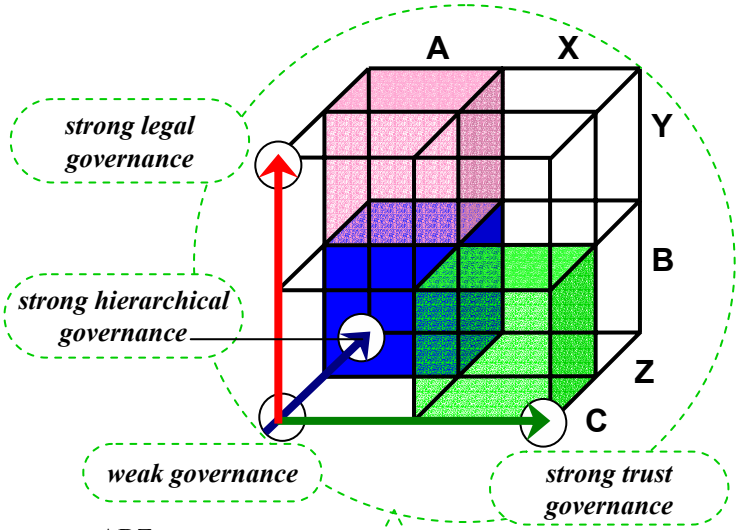
The paradigm presented on the opposite page illustrates the relationship of these three types of governance in a three dimensional matrix. These relationships are discussed in the following five pages.

AYZ
Impersonal relationship
Impersonal transactions

XYZ
Robust relationship
Secure transactions

AYC
Financial relationship
Arm's length transactions

XYC
Egalitarian relationship
Voluntary transactions



ABZ
Authoritarian relationship
Forced transactions

XBZ
Gang relationship
Imposed transactions

ABC
Ephemeral relationship
Brief, infrequent transactions

XBC
Trusting relationship
Trusting transactions

Enablement & facilitation of SA governance & operation

Resources	Enabling environment	Facilitating tools
Core	Transparency	Information technologies (IT)
SME	Communication	Communication technologies
Liquid	Trust	Transportation technologies
	Commitment	Practical frameworks
		Legal frameworks

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If the paradigm on page 22 is viewed in terms of business relationship governance the paradigm octants generally describe eight business types as follows:

1. Ephemeral (ABC) Relationship tends to be arm's-length, brief and virtually independent of business-to-business (B2B) governance. An example is the spot-purchase of "as-is-where-is" goods by one party from another party previously unknown to them.

2. Authoritarian (ABZ) Governed by a strong hierarchy but involves low levels of trust or legal governance. An example is an *ad hoc* subcontracting arrangement between a prime contractor and a short-term subcontractor.

3. Financial (AYC) High level of legal governance but weak governance via trust or hierarchical mechanisms. An extreme example is the purchase of shares by a day-trading speculator.

4. Impersonal (AYZ) Units bound by stringent legal and hierarchical structures but trust is weak. Some large corporations manifest this sort of structure. The work of Dean e*t al* (1998) on organizational cynicism illustrates the phenomena observed in organizations with this combination of relationship governance.

5. Trusting (XBC) Trust/commitment governance systems take primacy over legal and hierarchical forms of governance. The strategic business alliance is fundamentally a trusting relationship. Pages 25-26 present a matrix that facilitates an intuitive appreciation of how trusting business relationships function.

6. Gang (XBZ) Strong trust and hierarchical governance but weak legal governance. Examples include businesses operating outside the law and led by "Godfather" figures such as described by Seagrave in "Lords of the Rim".

7. Egalitarian (XYC) Strong legal and trust governance but high degree of authority delegation and weak hierarchy. Examples include firms that are adopting "disaggregation" as in the case of the "spaghetti organization" (Foss, 2000).

8. Robust (XYZ) Strong governance of all types including legal, hierarchical and trust. Examples include the most successful and investment-worthy firms. An example of a robust business organization is General Electric as operated and described by Jack Welch (2001).

If the paradigm on page 22 is viewed in terms of transaction governance the paradigm octants generally describe eight transaction types as follows:

1. Brief, infrequent transactions (ABC) Examples are one-time-transactions concerning supplies or services. Generally involve tangible media of exchange.

2. Forced transactions (ABZ) Governed by a strong hierarchy but involve low levels of trust or legal governance. Such transactions typify the attitude expressed by "make him an offer he can't refuse". Limited to tangible media of exchange.

3. Financial transactions (AYC) Dominated by legal governance and generally involving tangible media of exchange. An example is the purchase of titled or guaranteed goods or property in exchange for cash. Limited to tangible media of exchange.

4. Impersonal transactions (AYZ) Bound by stringent legal and hierarchical structures without dependence on trust. An example is temporary employment of a contractually bound employee by a large company. Limited to tangible media of exchange.

5. Trusting transactions (XBC) Trust governance systems predominate as in a "handshake transaction". May involve tangible and/or intangible media of exchange.

6. Imposed transactions (XBZ) Similar to forced transactions except that the element of trust enables the use of either tangible or intangible media of exchange.

7. Voluntary transactions (XYC) Essentially trusting agreements with "papers – just in case". May involve tangible and/or intangible media of exchange.

8. Secure transactions (XYZ) Strong governance of all types makes transactions as secure as humanly possible. May involve tangible and/or intangible media of exchange.

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Governance systems can also be viewed as different "games". In organizations with high reliance on legal and hierarchical governance "Power Games" are played.

	Legal Governance	Hierarchical Governance
Type of "game"	**Legal Power**	**Hierarchical Power**
Building of trust	Create fear of legal sanctions	Create fear of hierarchical sanctions
Level of Commitment	Avoid dependence by playing partners off against each other	
Adaptation	Through legal coercion	Through power coercion
Relationship bonds	"Closed", formal, detailed contracts - use competitive bidding frequently	Forced contracts - maintain competitive options to gain leverage over current partners.
Termination costs	Retain flexibility for self but lock in partners by raising their termination or switching costs	Retain flexibility for self but lock in partners by reducing or eliminating termination or switching options.
Shared values	Reduce conflict through contracts rather than by sharing values	Reduce conflict through power and by sharing values
Communication	Primarily "top-down" and unilateral	
Satisfaction	Resolve conflicts through force or through legal systems	Use force to eliminate conflicts
Opportunism	Seek opportunities for self	

In trust relationships such as strategic alliances the "Co-operation Game" is played.

	Trust Governance
Type of "game"	**Co-operation**
Building of trust	Build trust through integrity
Level of Commitment	Foster mutually beneficial interdependence among allies & stakeholders.
Adaptation	Through competence and trust
Relationship bonds	"Open,", informal contracts - check market prices occasionally
Termination costs	Allies signal their commitments through specialized investments and combination of unique resources
Shared values	Minimize conflict by selecting partners with similar values
Communication	Multilevel and multilateral
Satisfaction	Resolve through discussion, mediation or arbitration
Opportunism	Seek opportunities for the group

SEAplant.net **is developing strategic alliances with private companies and organizations that have complementary core resources and common cause with respect to seaplant value chains.**

A strategic alliance (SA) is defined as a business organization comprised of two or more enterprises (e.g. SME) that combine elements of their core resources and other resources within long-term trust-governance systems to achieve competitive advantage as they jointly undertake transactions in specified value-chain segments.

As a prerequisite to alliance formation the participating SME must...

1. know what core, firm and liquid resources each SME possesses or controls.

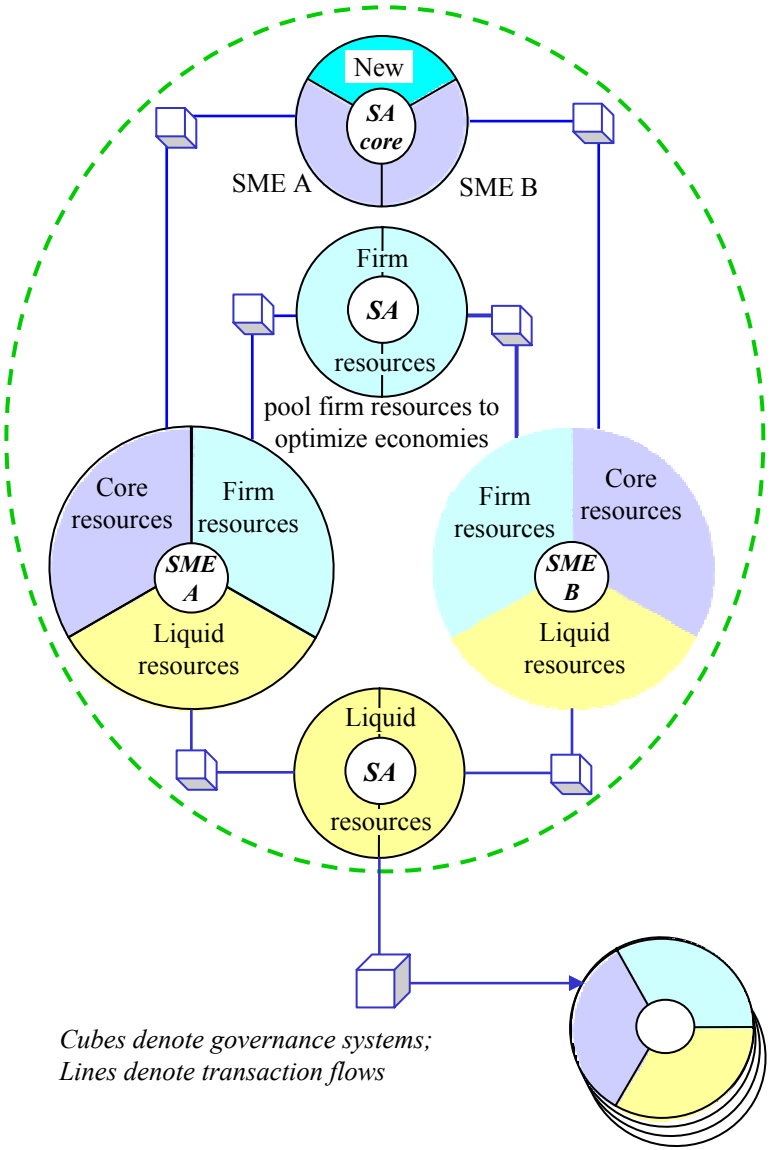
2. determine what positions the SME occupy in value chains of mutual interest.

3. determine how each SME stacks up as a potential alliance partner.

The figure opposite shows a schematic representation of a strategic business alliance between two SME. In a strategic alliance enterprises combine core resources to create alliance synergies and enhance competitive advantage. The alliance operates as a unit in undertaking transactions with other organizations. Enterprises pool liquid resources to enable alliance transactions. The alliance (or its component SME) may participate in alliance networks.

The formation of successful strategic business alliances is largely a matter of the participants using their "common sense" and working with each other in an atmosphere of integrity, trust and transparency.

This point seems painfully obvious but alliances commonly fail for the simple reason that participants are not honest with themselves and/or their partners in as they follow steps such as those shown on page 29.



Cubes denote governance systems;
Lines denote transaction flows

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1
Select value chains

2
Specify value-chain functions to be performed and core resources required by your SME or strategic alliance and by other value chain participants

Foster:
Transparency
Communication
Trust
Commitment

3
Find alliance network partners appropriate to selected value chains

4
Form alliance network with mutual agreement concerning:
- Combining & creating core resources
- Allocation of firm and liquid resources
- Transaction paths

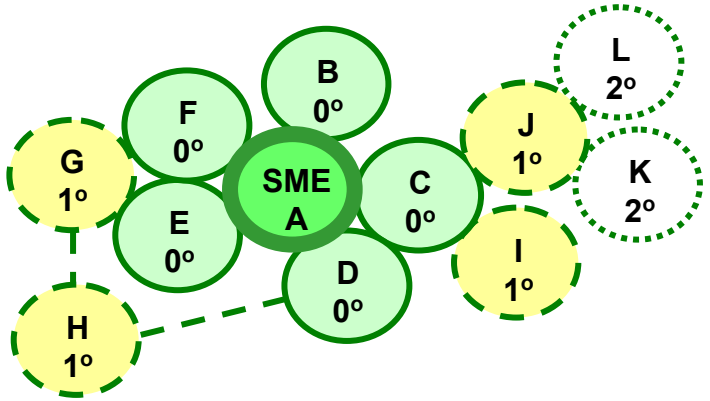
5
Form and operate a mutually acceptable blend of governance frameworks and mechanisms for alliance transactions & operations

6
Agree on transaction paths and governance functions between the alliance and other value-chain participants

7
Participate in selected value-chains

Utilize:
Information technologies (IT)
Communication technologies
Transportation technologies
Practical frameworks
Legal frameworks

Most value chains are complex so individual enterprises and alliances may become components of complex networks. In the example below SME A and its allies are designated by letters. Degrees of separation from "A" are shown for each. Ally B is structurally isolated from other allies. Ally C has 0º links with Allies A, D, I & J and 1º links with Allies H, L & K so enterprise C would be in a stronger position than SME B.



According to "small-world theory" a vast proportion of the human race is connected through not more than "six degrees of separation" (Matthews, 2000). An understanding of small-world theory and practise is a useful competence for any SME where "networking capacity" is a core resource. The availability of modern communication, transportation and IT tools is making all aspects of "small-world" relevant including the good (efficient, rapid networking); the bad (rapid circulation of misinformation) and the ugly (rapid spread of diseases and computer pathogens).

As a network builder one function of SEAplant.net™ is to facilitate the reduction of "degrees of separation" among industry stakeholders. As a "metamediary" facility SEAplant.net™ serves as a link that connects key people and organizations through zero to one degrees of separation.

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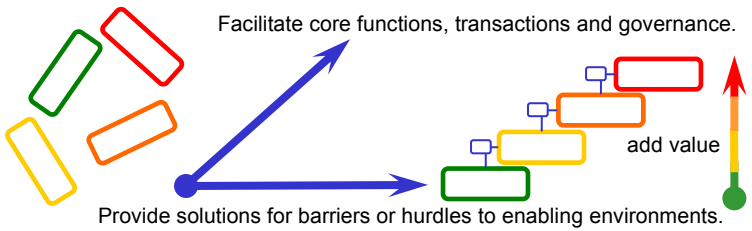
Developing core technologies and emerging enabling technologies provide tools that permit SME alliances to operate on "level playing field" with large companies. However burdens are placed on SME due to the need for responsible social and environmental actions in the operation of sustainable seaplant value chains. There are also problems with widespread fragmentation of core-functions, scattered transactions and erratic availability of enabling solutions from seaplant value-chain stakeholders.

This has led to a situation where there are "jumbled links" that can be assembled as value chains. SEAplant.net™ seeks such opportunities, determines solutions and effects them.

FROM JUMBLED LINKS TO VALUE CHAINS…



SEAplant.net™ is mending and connecting jumbled value chain links by providing information and tools that:

1. Increase empowerment of SME through the enablement of alliances and networking solutions.

2. Assist seaplant enterprises by identifying areas of comparative advantage and helping to translate them into comparative advantage.

3. Facilitate the application of breakthrough core technologies.

4. Facilitate transactions.

5. Utilize emerging technologies to develop and provide enabling solutions.

6. Correct deficiencies in the quantity, quality, timeliness and cost of decision-critical information.

Disabling problems addressed by SEAplant.net include:	**Enabling solutions provided by SEAplant.net include:**
1. Poor decision-critical information including "noise" from trading games; lack of market transparency; intentional obfuscation by value-chain manipulators.	**1. Timely, cost-effective, decision-critical information** to industry players at all value-chain levels.
2. Proliferation of strains, cultivation techniques, quality standards, PHT methods and analytical methods.	**2. Consolidation and provision** of technical assistance, quality standards and analytical services.
3. Poor linking mechanisms for the formation of strategic business alliances and networks.	**3. Effective linking mechanisms** for the formation of strategic business alliances and networks.
4. Poor distribution of data, technical information and knowledge in the key languages of seaplant commerce.	**4. Effective distribution** of data, technical information and knowledge in the key languages of seaplant commerce.

SEAplant.net deals with all levels of seaplant value chains but our main focus is on alliance networking among small-medium enterprises (SME).

SEAplant.net provides tools and solutions that link tropical Asian seaplant enterprises to sustainable global value chains.

We support enterprises that get seaplant products from farmer to end-user in an efficient, sustainable, ethical and environmentally sound manner.

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SEAplant.net/PENSA is forming alliances with several partner agencies to work with seaplant farmers and build solid seaplant sources. The core of our network is a "farmer cooperator" program that ties major farming areas into a "SourceNet" that is linked together through Internet computer terminals, personal visits and telecommunication links. The focal geographic area of present SourceNet is shown in the figure on the opposite page. Among the tools and solutions being developed and applied through SourceNet are:

1. Technical information such as the present series of monographs. These are being developed for print and electronic media.

2. Technical assistance in the form of **SEA**plant.net extension teams that visit farm regions and exchange information with farmers and first-level collectors or processors.

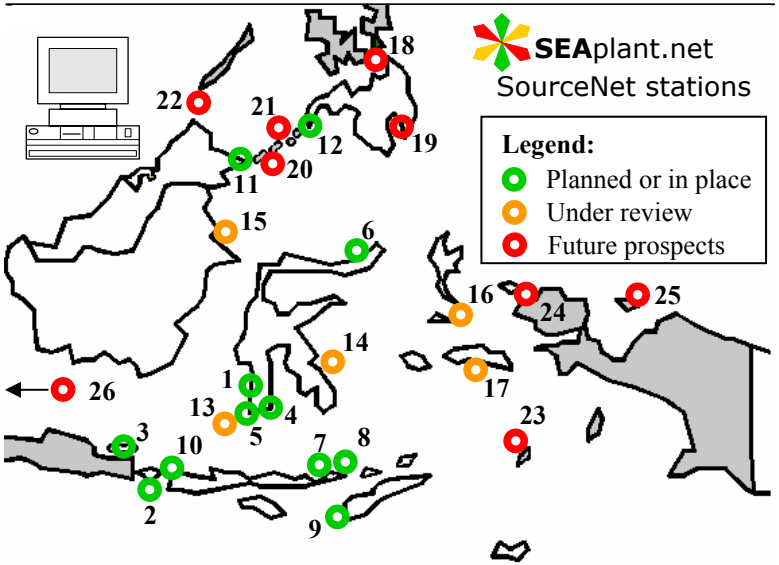
3. Assistance with the introduction of better planting materials and improved agronomy methods including a program of bringing the best farmers to visit other farm areas and share knowledge with their peers throughout the region.

4. Impending development of an internet-based communication network that connects farmers to each other and to the world.

5. An integrated crop-logging and commercial information network that will distribute information through the GIS and publications of **SEA**plant.net.

6. A "Pabrik-mini" program that will bring process capacity as close as possible to seaplant sources and seaplant producers. Processing seaweeds close to their sources is a means for the best producing regions to realize competitive advantage from comparative advantage.

7. Developing tools and solutions for linking seaplant SME and ME to adequate financing.



Existing, planned & potential Seaplant SourceNet Stations

(Located in Indonesia unless noted as Philippines (RP) or Malaysia (MY))

1. Makassar & adjacent regions
2. Bali
3. Madura / Surabaya
4 & 5. Jeniponto / Bantaeng & Takalar
6. Manado &Pulau Nain
7. Maumere
8. Lembata
9. Kupang
10. East Lombok/Sumbawa
11. Semporna / Tawau, Sabah, MY
12. Zamboanga City, RP
13. Pulau Tanahkeke
14. Kendari / Baubau
15. Tarakan / Balikpapan
16. Halmahera
17. Ambon
18. Cebu City, RP
19. Davao, RP
20. Bongao / Sitangkai RP
21. Jolo / Siasi RP
22. Balabac, RP/MY
23. Dobo
24. Sorong
25. Biak
26. Riau Islands

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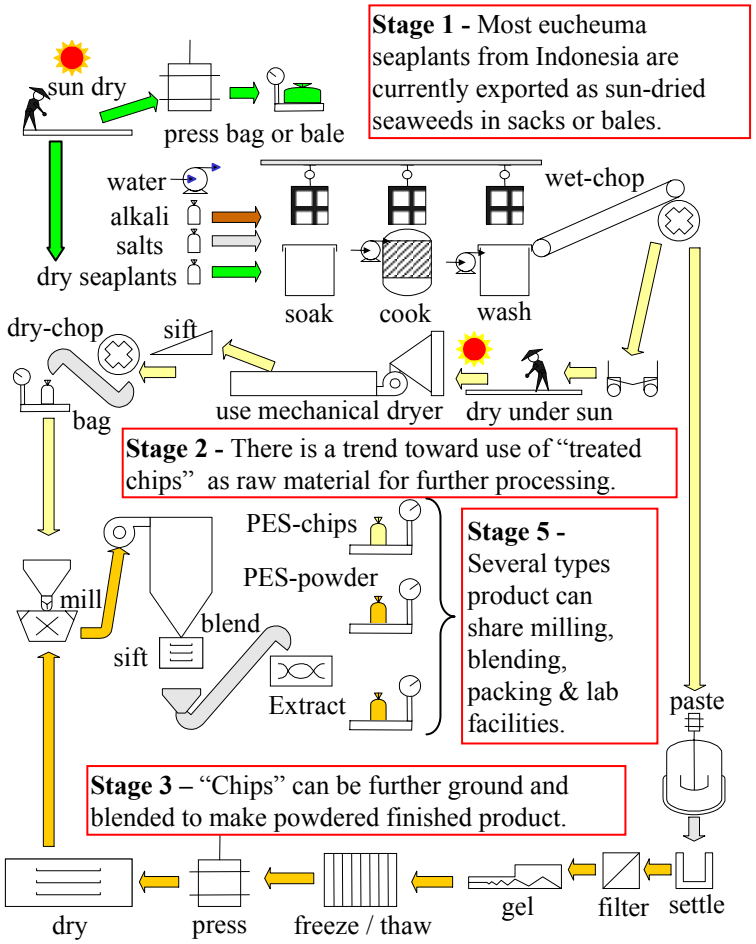
SEAplant.net/PENSA is forming alliances with several partner agencies to work with seaplant farmers and SME to establish value-adding processes close to seaplant sources. An overview of value-adding steps for eucheuma seaplants is outlined below. See **SEA**plant.net Monograph No. 4a for details.



Stage 1 - Most eucheuma seaplants from Indonesia are currently exported as sun-dried seaweeds in sacks or bales.

Stage 2 - There is a trend toward use of "treated chips" as raw material for further processing.

Stage 5 - Several types product can share milling, blending, packing & lab facilities.

Stage 3 – "Chips" can be further ground and blended to make powdered finished product.

Stage 4 – The washing part of the "chips" process can feed directly into a process line that makes refined carrageenan. Chips can also feed the extraction process.

It is a notable feature of these processes that until the final milling, blending and lab testing steps these processes do not have significant economies of scale, especially in locations where low-cost labor is available. Therefore much value may be added close to cultivation areas by small factories ("pabrik-mini").

Processing close to seaweed sources provides several advantages. One example is the saving in transportation costs that relates to the "shrinkage" that occurs as eucheuma seaplants proceed along the value chain. Savings are also realized in the form of quality retention and control; inventory control; elimination of processing steps; and the ability to utilize labor at local rates. When all factors are taken into account the cost savings realized by processing close to the source can amount to as much as several dollars-per-kilogram in the case of refined products. Processing seaplants close to their sources is a means for the best producing regions to realize competitive advantage from comparative advantage.

The concept of processing close to seaplant sources in small factories is a tried and true strategy. For several decades the agar industries of India and China have involved dozens of small process plants that are located close to seaplant sources. Recent technological advances enable small plants such as this to achieve quality, production efficiencies and value chain integration that was unheard of even a decade ago.

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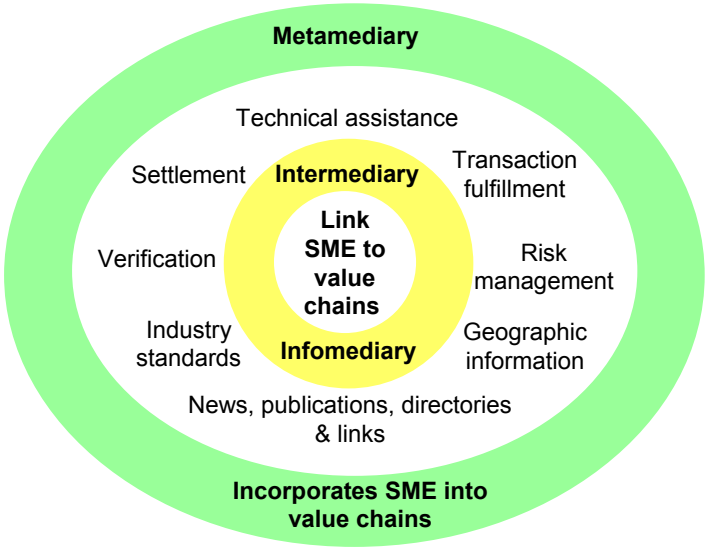
SEAplant.net is building www.seaplant.net as an Internet-based interface for the tropical Asian seaplant industry. This website is the interface for **SEA**plant.net tools and solutions. Please drop in to the site from time to time and stay connected with **SEA**plant.net communities.

Initially **SEA**plant.net is mainly providing intermediary and infomediary tools and information. In the long run it is developing as a metamediary (see diagram below).

A metamediary provides multi-vendor, multi-product, multi-user tools and solutions to value chain participants. These can be offered directly by the metamediary or through the metamediary by alliance network partners.

Examples of the types of tools and solutions being developed by **SEA**plant.net are shown in the diagram below.



SEAplant.net™ **is at its early beginnings but the following metamediary products are being developed:**

1. Technical assistance

SEAplant.net™ has already begun working with farmer groups under our "farmer cooperator" program. Initial projects include the introduction of better cultivars to some areas and the introduction of improved agronomy protocols. Farmer-to-farmer links have been established by personal visits and ten Seaplant SourceNet™ terminals will soon be going online.

2. News, publications, directories and links

The present series of monographs is being made available in both English and Bahasa Indonesia during the fourth quarter (Q4) 2004. The **SEA**plant.net™ links section is online and the News section is coming by Q4 2004. By mid-2005 our "*Quarterly Eucheuma Seaplant Review*" and industry directories will be coming out, more publications will be added to our monograph series and we will be tying up with reprint services and sources of technical literature. We are also forming alliances with information providers in related fields such as the hydrocolloids industry.

3. Industry standards

Standard laboratory test procedures are being published in our Monograph 0804-7a and other standards will soon be published online and in hard copy.

4. Verification & transaction fulfillment

SEAplant.net™ has already connected some buyers and sellers and looks forward to facilitating many more transactions in future months.

5. Settlement & risk management

SEAplant.net™ is forming an alliance with a first-class "many-to-many" platform and will soon be in a position to facilitate settlement and risk management.

6. Geographic Information System (GIS)

Seaplant SourceNet™, data from our field personnel and a considerable repository of content being obtained from SuriaLink and other providers are the core of a **SEA**plant.net™ GIS that will be a "must" for any serious participant in eucheuma seaplant value chains.

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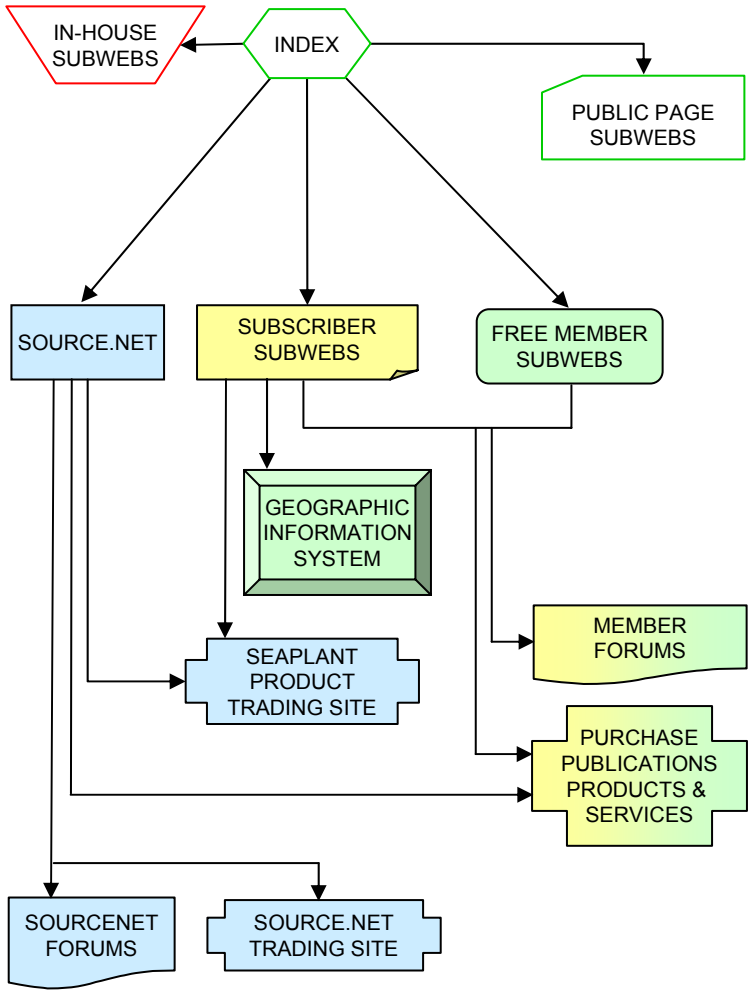
Architecture of the SEAplant.net website is being developed along the lines shown below. Initially it is in English and Bahasa Indonesia. Versions in other languages will follow.



The SEAplant.net™ websites are being configured as follows:

1. Index and public pages

The gateway page to www.seaplant.net will present hotlinks to the sections of seaplant as presented in English and Bahasa Indonesia. Versions in Mandarin and other languages are planned for 2005. The public pages will present information about SEAplant.net™, means for joining and a bulletin board highlighting news headlines.

2. In-house subwebs

SEAplant.net™ staff, correspondents and associates keep in touch and coordinate service to members, subscribers and clients through our in-house project planning and execution site.

3. Free member subwebs

Gives access to steadily growing content resources that include news, links and publications available for free or at reasonable prices. Member forums will also be available.

4. Subscriber subwebs

Subscribers will have access to the full metamediary services shown in the diagram opposite. This includes a wide range of decision-critical information such as quarterly crop, market, material flow and price reports and real-time GIS information.

5. SourceNet

SourceNet is developing as a platform for interaction among seaplant farmers, SME at other levels of seaplant value chains and vendors who sell goods and services to seaplant farming communities and seaplant enterprises. A forum service will facilitate contact among SourceNet members and a trading site will serve as a "virtual mall" where seaplant farmers can order and purchase good and services from the most cost-effective sources.

6. Seaplant product trading site

SEAplant.net™ is forming an alliance with a first-class "many-to-many" platform and will soon be in a position to facilitate trades through the Internet.

7. Geographic Information System (GIS)

The SEAplant.net™ GIS will be a "must" for any serious participant in eucheuma seaplant value chains. Real-time connections to the Seaplant SourceNet™, up-to-date images and access to our field people through email or telephone will make this a valuable tool for tactical and strategic business planning.

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Biopolymer - Compound of high molecular weight synthesized by living organisms.

Carrageenan - Red algal galactan biopolymers produced by genera such as *Kappaphycus, Eucheuma, Betaphycus, Gigartina, Chondrus* and others.

DES - Dried Eucheuma Seaplants

Enterprise - a business entity that possesses resources and is recognized as having the legal capacity to undertake business transactions.

ES - Eucheuma Seaplant (s)

Core resources - the basis of an enterprise's competitive advantage. They comprise the unique "inelastic" component of resources that enable the enterprise to operate beyond the dictates of simple supply-demand dynamics in the market environment.

Firm resources - support business functions of an enterprise

They are so designated in the sense that they are "solid" and are necessary for the effective functioning of an enterprise.

Governance - systems and mechanisms by which enterprises and transaction systems are directed and controlled.

IT – Information Technology

Liquid resources - media of exchange that can be used by business organizations as they undertake transactions.

Metamediary – an enterprise that provides multi-vendor, multi-product, multi-user tools and solutions to value chain participants. These can be offered directly by the metamediary or through the metamediary by alliance network partners.

PES – processed eucheuma seaweed (a.k.a. E407a).

PHT – post-harvest treatment.

Phycocolloid - Complex polysaccharide biopolymers produced by algae (e.g. agar, alginates and carrageenan).

Seaplant - Any photosynthesizing organism that lives in seawater

Seaweed - Common name applied to most marine macroalgae

SFDM - Salt free dry matter

Strategic alliance (SA) - a business organization comprised of two or more enterprises (e.g. SME) that combine elements of their core resources and other resources within long-term trust-governance systems to achieve competitive advantage as they jointly undertake transactions in specified value-chain segments.

Transaction (business) - a logical unit of business that is conducted by two or more business organizations; that involves the transfer of liquid resources (media of exchange) according to mutually accepted systems of governance; and that reaches an equilibrium point that generates a computable success or failure state.

Value-chain - series of value-adding functions that connect through governed transactions and result in the supply and sale of products.

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Much of what appears in this monograph is the result of several years of study in the "School of Hard Knocks" in seaplant businesses in Canada, SEAsia and elsewhere around the world.

Mostly, however, it has been distilled to its present form as a result of several years of debate, discussion and research that resulted from many discussions with Mr. Alfred Gan Kian Tee and his group of business friends from all over Asia. These discussions eventually led Gan to undertaking a study of strategic business alliances in the Asian seaweed industry. The author learned much by assisting with the "digging" that went into this research and the discussions that followed as we tried to make sense of it all.

Gan and his business allies are a good example of what can happen when the principles discussed in this monograph are put into action. The author hopes that he has been able to convey a useful amount of their insights to the readers of this monograph.

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