

CHAPTER SEVEN

Summary and Conclusions, Recommendations and Implications for Policy

Summary and Conclusions

The present study reveals that the Iban smallholders operate various paths of adjustments available to their households to cope with a price slump. The combination of paths used include the following (a) income remedial strategies (IRS), (b) subsistence-based strategies, (c) reciprocally based strategies, and (d) production and consumption modifying strategies.

Findings on IRS reveal that the options available were limited to non and off-farm employment (NOFE), fall-back cash cropping and exploitation of common property resources (CPRs). A large majority of the households affected by the price slumps relied heavily upon NOFE. Earnings from NOFE are vital contributions to the total household income in order to maintain even modest standards of living. High NOFE income is typically associated with high educational attainment and associated skills. However, the survey revealed that the majority of NOFE workers was able to secure only unskilled or low-skilled jobs from NOFE. This is because they do not have the vocational skills that are relevant to their occupation in the NOFE. In that sense, even the availability of NOFE, while making a vital contribution towards supplementing household income, has not provided a sufficiently high income to those involved in the NOFE.

The most important fall-back cash crop in the three samples studied is rubber. The Begunan PS sample was highly dependent on rubber tapping as an income remedial strategy during the pepper price slump. The dependency on this IRS in the Paku-Layar CS sample was only moderate although a great majority of the households owned rubber gardens. However, a majority of the rubber gardens are old and this greatly reduced the earnings from rubber.

The potential of CPRs in supplementing household income during commodity price and income crises was illustrated by the *jinggau* trade and inland commercial fishing. It was during this stressful period that harvesting of *jinggau* become abusive and

the exploitation of inland freshwater fish resources was intensified. The effect of this abusive exploitation was obvious, the rate of harvesting of *jinggau* trees was pushed beyond the rate of growth and subsequently the tree stands continued to decline. The effect of over exploitation of inland freshwater fish resources was the depletion of fish resources.

None of the households affected by the price slump and/or other adversities sell or dispose of their household assets even though some may be desperate or living 'from hand-to-mouth.' This clearly suggests that the price slump and income crises did not impel members of households to dispose their land and other valuable traditional assets as often dreaded by many.

The economic hardship in times of a commodity price slump necessitates many households to deploy miscellaneous subsistence-based strategies that encompass staple food production, gathering activities, hunting, fishing, backyard livestock production and home gardening. During the price slump, these subsistence-based strategies not only provide the means for the affected households to secure or produce food or other basic necessities for consumption but they also help to safeguard or conserve their already low household incomes. Without resorting to these subsistence strategies, money that would otherwise be spent on investments has to be diverted to meet pressing food needs.

The volatility of cash crop prices, and the needs for money income necessitate the deployment of diverse reciprocally based strategies that encompass income-sharing through remittance transfer, sharing of production resources, reciprocal labor exchange, and patron-client exchange (an important source of production and consumption credits). These exchanges provide households the means of spreading risk or economic hardship during the price slump period. However, the access to production credits during the price slump was insufficient or diminished tremendously. Findings of this study also reveal that the price slump had a negative impact on employment of both the hired labor and family labor resources in the pepper industry. The incidences of unemployment and underemployment of both the hired and family labor resources increased substantially. This is because farms were neglected, getting smaller and abandoned completely. Unable to pay for the hired labor, many households initiated local self-help effort. By utilizing unpaid family labor and through self-help these family farms are able to avoid or reduce

the need of excessive use of hired labor. In this way they can reduce or cut down the cost of maintaining their family farms during the economic hardship period. On the other hand, the local self-help through reciprocal labor exchange did not increase substantially as anticipated. This is because many pepper farms were neglected, getting smaller and abandoned completely and therefore there was little need to deploy a large work unit that is supplied by a reciprocal labor exchange. Reciprocal exchanges such as the sharing of production resource (or joint use of a fall-back cash crop particularly rubber), and income-sharing through remittance transfer were confined only to a small circle of closely related individual or immediate family members. This means that at the advanced phase of the price crisis the sharing of resources was restricted to immediate family members.

Both pepper smallholders and the SALCRA management had to adopt a variety of austerity measures during the commodity price slump. There were two key elements of this austerity measure namely production and consumption modifying strategies. The most popular modify strategies were either to abandon the farm or reduce farm maintenance. The latter response involves two paths of action. The first one is to reduce the application frequency of important farm production inputs such as inorganic fertilizers, herbicides, insecticides and fungicides. The second one involves a shift or change in brand of inputs used.

Consumption modifying strategy basically involves rationing or more precisely it emphasizes on a cut down in spending not only on food but also on non-food items. The cut down on spending on all food and non-food items was more prevalent among households affected by a prolonged commodity price slump than those unaffected. In the case of smallholders who were badly affected by a commodity price slump, the spending cut on food items was bigger among the independent pepper smallholders than the managed smallholders. This implies that the independent smallholders spent less of their income on buying food items. Therefore, they had to depend on the free fish, wild meat and vegetables that they obtained from activities such as subsistence fishing, hunting and gathering to protect their consumption. In this way they are able to prevent themselves from being malnourished or starved that is normally associated with a food or consumption rationing.

Generally, many Iban households have demonstrated their ability to use an array of these coping strategies. However, the assessments on the effectiveness or sustainability of these coping strategies have cast or shade some doubts and concerns as to the capability of some of these strategies both in achieving sufficient flow of cash and food around the year, and sustaining their long term livelihood security. As such, some effective and complementary public interventions and policies are necessary to restore, protect, improve and develop the household coping strategies that had greatly weakened or diminished.

Based on the research findings, a number of intervention and policy goals are recommended that might improve and strengthen the functioning of household coping strategies. The recommendations are numerous, reflecting the fact that household coping strategies have been a neglected field. Public intervention and policy goals or actions recommended for redressing the impact of commodity price slump are derived from a correct understanding of household coping strategies. They are also consistent with household's livelihood security goals namely maintaining adequate stock and flow of food and cash to meet basic needs throughout the year.

The central intervention and policy goals should focus on strengthening household income remedial strategies. This is to ensure that households have adequate flow of cash to meet basic needs throughout the year. Specific intervention and policy goals are (1) increasing NOFE income and improving local NOFE opportunities, (2) increasing productivity and encouraging cultivation of fall-back cash crop, (3) restoring and developing *jinggau* trade, and (4) granting a secure right of ownership of NCR land. These goals are described below.

Recommendations and Implications for Policy

Increase NOFE Income through Human Resource Development

The findings of this survey revealed that the majority of the children and household heads who took up NOFE during the commodity price slump period was able to secure only unskilled or low-skilled jobs from NOFE. This is because they have low educational attainment or are illiterate and have no vocational skills. Hence, they were unable to earn high NOFE income that is usually associated with high educational

attainment and vocational skills. If NOFE is to be an effective IRS the NOFE workers must get good income from it. To increase or raise NOFE income an immediate objective would be to provide opportunities for all household members (unemployed children, household head and spouse) to acquire and advance their vocational or technical skills. This can be accomplished through a human resource development program that offers educational programs and vocational training that are relevant to occupations offered by the NOFE. Such human resource development programs if effectively implemented would not only substantially raise the share of NOFE income contribution, but also help to achieve the national economic policy (NEP) of correcting income imbalances and eradicating rural poverty. Therefore, adequate educational programs are needed to prepare agricultural workers for jobs outside the field of agriculture.

Create Local NOFE Opportunities

The majority of NOFE workers in the study areas obtained their NOFE outside their home division. This is because the availability of work is very restricted in the rural part of the study areas and lack of NOFE opportunities in the home division. The isolation of most longhouses from large urban centers also limits opportunities of NOFE for the sedentary and those who do not wish to be away from home.

A problem associated with NOFE is the permanent out-migration and high propensity to participate in NOFE among the economically active members of a household particularly children and husbands. This poses a critical problem, especially for capital-constrained and/or labor-deficient households or families. To cope with their farm labor shortage, they have to cut down on the level of farm labor intensity (labor input per area) and/or increase utilization of female and child labor. The prolonged absence of the economically active members of households can have detrimental effects on cash crop and staple food production in rural areas and/or on the implementation of any government cash crop rehabilitation and maintenance scheme. They are unable to give adequate attention to maintaining their cash and staple food crops.

In view of the above problem, priority should be given to develop and improve NOFE opportunities in the Sri Aman division in the long run. The broad objective is to speed up decentralized development so it would spread to this division or regions with

limited NOFE opportunities. This would also help to achieve the NEP through a more even distribution of employment opportunities between divisions or regions in Sarawak.

The possible options are numerous. The first one is to stimulate participation in the handicraft industry by encouraging and preserving traditional skills and turning this sector into a commercially viable cottage or small-scale industry serving the tourism industries and so forth. Other feasible options include (1) the establishment of rural growth centers that facilitate the location of industries via the provision of utilities, fuel supplies, trading, business and communication service, and (2) the relocation of public authorities providing NOFE opportunities in the service sector. This rural diversification process has good potential to increase the role of small-scale and medium-scale rural industries, marketing, construction, and other labor-intensive services. Such structural transformation approach requires the national government to give more attention to planning for expanded industrialization within rural areas, including policies required to create a favorable environment for private investors to move enterprises to rural communities.

Increase Productivity and Encourage Cultivation of Fall-back Cash Crop

Rubber is an important fall-back cash crop where pepper and cocoa have become the dominant activities. It has the greatest scope or potential for remedying falling household incomes in times of commodity price slumps provided the household has a rubber garden or the labor resource to tap the rubber garden. However, the majority of the present rubber gardens are old and cultivated with low-yielding planting materials resulting in a low revenue. Apart from that, the majority of newly established or young families have no rubber garden. Therefore, the immediate objectives are to increase productivity of rubber, encourage and assist these newly established families to cultivate rubber as a source of supplementary income, and to integrate rubber with other family farming enterprises or activities.

The productivity of rubber enterprise can be increased by new planting of high-yielding materials rather than replanting. This gives the households the security to use the existing holdings. Households interested in cultivation of rubber as a fall-back cash crop should be assisted to plant high-yielding material through existing Rubber Planting

Scheme. This exercise should be part of the overall effort to diversify agricultural activities or enterprises in the study areas.

Restore, Develop and Protect *Jinggau* Trade

The *jinggau* trade provides many households in the Begunan PS sample with the much needed cash during the pepper price slump. Even though *jinggau* trees regenerate after harvesting, abusive harvesting of the small sticks and large woods had led to over-harvesting and subsequently caused rapid depletion of the wild stocks. Since the *jinggau* trade relies entirely on wild stocks of *jinggau* trees, the long solution to the problem of sustainable supply of the small *jinggau* sticks and large wood is to restore and develop *jinggau* trade by planting them on either farm or community forestry approach.

Farm forestry is the term usually applied to a program that aims to encourage commercial *jinggau* tree growing by individual farmers on their own private land. In this program, *jinggau* trees are regarded as a cash crop, and farmers are provided with assistance in growing them. This may include technical help, loans and various market support measures. If planned properly, commercial *jinggau* growing can be a profitable activity. Farm forestry tends to be simpler to design and run than community based schemes, so costs are usually lower.

Community forestry program is based on the use of public or communal lands for *jinggau* tree growing. Though generally designed to meet community needs, this program can involve very different levels of community involvement and participation. Communal program, in principle, offers a number of advantages over farm forestry. By using community lands and resources they can permit landless people to share in the benefits of tree growing. Nevertheless, community forestry can run into severe problems. This is generally because they require a degree of commitment to a common effort that is often very hard to reach. Establishing the necessary unity of purpose, obtaining effective collaboration in the work of tree growing, and ensuring that there is as equitable distribution of benefits can be very difficult at times.

Before farm or community forestry could be implemented a comprehensive research to collect accurate information on the proper growing, management and harvesting of *jinggau* need to be carried out. All this information can be gathered from

indigenous experience and field experiments or research. There is no doubt that more research is needed in almost every aspect of its biology, production, and harvesting. Scientists must find out how to grow them properly and more quickly so that a sustainable supply can be maintained.

The rights indigenous people have over *jinggau* trees found growing naturally on their private lands are often ambiguous. There is a widespread impression among the Iban in the Begunan area that if *jinggau* trees are found growing naturally on private land they would belong to the government. This confusion stems from the legal restriction in the harvesting and sale of *jinggau* trees in the state land, protected forests and forest reserves. However, the majority of *jinggau* harvesting carried out in the Begunan area were done on private lands (temuda or NCR land) that do not require a permit. Despite this exemption and privilege, *jinggau* harvesters were required to get the permit from the State Department of Forestry at Divisional level. Holders of this permit can harvest any *jinggau* trees in the area approved. This led to *laissez faire* cutting or harvesting of *jinggau* trees in all categories of land including the privately owned land. Therefore, there is an urgent need to protect harvesting of *jinggau* on private land. This would be necessary to safeguard the right of the land owners to protect their stock of *jinggau* resources against pilfering or *laissez faire* cutting of *jinggau* trees in the Begunan area. The State government should clarify and remove legal or administrative restriction on the harvesting and sale of *jinggau* trees and assure land owners of secure rights of ownership to *jinggau* trees found growing naturally on private land. These recommendations imply the need to explain the existing Section 51 of the Forest Ordinance of the State of Sarawak to communities involved in *jinggau* trade in the Begunan area.

Grant and Expedite A Secure Right of Ownership of NCR Land

The authority concerned should find ways and means to grant and expedite a secure right of ownership of NCR land. A secure right of ownership means issuing title to the NCR land as enforced in the mixed zone land. A secure right of ownership is one of the workable ways in which the benefit and security of NCR land can be enhanced. One important benefit resulting from this exercise is that they can use their titled lands for getting loans from local banking institutions to maintain liquidity of the farm enterprise in times of income and commodity price crises.

In addition, complementary policy actions are necessary to ensure households have adequate stock of food through the year. The important complementary policy actions are to (1) increase and develop staple food production, (2) restore and protect the inland fishery and wildlife resources, and (3) encourage and improve backyard livestock production and home gardening. They are discussed below.

Improve Productivity and Develop Staple Food Production

All agencies involved in agricultural development in the study areas should give top priority to improve productivity in wet paddy and hill paddy if self-sufficiency or food security at household level is to be achieved.

Limited or non-availability of wet land for wet paddy cultivation in certain areas means that hill paddy cultivation will remain as one of the staple food production systems for a long time to come. To improve productivity of hill paddy, the best strategy is one of intensification, that is, making smaller farms with greater use of modern inputs, particularly fertilizer, pesticide, and weedicide. In most places terracing is required.

The intervention for wet paddy depends on farmers' existing practices in the area concerned. Generally, the emphasis should be on providing efficient irrigation facilities or water control system in the field. All these call for a heavy investment by government in research, extension and infrastructure development that have high payoffs in the long-run.

Restore and Protect the Inland Fishery and Wildlife Resources

The CPRs provide a wide range of fish and meat which are essential in preserving the nutritional balance of the traditional diets and in supplementing household income of those dependent upon them. However, the populations of fish and wild game had become quite low.

Over-fishing had apparently reduced the fish population severely. The decline was attributed to the introduction of monofilament nylon gillnets, castnet and liftnet into the inland fishery. Other contributors to the decline in catch per effort are the use of *tuba*¹ and farm chemicals as fish-poison, and electric fishing.

¹ *Tuba* is a fish poison abstract (rotenone) from the roots of *Derris elliptica* a woody sprawling shrub. The white extract contained in the roots is released by pounding, and put into the river to poison the fish.

The used of spring snare, increasing population, destruction of habitats or feeding grounds by agricultural development and logging activities had caused a decline in game numbers.

The decline in these two food resources can have a very serious effect on the nutrition of the population in the study areas. The basic aim here is to ensure that reduced fish and wildlife abundance have minimal negative impact on the diets and income of those who depended on these resources.

It is very much more cost-effective to maintain fish and wildlife productivity than to attempt to replace the wild stocks of fish and meat by supplying equivalent foods of domestic origin. To restore and conserve the inland fish resources, especially in the local streams and main rivers, the following recommendations are offered. First, restocking with high-valued local as well as commercial fishes is a worthwhile policy. However, there is a need for continued supervision of such projects if they are to reach fruition. Second, to conserve inland fish resources, stern enforcement of the existing total ban on fishing techniques such as the use of *tuba* and farm chemicals as fish-poison and electric fishing for killing fish indiscriminately and exemplary punishments are necessary tools. Third, there is an urgent need to instill or educate the public that the populations of fish can be stabilized and sustained through selective exploitation of inland fishery resources. It is also necessary to impose the minimum mesh size of monofilament nylon gillnets used if catches are to be stabilized and sustainable yield to be ensured.

To restore wildlife resources to a sustainable level, a comprehensive wildlife management approach should be adopted. The main objective is to sustain the wildlife populations or games are not exploited beyond their capacity for self-breeding. Program actions should cover two important areas, namely protection of habitats or hunting grounds and regulation of hunting. Habitat protection ensures that crucial feeding and breeding ground should be totally protected. This implies that some areas in the *menoa rumah* will need to be set aside completely intact as refuges and feeding grounds. The State should declare and gazette these areas as either communal forest reserves or protected feeding grounds. Regulations of hunting include the complete banning of indiscriminate hunting technique such as using spring snare, except in the context of crop

protection. In addition, the users of shotguns should be allowed to kill only a limited number of adult games per season.

Encourage and Improve Backyard Livestock Production and Home Gardening

Backyard livestock production and vegetable gardening have proved successful in many longhouses. These activities should continue to be encouraged especially in instances where households do not have the time and man power to participate in activities such as gathering, subsistence fishing and hunting or in areas where the destruction of hunting grounds, and severe depletion of inland fish and wildlife resources have occurred. In view of the presence of these problems in SALCRA land schemes, it is advisable that the SALCRA management expands or organizes more community development programs in all its land development schemes. The main objective of this community development program is to re-integrate subsistence related activities such as backyard livestock production, vegetable gardening, aquaculture and staple food production in these land schemes. This type of re-integration if implemented successfully can provide households the subsistence insurance and dietary benefits by giving ready access to a wide range of fresh and nutritious vegetables, fish, meat and other foods and lead to saving on food expenses.

The focus of a backyard livestock production program should be the semi-intensive management of both local and commercial breeds. The emphasis should be on penning the stock, selection and cross-breeding, staggered production, and vaccination against the common recurring diseases.

In home gardening the emphasis should be on succession (staggered planting) and companion cropping systems, liming, proper fertilizer usage, and crop protection measures. This is to ensure that households will have a constant or continuous supply of the different types of vegetables for the kitchen.

To assist the independent pepper smallholders to continue maintaining their matured holdings during period of low prices, the following interventions are necessary: (1) restore access to production credit, and (2) provide early and adequate pepper maintenance assistance scheme. In addition, it is also advisable for the Pepper Marketing

Board to extend Pepper Storage Scheme to more rural centers. Each of these recommendations is discussed below.

Restore Access to Production Credit

Access to production credit system provided by patron-client exchange network diminished tremendously during the commodity price slump. Access to this credit system was limited to the more successful smallholders who have the means to repay. Thus only the more prosperous farmers have access to credit enabling them to continue their production. By contrast, the genuine struggling smallholders are not sufficiently credit-worthy to obtain the needed assistance. The failure, and/or weakening of this patron-client exchange network implies that there is an urgent need to restore access to production credit through the formal channel. It seems best to recommend that the existing Area Farmers' Organizations (AFO) introduce a production credit scheme on key inputs such as fertilizers and pesticides at subsidized or wholesale price to eligible pepper smallholders. This is to complement the role of the patron-client exchange network. To ensure the efficient operation of such a scheme it should be based on credit arrangements provided by the patron-client exchange network described in Chapter Five. However, this production credit service should be restricted to those who have the capacity to repay. Those not eligible should be encouraged to apply for pepper maintenance scheme provided by the Department of Agriculture described below.

Provide Early and Adequate Farm Maintenance Aid or Assistance

The Pepper Maintenance Scheme introduced by the Agricultural and Community Development Ministry in early 1993 was welcomed and desirable. The main objective of this scheme is to assist pepper smallholders with some essential production inputs so that they can continue to maintain their matured holdings during period of low pepper prices. Although the intention of the scheme is good, the implementation of such scheme was a little bit too late. By 1993 the economic hardship of the pepper smallholders was at the advanced stage and countless number of smallholders had abandoned their pepper gardens completely. Hence, if such a scheme is to be successful and effective in future, an adequate and timely assistance to the needy is crucial. A similar scheme should also be provided to the cocoa smallholders. Adequate funds for the phasing in of these two schemes can be obtained by phasing out the existing pepper and cocoa subsidy schemes

for assisting new planting of these two cash crops. In other words, the development fund available for the new planting of these two cash crops should be channeled to the pepper maintenance scheme.

Extend Pepper Storage Scheme to More Rural Centers

Smallholders with moderate and strong liquidity position should be encouraged to defer the sale of their agricultural products during the commodity price slump. Selling their pepper at better market prices at a later time would increase their income substantially. Therefore, the move by Malaysian Pepper Marketing Board (PMB) to implement a pepper storage scheme in 1994 to give pepper smallholders better storage facilities, is a desirable marketing strategy for reducing price variability.

It is recommended that the PMB set up more pepper storage centers² in rural towns or bazaars where pepper farming intensity in the vicinity is high. This recommendation implies the provision of funds for constructing large store, and the employment of clerical staff to administer the forward bases. With the establishment of these storage centers, PMB could even try or explore other alternative marketing strategies. One such marketing strategy worthy of a try out is forward contracting. An advantage of such a strategy is that smallholders are protected from the possible price reduction (and increase) between contract and delivery dates. With the opening up of more storage centers, a stockpile of pepper during the price slump is feasible so that the supply of the commodity can be controlled with reasonable ease.

In view of the high number of pepper smallholders and high volume of pepper trade in the Begunan area, a pepper storage center at Lachau bazaar is proposed.

Central to the recovery and development of household coping strategies or paths is to enhance or foster the agricultural diversification process at the farm level. The policy goals of agricultural diversification programs are spelled out below.

Enhance Agricultural Diversification Process

SALCRA in developing NCR on group farming basis as well as the individual farmers themselves are advocating monocropping at the expense of mixed farming or

² Currently only two storage centers have been set up. One in Kuching and the other is in Sarikei.

multiple cropping, neglecting staple food production, secondary crops, subsistence activities and sustainable exploitation of natural resources. Such specialization or commodity-specific intervention risk smallholders into crops whose prices may fall resulting in their income no better off than before and also restrict the responsiveness of smallholders to changing market conditions. To avoid this situation, it is advisable for SALCRA and individual farmers to shift their resources to more diversified agricultural activities or enterprise and less crop or commodity-specific project. The main shift should be to diversify agricultural activity at farm level toward production of additional commodities or crops with more favorable income elasticity of demand. Examples of these commodities are livestock products, fruits, vegetables, floral crops, aquaculture (including aquarium fish) and so forth. This implies a policy shift towards the commodities or crops driven by market demand (both domestic and world markets) or demand-led approach.

Investment in agricultural diversification should not end at the increased production of a commodity or crop, but should include post-harvest handling and downstream processing. In other words, the intervention should also emphasize on vertical diversification by supporting investment and research in downstream processing for developing a variety of high value added products. Vertical diversification through downstream processing can help to create or increase NOFE opportunities.

The domestic demand on these commodities, crops and high value added products can be stimulated through higher incomes, lower prices and intensive product promotion. Higher incomes are a function of macroeconomic policy and the state of the nation economy, but lower processing costs and scale economies offer the potential to reduce retail prices for these commodities and many of their processed products, with a subsequent stimulus to demand.

To further enhance agricultural diversification at farm level, existing agricultural diversification schemes (ADS) or programs should be integrated with government's efforts to establish the handicraft industry into a commercially viable cottage or small-scale industry. The ADS should include incentives for farmers to produce local raw materials required by the handicraft or cottage industry.

Local raw materials that have big potentials for the handicraft industry include *bemban*,³ *repo* (*pandanus borneensis*), *akas* (*Pandanus vinaceus*),⁴ *senggang* (*Hornstedtia scyphifera*),⁵ *wee sega* (*Calamus caesius*), *wee anak* (*Calamus javensis*),⁶ *danan* (*Korthalsia flagellaris*),⁷ *semambu* (*Calamus scipionum*),⁸ *tekalong* (*Artocarpus elasticus*),⁹ bamboo¹⁰ and so forth. The production of these raw materials can be arranged through contract farming either on group farming basis or by individual farmers. Contract farming would increase incentives to farmers to meet the quantity as well as the quality standards required by processors.

Before this type of ADS or-program can be implemented a comprehensive research to collect accurate information on the proper growing, management and harvesting of these local raw materials needs to be carried out. As in the case of *jinggau*, all this information can be gathered from indigenous experience and field experiments or research. There is no doubt that more researches are needed in almost every aspect such as biology, production, and harvesting of these raw materials. Scientists must find out how to grow them properly and more quickly so that a sustainable supply can be maintained.

³ There are two types of *bemban*. First is *bemban ai* (*Donax arundastrum*) and the other is *bemban batu* (*Donax grandis*). Both are used for making mats (*tikai bemban*), baskets (*takin* and *raga*), and fishing basket (*pemansai*).

⁴ *Akas* is used for making sleeping mats (*tikai akas*)

⁵ *Senggang* is used for making baskets and coarse mats (*perampan*) for drying paddy, pepper, and etc.

⁶ *Wee sega* and *wee anak* are used for plaiting, lashing and fastening of baskets and so forth.

⁷ *Danan* is a big solitary rattan for making baskets (*sintong*, *raga*, *lanji* and so forth).

⁸ It is a large climbing rattan for making baskets (*sintong*, *raga*, *lanji*, and so forth).

⁹ The bark of this tree is used for making large, heavy unpatterned mats (*bidai*), pack straps (*ribis*), loincloths (*sirat*), coats (*kelambi*) and blanket (*pua*).

¹⁰ Examples of Bamboo include *buluh munti* (*Gigantochloa hasskarliana*), *buluh betong* (*Gigantochloa latifolia*), *buluh baloi* (*Gigantochloa species*), *buluh engkalat* (*Schizostachyum latifolium*). See Pearce, Amen and Jok (1987: 216-219) for their uses.