INTEGRATED DEVELOPMENT:
THE LOMBOK INITIATIVE

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KATA PENGANTAR

Provinsi NTB mempunyai keunggulan komparatif potensi lahan kering yang dimiliki yang mencapai hampir 84 % dari luas daratan NTB. Keunggulan komparatif ini perlu dikelola dengan tepat dan berkelanjutan agar tidak terjadi kerusakan yang dapat mengancam kerusakan lingkungan dalam arti luas. Dr. Suwardji dkk di Jurusan Ilmu Tanah telah menggeluti pengelolaan lahan kering lebih dari 10 tahun. Berbagai undangan dari tingkat nasional maupun internasional mulai mengakui keberadaan pengkajian lahan kering di Jurusan Ilmu Tanah UNRAM. Pada bulan Agustus 2003 Dr. Suwardji mendapat undangan dan dibiayai CIDA untuk mempresentasikan Program Pengembangan Lahan Kering Provinsi NTB di beberapa kota besar di Kanada. Pada saat berkunjung ke Kanada beliau memberikan berbagai ceramah ilmiah dalam upaya beliau untuk mencari peluang pendanaan dalam bidang riset dan pemberdayaan masyarakat lahan kering. Pada saat itu Center for South East Study, McGill University mengundang Dr. Suwardji untuk memberikan kuliah umum yang berjudul Integrated Development: The Lombok Initiative dihadapan civitas akademika McGill University yang dihadiri ratusan dosen dan mahasiswa McGill University.

Kami sangat menyambut gembira dengan upaya yang telah dilakukan Dr. Suwardji untuk menjalin networking dalam bidang riset dan pemberdayaan masyarakat lahan kering NTB dengan berbagai pihak di Kanada.

Mataram 1 September 2003
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1. Background

After the (political, economic/social) crises in 1997 - 1999, the agriculture sector in Indonesia and especially in NTB, had become a stabilizing force and has also received increased attention under the reform or recovery program by the Indonesian Government or donors. For example Malaysia or Thailand with a more advanced agriculture were also able to cope more effectively and quickly with the Asian crisis or globalization.

Until now irrigation (sawah) in Indonesia has generally received priority (development funds) whereas the potential of dry-land farming (upland, rain feed), in the following for short “Wilayah Lahan Kering”, has not received the attention it deserves. Not only in terms of increase of agriculture output, farmer income, agro business etc. but also under environmental aspects.

With UU 22/1999 now district (Kab/Kota) governments, under coordination of the Province government, are in charge to analyze and apply regional/local comparative advantages, especially in agriculture. This calls for a careful study and planning to assure efficient use and allocation of resources, increase in employment and related incentives, business opportunities, in order to realize the objectives of regional development and peoples welfare.

Land use data from various sources (BPS, BPN) indicate that of the over 2 Mio ha of land surface/area in NTB, 83% are Lahan Kering. This large potential base allows for a variety of agriculture applications and products in the fields of horticulture, tree crops or plantations, to meet future regional, national and international demand.

Based on various studies (UNRAM) it has been established that the potential development and benefits of Lahan Kering are not yet effectively utilized or optimized due the following constraints/problems (see also SWOT, table 6.4):

1) Limited water supply (rainfall only 3 – 5 m, river, irrigation)
2) Topography, run off water
3) Critical soil, low fertility
4) Lack of (economic) infrastructure
5) Agricultural technology underdeveloped, not applied
6) Limited capacity of local government and people to properly plan and implement/fund Lahan Kering development programs
7) Status, organization, of farmers still weak
8) Participation of private sector low.

Those unfavorable conditions should be improved step by step under a participatory approach and be supported by a meaningful investment program, in order to turn the constraints facing Lahan Kering into opportunities and effectively realize the potential which Lahan Kering in N. B only offers.

Thus the “Renstra LK 2003 - 07” is a first step in this direction.
1.2. Objectives and benefits

The objectives of this Renstra LK and following Studies are as follows:

1) Compile data/info about comparative advantages of Wilayah Lahan Kering in NTB under internal and external aspects
2) Establish a development strategy, covering strategic programs and projects/activities for development of Lahan Kering
3) Compile a Lahan Kering guideline for comprehensive and integrative development of Lahan Kering.

Benefits comprise:

1) A basis/guideline for (Province) Pemda/government apparatus is available to assist preparation of Annual/5 Year Plans (Propetada, Repetada), Operational Plans (Renop) as well as budgets (RAPBD), especially in the context of Lahan Kering
2) A general guideline, road map, strategy is available to indicate to related parties where priorities are and invite them to participate in the development of Lahan Kering
3) Respective guideline/strategies are available for each district/Kab. in NTB.

1.3. Methodology

1.3.1. Spatial coverage

The administrative units/districts serve as basis which will include all Kab.Kota in NTB with the exception of the province capital Mataram. In all those regions Lahan Kering accounts for more than 80% of the area. Within those districts further homogeneous Lahan Kering areas will be identified with similar ecosystems and agro climate.

1.3.2 Data Collection

The study will primarily rely on secondary data (documentation), to be supplemented by primary data, (focused) discussion with relevant stakeholders like: government agencies, farmers, NGO, etc.; opinions/expectations and inputs of stakeholders are considered very important.

1.3.3 Data analysis

Primarily SWOT see tables 6.1 – 6.4.
2.1. Development Strategic Plan / Renstra

Renstra is a plan/document, specifying programs and activities which are considered strategic (top priority), based on an objective analysis of the (underlying) situation as well as related (Strategic) issues. It should reflect the influence of all relevant internal and external factors. See Figure II-1.

2.2. Concept/Definition of: “Region”, Development

Region/Wilayah

Based on UU 24/1992: space/territory which contains a geographical unit within administrative borders and systems/functions.

a. Wilayah planning unit (river basin, DAS)
b. Wilayah “Nodal”, hierarchical relationship (plasma/hinterland)
c. Wilayah “Homiogen”, characterized by similar factors/appearance: Wilayah Lahan Kering
d. Wilayah administrative (daerah otonom).

The study explains in more detail related (scientific) concepts which need not repeated here. Summarizing it is stated that “Development of a region” rests on 4 pillars:

1. Natural/physical resources, environment, location
2. Economic resources
3. Human resources

2.3. Lahan Kering

Lahan Kering are areas/farming systems which rely on natural rain which is only available during certain periods of the year. Generally Lahan Kering is divided into up land (0-700 m) altitude and low land (< 700 m). Unfortunately the Bahasa Indonesia paper does not deal any further with the concept of Lahan Kering in the context of agricultural (including forest) development or land use in Indonesia. As this appears to be vital for the understanding and role of Lahan Kering, additional info on agriculture, land use and environment in NTB is provided in Annex I.

2.4. Lahan Kering and Agribusiness

Lahan Kering should be seen in context of agribusiness: most of Lahan Kering products need further processing, especially for exports. Agribusiness also offers higher VA and thus income for farmers. On the other hand this calls for better self-organization by farmers and good/fair relationships with suppliers of inputs as well as buyers/industry for the outputs.
Figure 11.1. Process Stages for Development of Strategies:

- **Mandate**
- **Vision**
- **Mission & Objectives**
- **Analysis / Profile**
  - Internal Environment
- **Analysis / profile**
  - External Environment
- **Strategic Issues**
- **5 years Strategic Plan**
  - RENSTRA
- **Development of Strategic, Program & Activities**
- **5 years Operational Plan**
  - RENOF
- **Policy Program & 5 years Goal**
- **Goal Target of Program**
- **5 years Budget/ Programs**
  - APBD
- **Annual Budget / Targets**
Figure II.2. indicates various forms or systems of organization (cooperatives) for Agribusiness and agents/institution responsible for support.

As additional form/relationship, the following are mentioned: a) contractor system; and b) vendor system whereby certain inputs (fertilizer etc.) are supplied by a company and the crop may be pledged to a buyer at a fixed price.

Sustainability is another important aspect of Lahan Kering, in terms of careful use of (non renewable), resources especially soils and water, to assure environmental safeguards, as well as long term economic and social benefits to the region. See Figure II.3.

The first step of related improvement programs should be improving mechanization of soil quality and (top)/soil conservation. This is followed by providing an optimum mix through multiple cropping, agro-forestry etc. The third step includes building up favorable links to other sectors (tourism, industry, etc.).

Figure II.4 finally summarizes mechanism and necessary inputs for partnerships/assistance for farmers, under various support programs.
Figure 11.2. Agribusiness / AI System

Figure 11.3. Relationship three aspects of sustainable agriculture development.
Figure II.4. Mechanism/Basis for Farmer Partnership

1. Nucleus/Plasma Scheme
2. Land/facilities for
nucleus not available
3. Land/facilities for
nucleus available
4. Assist in marketing
agriculture product
5. Assist in supply
production facilities and
finance
6. Increase knowledge and
skill
7. Support price
stability/certainty
8. Permit for agriculture
activities

Village

Farmer groups

Production

Marketing

Accounting/debit/fund
storage/saving

Family
Storage
relying fund

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3.1 **Mandate**
Here a number of important and relevant laws and regulations, concerning decentralization, planning and land/Lahan Kering issues, are discussed.

3.2 **Vision**
Province NTB is to be established as a “National Center” (pilot project) for development of Lahan Kering.

3.3 **Mission**
In order to realize a.m. mandate and vision, the following elements of a mission statement have been given:
1. Develop/utilize the potential of natural resources/Lahan Kering, compatible with environment, in order to achieve a sustainable Lahan Kering agriculture
2. Provide infrastructure and technology for the development of Lahan Kering which is useful and produces benefits
3. Increase capacity of Lahan Kering actors to become more active and competitive, in relation to other economic groups
4. Promote cooperation and partnerships between institutions/groups which are active in Lahan Kering development.

3.4 **Objectives and targets**
Those comprise:
1. Increase output of specific Lahan Kering agricultural products which enjoy high productivity and competitive advantage.
2. Development of Lahan Kering agriculture system and agribusiness which makes efficient and effective use of social/economic infrastructure as well as appropriate technology
3. Increase professionalism/skills of Lahan Kering producers
4. Create socio-economic institutions which promote partnership and beneficial cooperation/synergy effects.

In more concrete or even quantitative terms, the following targets under the respective objectives have been set (some of those may serve as “indicators” though many “targets” are still far from being operational).

1. Increase agriculture commodities in Lahan Kering with high productivity:
   a. More intensive use of rain fed rice (ladang), mixed gardens and plantations of 150.000 ha (48% of potential).
   b. Rehabilitation of degraded and non productive forest: 250.000 ha (20%)
   c. Productive use for Lahan Kering products of currently underutilized areas like (alang-alang) grass, scrub 60.000 ha (30%).
   d. Increase total production and productivity of selected Lahan Kering products 7 thru per year (35% for Renstra).
2. Promote agricultural development and agro industry in Lahan Kering which is efficient and effective:
   a. Increase capacity average 10% per year.
   b. Increase efficiency 7-10% per year.

3. Increase professionalism/skill of Lahan Kering producers:
   a. More than 50% of this target group should come from Lahan Kering farmers or Agribusiness
   b. Increase share of Agribusiness commercial producers which assist Lahan Kering and Agribusiness
   c. Increase competitiveness of Agribusiness

4. Create socio-economic institutions which promote partnership and beneficial cooperation/synergy effects.
   a. By 2004 - 2007 socio-economic institutions in Agribusiness (like KUB, cooperatives) are established and advised.
   b. New business partnerships, are developed which comprise 50% of Lahan Kering entities with other economic establishments.

3.5 Approaches

The general statements regarding Lahan Kering development and approaches more or less repeat what has been outlined already.
4. Profile of Wilayah Lahan Kering Nusa Tenggara Barat

Here the present situation and conditions of Lahan Kering are studied more closely, based on SWOT, taking internal and external factors into account. The focus is on natural resources, human resources, infrastructure as well as social-institutions.

4.1 Internal Factors: Strength and Weaknesses (S/W)

4.1.1 Natural Resources

The Renstra / UNRAM study / paper does not provide a more differentiated picture on topography, land use, or land characteristics of NTB which, however, appears useful in this context. Also some data problems and inconsistencies should be analyzed and discussed at this point. For details see forthcoming Economic Assessment Study NTB of which key data is attached in Annex I. Main results are presented in Table IV-1 - 18.

1. Land resources

This covers physical settings and conditions like land (use), climate, rainfall etc.

a. general (spatial) planning data, Lahan Kering specifics

Although general data (see BPS, EAS), plans or maps for the 6 Kab/ I kota are available, there is still lack of data concerning size and characteristics of Lahan Kering, comparative advantage, specific products etc.

b. Location, size, topography

83% of total land area in NTB consists of Lahan Kering, if 96.000 ha rainfed rice is included, ratio goes up to 88%. For land use details and break downs for Lahan Kering and wet land. See Tables IV-1 – IV-2. 50 % of Lahan Kering consist of forestry, most of it protection areas.

Lombok (north) and even more so Sumbawa are largely covered by mountainous terrain with relative steep slopes. With inclinations up to 40 % (22%); obviously this makes many areas subject to erosion, land slides etc.

c. Agricultural use of Lahan Kering

Total harvest/production area, are said to reach 0,6 Mio ha, covering rice, cash crops. Soya beans, corn etc., vegetables (onions, cabbage etc) as well as fruits (pineapple, banana etc). Data appears not always compatible Table IV-3.

Realization of Lahan Kering potential for plantation is still low, i.e. of total potential of 665.000 ha only, 186.000 are productive (28%). Dominant Lahan Kering crops are : coconut, cashew, tobacco, coffee. See T.4-8 / 9 provides a review of actual and potential data on livestock/poultry.

d. Productivity

Combining size/area and output data in tables IV-3 allows some conclusions about implicit productivities which for most Lahan Kering products is still rather low (by national or international standards) e.g.
Productivity - Kg (100 Kg) per ha
- Soya beans 10,5
- Ground nuts 5,4
- Corn 19,5
- Onion 37,9
- Red pepper 20,4
- Mangga 0,8
- Banana 5,6
- Pineapple 1,3

The same applies to plantation products like:
- Cashew nuts 1,3
- Tobacco 13,8
- Coffee 2,1

c. (Land) ownership issues
Legal status, land titles etc. are still often not clear or disputed. Also many negative influences or land taken by outsiders. As a consequence many potential Lahan Kering areas are not worked on or neglected.
d. Lahan Kering and forestry
More than 59% of Lahan Kering consists of different types of (protected) forest areas (1 mio ha).
Forest products besides timber include honey, rotan, charcoal nuts etc.
See Table IV.10.
e. Potential/use of Lahan Kering for mining and tourism
Besides large scale mining (A) by FMA PT. Newmont (copper ore, gold) there are a number of small scale/informal mining operations (type B. C) for gravel, sand etc.
See Table IV-12.
Attractive tourist regions/sites are primarily located on Lombok and to a lesser degree on Sumbawa.
Tourist industry for domestic and international tourists still suffers from a number of shocks (Bali bomb, SARS etc.); only about 20 - 30% of capacity are currently used.

2. Water resources
There are 155 river systems in NTB, many of which during the dry season run very low. For Lombok it has been estimated that potential supply of water (3,043 mns) falls short of demand/need (3,849 mcm), whereas on Sumbawa there is a surplus 2,977 vs 7,706 mcm.
The largest water consumer by far is agricultural with an estimated 10,000 Mio m³, compared with domestic use 328 Mio m³ or industry 14 Mio m³. There are signs that water supply for agricultural purposes is decreasing. Huge water consumption by irrigation is not always economic, compared to other uses.
Water supply in context of Lahan Kering and for NTB in general will remain a crucial issue. Though overall rainfall with 1,000-2,500 mm/year in total may be sufficient, rainfall is limited to 3 - 5 months per year and there are serious problems in proper drainage/catchments, storage and management of water resources. See Table 4-11 and IV-14.

3. Climate
NTB lies in a semi-arid/tropical zone. Dry season usually April-November. See rainfall data/days p.m. etc. by regions.

4.1.2 Infrastructure (Man made resources)

1. Irrigation
Irrigation and supporting systems are not yet well maintained or optimally used. Many examples of deterioration or misuse given in the study.

2. Agribusiness
Machinery/equipment for agribusiness is very limited due to lack of capital (credit) and organizational problems. Thus agribusiness is still at low stage of development, primarily “home agribusiness”.

3. Appropriate production Technology
Again modern technology is not much used in Lahan Kering for reasons explained above. Other inhibitive factors include: low education, mentality/traditions against change, “social” employment.

4. Industry, Trade, Finance
Besides low scale agribusiness or crafts there is little, if any industry worth to speak of. Trade markets, shops as well as finance infrastructure (banks) are well established in Kabupaten or even Kecamatan capital but not yet in rural areas. Regarding sales of (cash) crops, most farmers still depend on middle men or contractors.

5. Electricity/Drinking Water
   a. Electricity: see T4-13
   b. Drinking Water: see T4-14

6. Transport, communication, tourism
In general there is a good extensive road network, especially in Lombok which is also in fairly good condition. There is also well developed public/private transport system (buses, ferries, bemos), again in the more densely populated areas of Lombok. T.IV-15 shows extent, type and quality of road network as well as vehicles in operation.

7. Government Apparatus
   a). Budget
   Total realized public expenditure for the (6) autonomous districts (Kab) come up to 525 Trill. Rp. (5,5 Bill US $) of which about 1/3 went to development projects.
b) Investment
Private investment (PMDN) in 2001 reached 828 Trill Rp. (98 Projects, providing 5,000 job opportunities).
For Foreign Investment (PMA) the respective figures are 2.4 Bill US $ (40 projects realized) and 6,300 jobs. Main domestic investment sectors include tourism, fishery and forestry; whereas for PMA mining was largest sector.

c) Education, health, religion
Education, institution in NTB comprise:
- Elementary schools / SD 2.75
- Junior High School / SPM 252
- Senior High School /SMP/SMA 118 of which vocational 18
- University/college 16
Whereas supply and enrollment for grade schools has made good progress, higher learning institutions are still limited with focus on Mataram.
There is already a hospital in each Kabupaten, a health centre in each Kecamatan and paramedical services (440) are available in most villages. Still NTB has one of the least favorable health indicators in all of Indonesia. Places of worship especially mosques, have largely expanded in recent years (4,200 or 10 times the number of SMP/SMU's).

4.1.3 Human Resources

1. Population
a) Population, development, sex, density
Total population in last census (2000) reached 3.9 Mio (2002 : 4.1 Mio), growth rate is down to about 1.5 %. Average population density is 180/km² with a wide dispersion (Sumbawa : 50 Lobar : 700)

b) Religion
97 % of populations are Moslem, the rest consists of Hindu and Christians (mainly Lombok, Mataram)

2. Labor Force
a) Unemployed
Latest official job "seekers" (2001) are stated with 13,000 compared to 18,000 in 2000 but given large scale under employment those statistics have little meaning.

b) Household by type of employment, see T 4-16
68 % or 420,000 House hold in Lahan kering regions are engaged in agriculture in Industry only 70,000 and in mining only 7,000 are engaged. The 2nd largest employer is (small scale) trade (148,000).

3. Motivation, work mentality
Motivation, discipline, entrepreneurial spirit/skills still rather low which implies low labor productivity.
4. Government civil service

There are 6000 civil service working for province government, not including the so-called "honors" (ca 4,000) and civil service on Kab/Kota as well as Kecamatan/Desa level. See T 19. About 2/3 of civil service have HS or above degree.

4.2.4 Social Institutions/resources

These can be formal or informal Institutions or relationships.

1. Agro Business

Agriculture institutions and their services (inputs, credit, marketing) are still limited and comprise:

- Farmer groups : Kelompok Tani (Poktan)
- "Joint Venture" groups (KUB)
- Agriculture cooperatives : Koperasi Tani (Koptan)

For the management/distribution of water (irrigation) P3A and P3AT are important institutions.

2. Industry, Trade Finance

a) Industry is still dominated by the informal/SME sector with 54,000 units, employing 121,000, compared to 4,500/40,000 by large scale industry. Details see T 4-18.

b) Financial Institutions

There are 6 state banks with 83 branches and 5 private banks/17 branches. In addition there are also rural oriented institution like BPR and LKP (76).

3. Cooperatives, PKM

There are fairly large number of village cooperatives/KUD : 1,600 with 480,000 members with annual turnover of 32 trill. Rp. But in quality/service terms much needs to be improved.

4. Education and Social Institutions

a) Education schools

Neighborhood/self-help associations

It is estimated that 70-80% of population still active in this tradition. Some old "group" customs in Sumbawa are cited.

b) Social Relations

Those by and large are characterized by tolerance, respect and "give and take"

5. Government Institutions

Legal uncertainties, low participation by the people are often cited as constraints by local government. There are no direct or specific policies/regulations dealing with Lahan Kering.

6. Public/Private Education relations/partnerships

Relations are far from optimal with sectoral/departmental ego-interests, lack of coordination/cooperation cited as major constraints in achieving better understanding and partnership.
4.2. External factors: Opportunities and Threats (O/T)

Those include (inter) national/regional politics, socio economics, technology (IPTEK), culture, entrepreneurial and cooperative spirit.

4.2.1. Politics/institution

1. Law N 22/1999 and
2. Law N 25/1999

Those "decentralization" laws/regulations have been sufficiently explained elsewhere.

3. Influence of national, socio-political development.

Democratization, human rights, environmental concerns have become central issues which today also carry heavy weight for participatory approaches and sustainable development on regional/local level.

4. Education and Training

Education and Training (especially skill training and higher education/university) within and outside the province provide excellent opportunities to improve quality of Human Resources also in the context of Lahan Kering.

4.2.2. Economy and IPTEK

1. Influence/support of national/regional economic development

Lahan Kering may attract central government (DAU, DAK) as well as international investment funds (plantation, poultry, tourism).

The national economic crises since 1997, however, have also left their negative marks on the region, with collapse of tourism and cut of agricultural subsidies as main impediments.

2. IPTEK and Agriculture/Agro Industry

New technologies in agriculture, transport, information etc. primarily through imported transfer of technology.

4.2.3 Population, socio-cultural dimension

1. Population, Labor Force

See T. 13 and chapter V.5

2. Socio-cultural

Recently donors have increasingly addressed social concerns/issues in NTB and Lahan Kering like poverty alleviation, woman empowerment etc. which provides opportunities to discuss those problems in cooperation with local institutions and society.
4.2.4 Markets, competition and partnerships

1. Inter and intra trade (markets) NTB

There is (increasing) international/regional and domestic demand for NTB products, also in the areas of Lahan Kering/Agro Business which will support Lahan Kering development. Respective comparative and competitive advantages need to be utilized and strengthened.

One major problem/shortcoming is that the farmer obtains only a fraction of the final sales price of his product, due to constraints to market info and access. Through AFTA import competition, for a number of (agriculture) products, will also put pressure on Lahan Kering farmers and on higher quality of outputs.

2. Competition

In the long run increased competition will offer more benefits than threats. However in the short/medium the NTB government is challenged to improve 2 major constraints facing the business community in NTB in general and of Lahan Kering in particular:

1) Provide/facilitate financial regulations/credits

2) Improve professionalism, skills. One may also add: reduce "high cost economy" factors.

3. Public/Private Partnerships/PPP

To strengthen bargaining positions and power in both sectors, associations like APKASI (Kab), APEKS (Kota) APKINDO (province) are important vehicles as are KADINDA or sector specific associations or business organizations. Those will also be important stakeholders for a sound economic/social development in the region.

Larger investors (Sampoerna, P.T. New Mont in NTB) are also asked to become PPP agents and be responsible for community development in their locations.
5. Strategic Issues for Development Lahan Kering in NTB

5.1. Strategic Issues, Internal

5.1.1 Natural Resources

i. Location, Spatial planning, land issues

*Potential, advantage, strength:*
(1) Geographic location (Bali, Sulawesi, Komodo triangle)
(2) Wide (unexploited) potential of Lahan Kering

*Deficiency, weakness, constraints:*
(3) General spatial plan for each Kabupaten/Kota available but not yet optimal/ specific for Lahan Kering
(4) Comparative Advantage of Lahan Kering in each district not yet sufficiently identified
(5) Topography of Lahan Kering generally rather hilly, steep slopes, not well suited for farming
(6) Lahan Kering generally thin top soil, rough texture rocky/ stony, low fertility, little organic substance
(7) Land ownership/ titles Lahan Kering not clear/ many disputes

2. Use of LK for agriculture

*Potential, advantage, strength:*
(1) Large potential of Lahan Kering for agriculture (food crops, plantation, livestock)

*Deficiency, weakness, constraints:*
(2) Realization of potential benefits still low
(3) Use of Lahan Kering not yet optimal/appropriate in terms of commodities or technology
(4) Lahan Kering farming still rather simple, leading to low productivity

3. Use of LK for forestry

*Deficiency, weakness, constraint:*
(1) Large forest areas but development/use not optimal
(2) Large part of forest deteriorated/degraded, due illegal logging, forest fire and (poor) cultivation
(3) Overuse of forest product (include non timber) very slow rehabilitation
(4) Forest development does not take local customs/culture sufficiently into account
4. Use of Lahan Kering for mining /tourism

*Potential, advantage, strength:*

(1) Considerable potential of Lahan Kering for mining (B, C)
(2) Considerable potential of Lahan Kering for agro tourism

*Deficiency, weakness, constraints:*

(3) Realization of mining potential sub optimal
(4) Reclamation/ rehabilitation of farmer mining areas very slow
(5) Tourist potential of Lahan Kering not yet realized

5. Water resources and climate

*Potential, advantage, strength:*

(1) Underground water potential substantial

*Deficiency, weakness, constraint:*

(2) Large (155) number of river systems but output of springs, upstream water supply appears to be decreasing in recent years
(3) Water conservation for Lahan Kering (and other) very poor
(4) Rainfall/days inadequate.

5.1.2 Infrastructure (Man made resources)

1. Irrigation

*Deficiency, weakness, constraint:*

(1) There are many irrigation system but all of them are for sawah (not Lahan Kering)
(2) Numbers and output of irrigation systems inadequate
(3) Larger ns of water pumps (ISP) in several kab; but those are for from being fully or optimally used by farmers
(4) Irrigation and support/ distribution system not well maintained.

2. Infrastructure agriculture, Agribusiness

*Deficiency, weakness, constraint:

(1) Lack of laboratories as well research and technology facilities for Lahan Kering
(2) Availability and use Lahan Kering use of equipment / machinery to support efficiency / productivity development inadequate
(3) Local supply of product or facilities or Lahan Kering limited
(4) Capital/ credit for Lahan Kering farmers very limited
(5) Supply for artificial insemination (husbandry, especially Sumbawa) very limited
(6) Supply of livestock shelters for rainy seasons (Sumbawa) limited.
3. Agriculture production technology

*Deficiency, weakness, constraint:*
1. Many new technologies (alley cropping, drip irrigation, etc) theoretically available but not yet widely applied among Lahan Kering farmers
2. Lahan Kering farm technology presently applied, generally very simple, not very intensive and not yet on commercial level
3. Environment friendly technology like organic fertilizer, pesticide or equipment rarely applied
4. Post harvest technology not yet optimal.

4. Infrastructure/service by industry, trade, finance

*Potential, advantage, strength:*
(1) Raw and auxiliary/materials inputs for various agro industries widely available

*Deficiency, weakness, constraint:*
(2) Agro industry in Lahan Kering areas limited and generally only home industry
(3) Agro industry processing plants/factories limited in terms of ns and capacity
(4) Equipment/machinery very simple, leading to low productivity/quality
(5) Trade/financial services in good supply but not widely available in (more remote) rural areas and those are not yet used optimally.

5. Electricity/Water

*Potential, advantage, strength:*
(1) Almost all villages have (PLN) electricity

*Deficiency, weakness, constraint:*
(2) Supply/distribution of drinking water in Lahan Kering areas very much inadequate and existing facilities wells, pumps, pipers/not well maintained
(3) Electricity use for social purpose dominate while it is limited for economic activities.

6. Transport, communication, tourism

*Potential, advantage, strength:*
(1) Roads/bridges in Lahan Kering regions generally good; some roads, especially for more remote villages in need of repair
(2) Public (passengers + freight) transport for Lahan Kering generally available
(3) Hotel/accommodations widely available

*Deficiency, weakness, constraint:*
(4) Roads especially for Lahan Kering farmers inadequate
(5) Communication especially telephone/Hand Phone limited
(6) Media/publications for info and technology on agriculture/Lahan Kering issues very few
(7) Infrastructure, support provisions for agro-tourism very limited.
7. Government

*Deficiency, weakness, constraint:*
(1) Government investment for Lahan Kering not yet done in an appropriate manner
(2) Existing infrastructure not well maintained (public)
(3) Special services/ institution for Lahan Kering education and training not yet available.

5.1.3 **Human Resources**

1. Population

*Potential, advantage, strength:*
(1) Large population and ample supply of labor

*Deficiency, weakness, constraint:*
(2) Uneven distribution of population/labor force (largely overpopulated Lombok, Sumbawa low density)
(3) Education, skill level of Lahan Kering farmers relatively low
(4) Application of religious values for economic/productive purposes still low

2. Labor force, skills, condition

*Deficiency, weakness, constraint:*
(1) Most households still engaged in agriculture
(2) High unemployment, especially for middle/higher education graduates
(3) Many people still leave in forest enclave, endangering forest resources.

3. Motivation, work ethos

*Deficiency, weakness, constraint:*
(1) Motivation, work ethos of Lahan Kering workers/farmers relatively low
(2) Creativity and entrepreneurship low
(3) Participation/loyalty of people/society to development Lahan Kering still low, especially by women

4. Government civil service

*Potential, advantage, strength:*
(1) Nos of civil servant at province and kabupaten/kota level adequate
(2) Formal education level by civil servant now relatively high

*Deficiency, weakness, constraint:*
(3) Creativity and professionalism of most civil servant low
(4) Capacity (readiness) among civil servants (authorities) for coordination and cooperation still weak.
5.1.4 Social Institutions

1. Agro Business
   
   **Deficiency, weakness, constraint:**
   
   (1) Few farmers groups; existing ones do not operate optimally due to low quality of managers; little interests of members and lack of guidance
   
   (2) Strong existing farmers/organization institutions are not yet ready to help farmers management/ Agro Business
   
   (3) Access of farmer to finance, market info limited
   
   (4) Weak structure of Lahan Kering institutions. Those do exist but do not operate always in farmer interest
   
   (5) Water distribution systems (for sawah) do exists but do not operate always in farmer interests.

2. Industry, Trade finance

   **Deficiency, weakness, constraint:**
   
   (1) Instructor for Agro Business/Agro Industry and trade (KUP, KUB etc) for Lahan Kering underdeveloped (capacity quality)
   
   (2) Industry/ trade organization are not able (interested) to develop partnerships with (weaker) economic units
   
   (3) Banks are generally located only in towns, providing little access for Lahan Kering farmers
   
   (4) Local/ village bank (BPR, LKP) do not operate optimally, especially concerning services/ credits for Lahan Kering farmers
   
   (5) Large agriculture enterprises like PT. Pertani, PT. Perkebunan Rakyat, etc. exist but do not provide required services to the farmers.

3. Cooperatives and PKM

   **Deficiency, weakness, constraint:**
   
   (1) Larger number of cooperatives/ PKM available but do not operate effectively
   
   (2) Agriculture cooperatives (Koptan) for Agro Business/ Lahan Kering very low
   
   (3) KUD/ Koptan in LK do not provide optimal product facilities/ services to farmers
   
   (4) Cooperatives do not cooperate closely (horizontal or vertical) with other economic units.

4. Educational/social/cultural/religious institutions

   **Potential, advantage, strength:**
   
   (1) Different types of education institutions largely available
   
   (2) Potential of NGO, academic and development agents substantial
   
   (3) Many pesantren (religious schools), almost in every kecamatan.

   **Deficiency, weakness, constraint:**
   
   (4) Mutual neighborhood assistance no longer widely practiced
   
   (5) Religious/ social (youth) institution/ services do not function well.
5. (Social) relationships among ethnic/religious groups

*Potential, advantage, strength*

(1) Relations are generally good, tolerance prevails
(2) There are social resentments by original inhabitants against newcomers (migrants) but open conflict is avoided.

6. Government, public administration

*Deficiency, weakness, constraint:*

(1) (Regional, local) government regulations and policies do not always work smoothly or as expected
(2) There are few regulations/policies directly linked to Lahan Kering. Lack of political will and cooperation between the executive and legislative concerning development of Lahan Kering. Specific government Lahan Kering institutions do not yet exist
(3) Coordination/cooperation among various agencies (planning, implementation, Monitoring & valuation) to develop Lahan Kering not yet optimal.

7. Interrelationships of Economic institutions

*Deficiency, weakness, constraint:*

(1) Cooperation/partnerships between government and private sector for Lahan Kering development not yet optimal
(2) Cooperation/partnership between farmers and private sector agents still limited.

5.2. Strategic Issues, External

5.2.1. Politics/institutions

1. Law N 22/1999

*Potential, advantage, strength*

(1) Autonomy for "own" development
(2) Increased participation of (local) people

*Deficiency, weakness, constraint:*

(3) Limited funds to realize all development programs
(1) Regional/local government considered "able" to establish policies/plans/programs.

2. Law N 25/1999

*Potential, advantage, strength*

(1) Increased role of PAD.

*Deficiency, weakness, constraint:*

(2) Limited central allocations and transfer of taxing powers.
3. Influence of national socio-political development.

*Potential, advantage, strength*

1. International/donor commitments to support Human Rights (HAM), democracy etc.
2. Poor people sensitive to socio-political changes and security.

*Deficiency, weakness, constraint:*

3. Political instability has impact on Lahan Kering development.

4. Education and Training

*Potential, advantage, strength*

1. Education and Training institutions provide positive contributions for qualifying people for Lahan Kering in/outside region.

5.2.2 Economy and IPTEK

1. Influence national, regional, local

*Potential, advantage, strength*

1. Central funds, DAK, DAU
2. Economic improvements will lead to increased demand for Lahn Kering products

*Deficiency, weakness, constraint:*

4. Economic crisis led to decrease in private/public investment.
5. Termination of (agriculture) subsidies detrimental for Lahan Kering farmers.

2. Development IPTEK for agriculture, Agro Business

5.2.3 Population, socio-cultural dimension

1. Population, Labor Force

*Deficiency, weakness, constraint:*

1. Competition/conflict between local workers and those come from outside (migrants or employer for PMA).
2. Out migrants brain drain and workers abroad (Malaysia, Saudi Arabia).

2. Socio-cultural

*Potential, advantage, strength*

1. International, central government support to combat social ills, like criminality, drugs, poverty.
2. National support and appreciation of local culture and institution

*Deficiency, weakness, constraint:*

3. Negative western influence (consumerism etc.) not in line with local culture.
5.2.4 Markets, competition and partnerships

1. Inter and intra trade (markets) NTB
   Potential, advantage, strength
   (1) Demand from in/outside NTB Province sufficiently high
   (2) Large scale PMA operating in NTB generate additional demand
   Deficiency, weakness, constraint:
   (3) External demand cannot yet be met due to production constraints in Agro Industry
   (4) National/international fluctuations in markets/prices.

2. Competition
   Potential, advantage, strength
   (1) Opening market (AFTA) will largely affect local markets/Lahan Kering
   (2) External market forces offer opportunity to generate/strengthen comparative and competitive advantage
   (3) Province + district government in NTB able to distribute/coordinate external development
   Deficiency, weakness, constraint:
   (4) Government + private sector not always able to produce goods/services which can compete on regional, national and international markets.

3. Relation/Cooperation public + private sector
   Potential, advantage, strength
   (1) Network for cooperation among Kab/Kota in NTB and on national level (APKASI) initiated
   Deficiency, weakness, constraint:
   (2) Partnership with farmers, Lahan Kering stakeholder still very limited in terms of agro processing and marketing
   (3) Local entrepreneurs have, few opportunities to cooperate with (larger) external companies, operating in NTB
   (4) Cooperation with DIKLAT and NGO from outside NTB not yet very effective.
Based on the Strength, Weakness, Opportunities, Threats explained in the previous chapters, now those are combined under a SWOT-matrix, in order to assist in identifying and formulating Development Strategies for the 4 resource fields:

1. Natural Resources
2. Infrastructure Resources
3. Human Resources
4. Social Institutions Resources

The most important boxes in the matrix are WO and ST where strategies and policies are outlined which are to mitigate W and T and turn those into opportunities and strength. In such a summarized form, strategies remain usually rather general but will become more concrete and detailed in part VII when specific Programs and Activities are discussed.
## VI. SWOT Matrix

### Table 6.1: SWOT Matrix for Natural Resource Development Strategy

<table>
<thead>
<tr>
<th><strong>Internal Environment</strong></th>
<th><strong>STRENGTHS (S):</strong></th>
<th><strong>WEAKNESS (W):</strong></th>
</tr>
</thead>
</table>
|                           | 1. General (spatial) plan already established  
2. LK potential substantial  
3. LK potential including also mining and tourism  
4. River and underground water resources substantial | 1. Spatial plan, specifically for LK not yet available  
2. Realized benefit of LK for farmers still low  
3. Low LK productivity  
4. Status/ownership LK not yet fixed  
5. Nos of catchments areas inadequate |

<table>
<thead>
<tr>
<th><strong>External Environment</strong></th>
<th><strong>OPPORTUNITIES (O):</strong></th>
<th><strong>SO</strong></th>
<th><strong>WO</strong></th>
</tr>
</thead>
</table>
|                           | 1. LU No. 25/1999 provides for own/regional development and use of potential  
2. Demand for Lahan Kering products/agribusiness relatively large | 1. Optimization for spatial planning under control of Pemda  
2. Utilization of potential to meet demand and increase farmer income  
3. Use/benefits of mining/tourism as supplementary activities and for additional regional income  
4. Use of water resources | 1. Establish special spatial Lahan Kering plan as a first step to develop regional potentials  
2. Increase use and benefits of Lahan Kering as input for agro-industries  
3. Status/ownership system Lahan Kering improved/assured  
4. Capacity/continuity of water supply/resource increased |

<table>
<thead>
<tr>
<th><strong>THREATS (T):</strong></th>
<th><strong>ST</strong></th>
<th><strong>WT</strong></th>
</tr>
</thead>
</table>
| 1. National economic crisis has negative impact on Lahan Kering development  
2. AFTA will increase competition for agricultural products  
3. Demand for quality and influence of market forces will increase | 1. Effective/efficient use of supplementary activities like mining/tourism  
2. Use of Lahan Kering to come up with "unique" agricultural products of high quality/competitiveness  
3. Use of water regional for regional development to combat economic crisis | 1. Limited financial resources  
2. Constraints for increasing quality of products and productivity in line with market demand  
3. Limited water resources and lack of efficient management |
Table 6.2. SWOT Matrix for Infrastructure Resource Development Strategy

<table>
<thead>
<tr>
<th>Internal Environment</th>
<th>External Environment</th>
<th>Opportunities (O)</th>
<th>Strengths (S)</th>
<th>Weaknesses (W)</th>
<th>Opportunities (O)</th>
<th>Strengths (S)</th>
<th>Weaknesses (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STRENGTHS (S):</strong></td>
<td></td>
<td></td>
<td>1. Technology for Lahan Kering farming available</td>
<td>1. Irrigation facilities for Lahan Kering very limited</td>
<td></td>
<td>1. Increase use capacity irrigation infrastructure for Lahan Kering through government and private firm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Raw/auxiliary material/inputs for Agro Industry sufficiently available</td>
<td>2. Agricultural Machinery/Fertilizer/pesticides for Lahan Kering very limited</td>
<td></td>
<td>2. Supply of modern fertilizer/pesticides/equipment in line with IPTEK</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Economic/non agriculture facilities/services (trade, finance, electricity, transport hotel etc.)</td>
<td>3. Production technology Lahan Kering rather simple</td>
<td></td>
<td>3. Supply of facilities for Agri business simple limited</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Education institution/infrastructure available</td>
<td>4. Facilities/structures for Agribusiness simple limited</td>
<td></td>
<td>4. Improve economic/non agriculture infrastructure/services to support private investor</td>
<td></td>
</tr>
<tr>
<td><strong>OPPORTUNITIES (O):</strong></td>
<td></td>
<td></td>
<td>2. Central funds for regional development</td>
<td>1. Spread of new agriculture technology with private and public support</td>
<td></td>
<td>1. Increase use capacity irrigation infrastructure for Lahan Kering through government and private firm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Interest/capacity by private investors for Lahan Kering strong</td>
<td>2. Development Agro Industry by private investors/technology</td>
<td></td>
<td>2. Supply of modern fertilizer/pesticides/equipment in line with IPTEK</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Advances in IPTEK has positive impact</td>
<td>3. Use of economic infrastructure/services for investor activities</td>
<td></td>
<td>3. Supply of facilities for Agri Industry by public/private investors</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4. Development of social infrastructure, in line with IPTEK advances</td>
<td></td>
<td>4. Improve economic/non agriculture infrastructure/services to support private investor</td>
<td></td>
</tr>
<tr>
<td><strong>THREATS (T):</strong></td>
<td></td>
<td></td>
<td>1. UU 22 assumes large scale local funding</td>
<td>1. Application of agriculture technology in line with financial and human resources</td>
<td></td>
<td>1. Effective use of irrigation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Termination of subsidies for fuel, pesticides, etc. negative impact of Agro Industry/Lahan Kering</td>
<td>2. Introducing Agro Industry with energy/fuel saving devices</td>
<td></td>
<td>2. Efficient use/application of fertilized/pesticides and other inputs to compensate cut in subsidies</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Pemda NTB assumed capable to distribute/monitor external funds</td>
<td>Use of potential of economic/non agriculture/social services to attract investors of Lahan Kering</td>
<td></td>
<td>3. Supply of energy saving facilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Government and private sector able to attract external investment</td>
<td></td>
<td></td>
<td>4. Effective use of economic/social/non agriculture services</td>
<td></td>
</tr>
</tbody>
</table>

**ST** (Strengths + Threats) | **WEAKNESSES (W)** (Weaknesses + Threats)
<table>
<thead>
<tr>
<th>Internal Environment</th>
<th><strong>STRENGTHS (S):</strong></th>
<th><strong>WEAKNESS (W):</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Large Population, Labor Force</td>
<td>1. Uneven district of population (density)</td>
</tr>
<tr>
<td></td>
<td>2. Majority of NTB HHS engaged in agriculture</td>
<td>2. Large scale under employment</td>
</tr>
<tr>
<td></td>
<td>3. NS of civil servant adequate/large</td>
<td>3. Skill level Lahan Kering farmers/workers low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Creativity/professionalism of civil servant still low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Coordination between Pemda and other (Economic, development) parties still low.</td>
</tr>
</tbody>
</table>

**OPPORTUNITIES (O):**

<table>
<thead>
<tr>
<th></th>
<th><strong>SO</strong></th>
<th><strong>WO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. DIKLAT, Farming Centre</td>
<td>1. Training for Lahan Kering operators</td>
<td>1. Sending qualified work force from Lombok to Sumbawa</td>
</tr>
<tr>
<td>2. Qualified Labor Force</td>
<td>2. Info exchange, coordination between staff from agriculture agencies and private institution</td>
<td>2. Increase Lahan Kering qualifications, especially for unemployment; promote exchange with outside professionals</td>
</tr>
</tbody>
</table>

**THREATS (T):**

<table>
<thead>
<tr>
<th></th>
<th><strong>ST</strong></th>
<th><strong>WT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.UU 22 assumes large scale local funding</td>
<td>1. Local Work Farmers has to improve in order to reduce inflow from outside</td>
<td>1. Increase qualification of Lahan Kering Work Farmers, work force competitive</td>
</tr>
<tr>
<td>2. Termination of subsidies for fuel, pesticides, etc.</td>
<td>2. Pemda civil servants have to compete with applicants outside Wilayah Lahan Kering</td>
<td>2. Increase performance/competition of civil servants</td>
</tr>
<tr>
<td>3. Pemda NTB assumed capable to distribute/monitor external funds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Government and private sector able to attract external investment</td>
<td></td>
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</tr>
</tbody>
</table>
Table 6.4. SWOT Matrix for Social Institutions Resources development strategy

<table>
<thead>
<tr>
<th>Internal Environment</th>
<th>STRENGTHS (S):</th>
<th>WEAKNESS (W):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Economic, non agriculture, financial, industrial institutions sufficiently available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Social education institution (Pesantren, neighborhood, self help groups)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Good potential of NGO and private sector</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>External Environment</th>
<th>OPPORTUNITIES (O):</th>
<th>SO</th>
<th>WO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Positive impact of democratization, Human resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Social-economic support from internationalization donors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Commitment by national institutions -Improved opportunities for exchange/ cooperation of social-economic institutions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Potential benefits of economic, non agriculture institution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Potential benefit from international cooperation/ assistance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Improved role of NGO/private institutions under democratization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Facilitate strengthening consolidation of (non) agriculture institution and dialogue with other parties</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Strengthening coordination performance of government agencies</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>THREATS (T):</th>
<th>ST</th>
<th>WT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. New Otda requires clear/operational Perda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Negative foreign/ western influence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Guide /direct benefits from non agriculture institution to play optimal role under decentralization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Strengthen local social institution to counteract (negative) foreign influence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Integrate NGO/Private sector in the planning and implemention of Otda and as promoter/ advisor for local social-cultural values</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Establish, strengthen agriculture institutions through (government) regional and policies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Increase capacity and services of non agriculture institutions in implementing Otda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Increase capacity/ performance of public administration/agencies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. **Strategy and Policies for Development Lahan Kering in NTB**

In this concluding part finally for the total of 32 Programs under 6 headings in the 4 fields of Resources more concrete (strategic) activities (well over 100) are explained and supplemented by a performance indicator and info which (government) agency shall be primarily responsible for the program and each activity:

7.1 **Development of Natural Resources**

I. Management of Lahan Kering taking physical characteristics/capacities and priorities of land use into consideration

II. Optimal use of Lahan Kering for certain agriculture products

III. Optimum use of sustainable LK for non agriculture activities

7.2 **Development of Infrastructure**

I. Increase/Improve public and private capacity and management of irrigation systems

II. Provide infrastructure for local Agro Business and Agro Technology

III. Improve industry, trade, finance related infrastructure/services in public and private sector

IV. Optimum use of electricity

V. Improve infrastructure for transport/communication, tourism

VI. Improve quality and optimize use of social/public infrastructure

7.3 **Development of Human Resources**

I. Optimize allocation of Labor force to regions and development activities

II. Quality increase of IPTEK/IMTAQ of work force for agribusiness/ Lahan Kering

III. Increase creativity and professionalism of government personnel

7.4 **Development of Social Institutions/ Resources**

I. Facilitate growth of agriculture institution/Agribusiness

II. Administer/ Structure non Agriculture economic institution

III. Increase role and activities of education and socio cultural institutions/NGO

IV. Optimizing Government Institutions
8. Strategy and Policies for Development Lahan Kering in NTB

1. General

Agriculture here broadly defined to include plantations, forestry, fishery and husbandry as well is by far the largest sector in terms of land area, employment, output / VA, contribution to RGDP. It is this right fully given top priority by policy makers/planners. 80 % of population Agriculture remains the main, if not only basis for existence/livelihood.

Table 1 provides some key figures on development of the agriculture sector and table 2 for the main sub sector.

2. Rice, paddy

Table 3 shows main indicators area, production, productivity for both wet and dry land (rain feed) paddy.

Total rice paddy area in 2001 covered 331.000 ha of which 90 % consist of wet (irrigated) paddy. This implies a 10 % increase from 1997 but remain below the peak reached in 2000 (0,341 Mio ha), comprising about 17,3 % of total land area with productivity relatively constant : between 4.2 – 4.4 ton/ha for wet and 2.2 – 2.4 for dry land, output varied little and increased only with land under cultivation, reaching of peak of 1.46 Mio ton in 2000. Results for 2001. especially for dry land remained well below that peak.

One per capita basis this means about 360 kg or less than 1 kg per day per inhabitant, implying barely self sufficiency.

West Lombok enjoyed the highest productivity (4,8 ton/ha wet) but Dompu/Bima had a higher productivity for dry land rice (Table 4).

Wet land or irrigation consist of different quality system : from full scale technical irrigation to semi/non technical, non PU irrigation down to rain feed or dry land paddy (ladang). Data appears not always consistent but BPS statistics give the following picture (Table 5).

3. Agriculture

The discussion of wet and dry land indicated regional and production characteristics for NTB land use and agriculture. In the following available (though not always compatible) statistical material will be analyzed to arrive at conclusions:

a) What type of agriculture products are produced including info on land area, output, productivity. Current data, time series (projections)

b) Where are those produced : data structured by districts/regions.

c) By whom, under what system of production; general farmer, small holder. (private/state) plantation.
Paddy, Staple
This covers primarily staple food are consumption.

Vegetable
Part is for own consumption (house garden), in specialized up land vegetable farms most of output is for the market.

Fruit
Except for house gardens most output is destined for local / regional markets, including agro processing. There are also some larger fruit plantations (e.g. pine apple, etc.).

Spice
These are specialized (cash) crops, some rather profitable but also risky.

Plantation
This includes some products under category C and D, though there also special plantation products not for direct food consumption but for further Agro Industry.

The info most important concern:

(1) Total cultivated / planted area (1000 ha)

Due to multicropping this may be difficult to establish; s.t. crops are planted parallel, s.t., for example, tobaccos is planted as second crop on sawah. Total "cultivated" or crop are area thus may exceed total agricultural land available per se. The first percentage share would indicate the role of crop in question regarding total agriculture land or output. As part of a regional comparison it would also be of interest to establish the weighted ratio of a given (sub) district in regard to total (province NTB) cultivation area of that particular product. In addition overall changes in land use and different crop areas would give insight into the general performance of that product or group and could also indicate certain constraints or competing factors.

Changes in land use, possible expansion or changes in crop patterns a.o. will be influenced by:
- Overall "profitability" of the crop or farmers anticipation / return perception
- Natural, climate, rainfall, etc. exchanges
- Competing demand by other user, urbanization, etc.
- Availability / cost of investment funds, e.g. for irrigation
- New technologies

Progressively increasing (investment) cost to open up and cultivate higher to un-or underutilized land will act as constraint and final limit for expanding cultivated areas, not to mention environmental threats and cost.

In the long run the solution therefore must be in intensification i.e. increasing productivity.
(2) Output
First output will be measured in physical quantities (tons or for large crop 1000 ton). In order to be included in RGDP accounts agricultural production must be valued in monetary terms. With varying price definitions and large fluctuations this will not always be easy.

The production area, respective share of total agricultural output as well as of total NTB output of the given crop, will be important findings for further analyses.

(3) Productivity
Productivity i.e. output per ha (or per agriculture labor) will be the key element and first step for an economic analysis and for an economic comparison of different crops.

Again regional variations in crop productivity also warrant further analyses and may serve as basis for benchmarking.

(4) District data
To study output data over a larger time span could provide important insight (1500 ha). Here we compare results among the 6 Kab/Kota and Mataram includes some fringe sawah areas (1.500 ha) and possible also some house gardens but in general those 2 towns are excluded from our overall agricultural comparison.

Where applicable further analyses on sub district (kecamatan) level or for specific production zones / centres (kawasan produksi) will be added.

(5) Agriculture product Profile
Finally for each (main) product a standard data sheet/profile shall be prepared.

4. Plantation
Total potential/land areas, suitable for plantation was originally estimated with 665,000 ha but reduced in 2001 to 596,000 ha. From this base only about 28% or 167,000 ha are currently utilized (effectively planted).

Table 10 shows how this potential and actual utilization ratios are distributed by kab. With a potential of almost 210,000 (35 %) Sumbawa takes the lead but until today there are only 23,000 ha plantations (4 % ratio).

The larger private estates today play a reduced role (coffee, cashew. compared to small holders/community land which comprise about 97.5 of plantation land.

Table 11 provides background info as to area, output productivity and regional concentration of or the major plantation products.

Table 12 (1 - 6) gives the same data as Table 11 for NTB/WLK and for each of the 6 kab.
5. Forestry

Forestry issues have already been discussed in chapter V in the context Environment / Natural Resources.

Here we are mainly concerned with economic aspects.
Table VI-13 summarizes area and production data relevant for the timber industry in NTB as well as for the 6 kab. Over 50 % of total forest area (0.61 Mio ha) is located on Sumbawa followed by Bima. Those 2 regions supply most of the productive forest land (0.47 Mio ha), i.e. full and limited commercial exploitation. The other kab. on Lombok play only a minor role as deforestation (especially around Rinjani) has reached already critical levels.

Total productions of timber in 2001 reached 103,000 m³ evenly distributed between HPH productions (Dompu) and JPK productions (Sumbawa).

By 1998 teak wood production dropped to zero, also jungle wood (Rimba) declined from 30,000 m³ to below 1,000 m³ by 2001. Mellucana remains as main species with 52,000 m³.

Imports (from Kalimantan) in 2001 were about 5,000 m³.

6. Live Stock / Husbandry

With a large part of dry land and grass land as well as hilly topography, NTB especially the island Sumbawa offers a good potential for husbandry, i.e. cattle/buffalo or horses as well as poultry (chickens, ducks). NTB supplies many other provinces including Jakarta with live stock.

Tables 8 and 9 shows total stock of animals in NTB and distribution by districts.

Cows/Cattle

There are various breeds, the dominant being the “Bali” cow. Cattle raising is primarily for beef/meat productions, there is no dairy industry to speak of; milk is only for own consumption.

Total cattle (cows) in 2001 reached close to 400,000, a considerable increase from previous years. Cattle breeding is concentrated in West Lombok (25 %) but also spread widely throughout NTB.

Horses

Like Sumba also Sumbawa is known for its (small) horses. Horses are used for the popular carriage cidomo, there are horse races and the horse has an important place in NTB culture / tradition. It is considered a valuable asset/saving. There were 71,000 horse in 2001, a slight decline from the previous year. About 35,000 horses are found on Sumbawa alone, even in Mataram there are still 2000 horses. About 2,300 horses were slaughtered in 2001, also for export.
Buffalo/Kerbau
80% of the 158,000 kerbaus are on Sumbawa. Kerbaus are used in agriculture and for meat production. Again there was also a slight decline in stock, though NTB continues to be a major supplier for DKI, Timor and other provinces with 8,000 buffaloes slaughtered per year.

Goats/Kambing
Next to chickens goats are the most numerous animals throughout NTB. Of the 240,000 stock Sumbawa and Central Lombok have a total 50% share.
As slaughtering for own consumption in 2001 covered only 6,600 animals (down from 10,000 in 1998 and a share of only 3% of total stock) this implies major exports.

Sheeps/Domba
Compared to goats the 17,000 sheeps play only a minor role, half of those are found in East Lombok.

Pigs/Babi
With 90% Muslim population, pig farms are only found in limited areas with Balinese/Hindu Chinese population, in West Lombok/Mataram. Yet stock has increase from 22,000 in 1997 to 40,000 in 2001. The slaughter ratio is about 10% per year.

Chicken
Here we have 2 categories:
- Breeder, broiler from chicken farms
- Local, kampung chicken which still roam freely.
The latter still dominate with 3.8 Mio, compared to 0.5 Mio.
Other poultry includes ducks with a populations of 0.5 Mio and a few geese.

7. Fishery and Marine/Agriculture
NTB has an ocean/coast area of 23,000 km², which by far exceeds land area (20,90 km²). It addition there is coastline stretching 2,333 km. It land water surfaces (lakes, ponds, dikes etc.) and over another km². This implies a large potential for both sea and fresh water fishery and other marine products (sea grass, pearls, shrimp etc.).