LAND POLICIES, STRATEGIES AND GUIDELINES TO STRENGTHEN INDONESIAN AGRARIAN REFORM

FINAL REPORT

SUBMITTED TO

THE NATIONAL LAND AGENCY – BADAN PERTANAHAN NATIONAL REPUBLIC INDONESIA (BPN-RI)

and

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Table of Contents

APPENDICES

List of Figures

List of Tables

RINGKASAN EKSEKUTIF

Dalam konteks pembangunan pertanian dan reformasi agraria, laporan ini membahas masalah-masalah yang berkaitan dengan reformasi pertanian dan penggunaan sumber daya alam, manajemen dan faktor sosial ekonomi dan dampak lingkungan di perdesaan dan penduduknya. Laporan ini mencakup aspek-aspek terkait peluang dan kendala produksi seperti tercermin dalam akses terhadap sumber daya agraria, hak kepemilikan, penggunaan dan hak eksploitasi, biaya input dan ketersediaan, dinamika pemanfaatan lahan, praktek manajemen, dan kemakmuran pedesaan serta keadilan sosial. Cakupan yang dibahas meliputi hukum dan peraturan yang ada, pengawasan tata guna lahan yang bersifat informal dan pemberian insentif yang membentuk dinamika penggunaan lahan di wilayah Republik Indonesia, serta dampak kebijakan mengenai distribusi manfaat yang diperoleh dan pengaruhnya kepada masyarakat.

Pembangunan pertanian adalah salah satu agenda yang paling penting dari pemerintahan SBY yang baru. Prioritas kebijakan RI baru diidentifikasi meliputi ketahanan pangan, swasembada pangan di daerah, meningkatkan produktivitas pertanian, memperkuat hubungan intra-sektoral, peningkatan pendapatan masyarakat perdesaan, evaluasi subsidi, dan keadilan dalam perdagangan internasional. Dengan dominannya petani yang tidak memiliki lahan dan pertanian skala kecil, reformasi agraria merupakan elemen penting dalam mencapai tujuan-tujuan kebijakan ini. Hal ini memerlukan inisiatif kebijakan yang terfokus dan berdedikasi, yang tidak hanya menyelesaikan persoalan akses dan keamanan atas tanah, tetapi juga harga faktor-faktor produksi dan kebijakan yang efektif dalam upaya meningkatkan kelangsungan hidup perekonomian usaha tani berskala kecil. Skenario harga yang menguntungkan produsen harus dikombinasikan dengan peningkatan produktivitas untuk meningkatkan pendapatan masyarakat perdesaan, pengolahan pasca panen dan pemasaran. Dalam proses ini, peran dan kapasitas penyuluh pertanian dalam meningkatkan pengelolaan lahan sangat penting yaitu dengan menyediakan bantuan teknis yang efektif.

Untuk mengembangkan kebijakan pertanahan nasional yang layak secara ekonomi dan ramah terhadap lingkungan, dokumen ini mendorong pengembangan kerangka perencanaan pemanfaatan lahan yang bersifat jangka panjang, transparan, hirarki, proaktif dan dapat dilaksanakan. Pelaksanaannya didasarkan pada biaya mobilisasi aset-aset sumberdaya alam secara efektif dan kapasitas produksi yang berkelanjutan untuk menghasilkan barang dan jasa. Hal ini memerlukan adanya konsolidasi, harmonisasi dan memusatkan kembali perhatian undang-undang dan peraturan yang ada untuk memobilisasi peluang produksi yang masih terpendam dan target pengembangan kembali tata guna tanah dan pembatasan, termasuk penggunaan yang efektif untuk mengontrol penggunaan lahan, serta insentif dan perpajakan. Perencanaan penggunaan tanah tersebut adalah prasyarat untuk pembentukan program pembangunan ekonomi pedesaan yang layak dalam upaya untuk mengoptimalkan peluang produksi, meningkatkan kemakmuran perdesaan dan mengurangi resiko dan dampak lingkungan.

Badan Pertanahan Nasional (BPN), dalam kerjasamanya dengan Badan Perencanaan dan Pembangunan Nasional (BAPPENAS) memiliki posisi yang baik dalam memimpin kebijakan pertanahan. Kebijakan pertanahan yang dilaksanakan mencakup berbagai aspek kepemilikan dan penggunaan tanah, manajemen konflik, dinamika penggunaan akses terhadap lahan. Dengan menggabungkan suatu perencanaan tata ruang secara sistematis, dengan masukan dari, dan dalam kemitraan dengan berbagai instansi pemerintah terkait lainnya (dengan menggunakan infrastruktur informasi dan data spasial nasional), agregat preferensi sektor ekonomi dapat dikaitkan dengan prioritas spasial di tingkat nasional, propinsi dan lokal (kabupaten). Hal ini akan menyediakan unsur-unsur penting dari provinsi dan rencana penggunaan lahan di daerah yang dirancang untuk mengoptimalkan penggunaan lahan, kebutuhan dan peluang produksi sumber daya alam, sekaligus mengurangi degradasi sumber daya alam dan melindungi lingkungan. Khususnya mencakup upaya pencegahan lebih lanjut terhadap degradasi sumberdaya agraria dan sumber daya air untuk kesejahteraan generasi mendatang dan melestarikan keanekaragaman hayati yang masih ada, tidak hanya membuat Indonesia menjadi unik, tetapi juga menyediakan potensi sumberdaya farmasi dan ekowisata yang sangat besar.

Di Indonesia, Reforma Agraria didefinisikan sebagai Land Reform (LR) + Access Reform (AR). Komponen pertama berhubungan dengan aspek-aspek ketersediaan lahan, kepemilikan, hak, jaminan atas hak dan pemanfaatan tanah, sedangkan yang terakhir membahas faktor yang mempengaruhi produktivitas lahan, ketersediaan faktor-faktor produksi, biaya dan kelangsungan hidup ekonomi (laba bersih per hektar). Kelangsungan hidup ekonomi berhubungan dengan kualitas tanah - seperti yang didefinisikan dalam kapasitas produksi agro-ekologi, yang dikombinasikan dengan kesesuaian lahan – lahan. Ketika penggunaan pilihan-pilihan khusus dievaluasi, dalam konteks biaya faktor-faktor produksi dan harga produk, akan menunjukkan potensi hasil bersih yang dapat diperoleh. Untuk membuat reformasi agraria sebuah kemungkinan yang nyata, disarankan agar evaluasi tanah secara sistematis (penilaian biofisik atas kesesuaian lahan dan sosial ekonomi dengan kriteria pemanfaatan lahan) dilakukan untuk:

(1) Memfasilitasi pembangunan tingkat nasional, menetapkan prioritas makro-sektoral, dan membangun prioritas rencana pembangunan ekonomi 10 tahunan yang mencakup perumusan dan artikulasi yang jelas dan prioritas kebijakan sektor (pertanian, kehutanan, pariwisata, perikanan, pembangunan ekonomi, pertumbuhan manajemen, kontrol populasi, perumahan, manufaktur, layanan dan infrastruktur fisik, sumber daya ekstraktif, pengelolaan lingkungan, dll) dan menghasilkan hubungan spasial dengan zonasi penggunaan lahan nasional berdasarkan penilaian keunggulan komparatif daerah yang obyektif;

(2) Merumuskan Master Plan Tata Guna Tanah tingkat provinsi yang lebih detail dan identifikasi secara spasial prioritas sektor dan zonasi di tingkat provinsi, dan akhirnya;

(3) Mengembangkan Master Plan Tata Guna Tanah tingkat kabupaten dan peraturan zonasi yang secara hukum harus ditegakkan untuk memperjelas pengertian pembangunan (jenis dan intensitas), konservasi lahan dan kawasan lindung serta

prioritasnya, sambil menggunakan kriteria evaluasi lahan dan kriteria keberlanjutan untuk menerjemahkan konsep menjadi kenyataan.

Kerangka kerja perencanaan penggunaan lahan yang hierarkis seperti itu saling memperkuat dengan menghubungkan prioritas nasional - dipandu oleh potensi aset sumber daya yang terdefinisi dengan baik (misalnya agro-ekologi dan pertimbangan kesesuaian lingkungan dan ekonomi evaluasi tanah) - untuk prioritas provinsi dan penggunaan lahan di tingkat kabupaten, harus didefinisikan secara spasial. Perumusan rencana tata guna tanah tingkat propinsi dan kabupaten juga harus mencakup pemerintah yang secara hukum memeiliki mandat dan tinjauan perencanaan publik (dengan berbagai stakeholder, input dan prosedur) dan mengizinkan proses (transparansi dan tinjauan pembangunan yang obyektif, konsesi dan izin bangunan) yang memastikan bahwa rencana penggunaan lahan provinsi dan kabupaten mencerminkan, memperkuat dan memberikan gambaran detail secara berurutan, prioritas nasional dan propinsi, di tingkat implementasi.

Dalam kerangka perencanaan tata ruang, berikut adalah rekomendasi tindakan utama (100 hari, 1 - 5 tahun) yang disarankan:

- Integrasi formal antar lembaga yang memiliki fungsi perencanaan tata ruang (seperti yang diselenggarakan oleh Badan Pertanahan Nasional (BPN), Badan Perencanaan dan Pembangunan Nasional (BAPPENAS), Departemen Pekerjaan Umum, Badan Koordinasi Survey dan Pemetaan Nasional (BAKOSURTANAL), dan berbagai kementerian yang mencakup sumber daya alam - seperti pertanian, kehutanan dan lingkungan, dalam suatu gugus tugas inter-institusi yang memprioritaskan, mengartikulasikan dan memiliki inisiatif untuk mengembangkan program secara langsung dengan tujuan untuk merumuskan Rencana Spasial Pembangunan Ekonomi Nasional 10 Tahunan (100 hari - 2 tahun, masing-masing). Proses ini akan mencakup tinjauan dan pembaharuan atas rencana tata ruang wilayah yang ada (menggunakan informasi yang selalu diperbaharui) untuk memastikan konsistensi dengan prioritas nasional dan daerah yang berdekatan.

- Mempercepat konsolidasi dan restrukturisasi hukum dan kebijakan pertanahan untuk menyelaraskan dan memperjelas sektoral, nasional, regional dan mandat lokal dan kewenangan secara hukum untuk merencanakan tata ruang dan tanggung jawab untuk mengembangkan master plan penggunaan lahan secara nasional 10-tahun, regional dan lokal selama 5 tahun. dan perencanaan tata guna tanah di tingkat dan pelaksanaan dalam bentuk peraturan hukum yang konsisten dengan rencana regional dan nasional (1-2 tahun). Ini harus mencakup klarifikasi dan diundangkannya peraturan yang bersangkutan serta sertifikasi hak atas tanah (misalnya hak milik) dan hak-hak pakai untuk individu dan perusahaan yang bersifat permanen, idealnya harus disederhanakan dan direstrukturisasi ke rezim freehold dan leasehold.

- Mempercepat program-program pendaftaran tanah melalui pengembangan kapasitas kelembagaan dan mengurangi hambatan untuk pendaftaran, termasuk menurunkan (mempertimbangkan kemampuan membayar) atau penghapusan biaya pendaftaran pertama kali. Hal ini harus meliputi perampingan dari sistem pendaftaran tanah dan

pengurangan biaya transaksi dalam bentuk digital dan konsolidasi dengan catatan pajak untuk menjamin pengkajian pajak di masa mendatang dan meningkatkan pendapatan pajak yang akan lebih besar dari biaya subsidi pendaftaran percetakan.

- Mempertimbangkan formalisasi penguasaan tanah masyarakat (keamanan tanah adat di masyarakat) bersama-sama dengan hak atas tanah tanah pribadi yang didasarkan pada kepentingan keamanan dalam jangka panjang untuk membantu mobilisasi aset, modal dan investasi dan produktivitas yang belum tergali. Izin penyampaian kepemilikan tanah secara formal jangka panjang yang terbatas dan terbarukan dengan menggunakan kriteria seleksi dan prosedur yang objektif dan transparan.

- Memperjelas otoritas hukum untuk mengambil hak milik pribadi untuk barang publik (hak mencabut hak atas tanah/eminent domain) sambil menyediakan tinjauan umum yang transparan dan tidak memihak, prosedur banding dan kompensasi yang adil pada nilai pasar yang wajar yang ditentukan oleh penilai independen (1 tahun).

- Menetapkan Multi-institusi Gugus Tugas Identifikasi Aset Pertanahan dengan tanggung jawab utama untuk melakukan inventarisasi lahan yang tersedia untuk distribusi secara sistematis, akurat dan lengkap sesuai dengan wilayah sasaran (penduduk berdasarkan kebutuhan, lihat di bawah). Inventarisasi ini harus meliputi aspek kualitas tanah bio-fisik dan pemeringkatan produktivitas pertanian dengan irigasi dan tadah hujan yang menghasilkan pembentukan Bank Tanah daerah. Ketersediaan tanah dan kriteria seleksi akan mencerminkan kategori yang didefinisikan secara hukum, seperti menganggur, kelebihan maksimum dan tanah absentee yang dimiliki oleh entitas publik dan swasta, termasuk seluas 7 juta hektar lahan yang telah diidentifikasi oleh BPN (1-2 tahun)

- Menetapkan Lembaga Multi-akses suatu Gugus Tugas untuk Memobilisasi Akses Terhadap Tanah dengan tanggung jawab utama untuk memobilisasi produktivitas lahan yang belum tergali dengan memastikan adanya akses terhadap tanah yang aman (keamanan hak atas tanah dan jaminan) dan ketersediaan biaya efektif modal mikro dan biaya faktor-faktor produksi bagi pemilik tanah skala kecil, bantuan teknis untuk pengelolaan pertanian, koperasi usaha, produk dan pengembangan rantai pemasaran (1-2 tahun).

- Menetapkan lembaga Multi-institusi dengan Gugus Tugas untuk Penilaian Kebutuhan dengan tujuan utama untuk mengidentifikasi prioritas daerah penerima program distribusi tanah berdasarkan kriteria penerima manfaat secara hukum yang jelas dan ketersediaan bank tanah regional. Pastikan bahwa kriteria yang ada diartikulasikan dengan baik, dipahami dan dilaksanakan secara objektif dan transparan dalam program distribusi tanah di daerah. (1 tahun)

- Pembentukan lembaga multi-institusi Gugus Tugas Sistem Informasi Pertanahan dengan tujuan utama untuk mengembangkan Sistem Informasi Spasial yang terintegrasi yang meliputi catatan pajak atas properti dan bidang tanah terbaru, dan data survei bidang tanah yang terhubung dengan identitas kepemilikan tanah # untuk

membantu penilaian lahan, perpajakan, pengumpulan, pengelolaan lahan, transaksi pertanahan dan pendaftaran hak atas tanah. Sistem ini harus terhubung dengan jaringan (dengan protokol keamanan) secara nasional, regional dan kantor lokal dan kompatibel dengan penutup lahan / penggunaan lahan dan data evaluasi tanah, termasuk topografi, tanah, hidrologi, iklim dan data kependudukan. (5 tahun)

- Tetapkan Gugus Tugas Penguasaan dan Administrasi Pertanahan dengan tanggung jawab untuk menentukan jenis penguasaan tanah dan hak pakai dari sistem non-tradisional dan masyarakat adat, dengan tujuan untuk menentukan dan memastikan hak pakai jangka panjang atas tanah, mempromosikan pemanfaatan tanah yang berkelanjutan dan mencegah spekulasi tanah dan eksploitasi sumber daya, sambil mengurangi dampak lingkungan dan resiko atas manusia. Hal ini harus meliputi program percontohan untuk mengidentifikasi parameter optimal daerah untuk pekarangan yang mewakili sistem pertanian skala rumah tangga sebagai tambahan pendapatan dan sumber-sumber nutrisi yang didasarkan pada penggunaan lahan yang mengintegrasikan agro-forestry, ternak dan perikanan (1 - 5 tahun)

- Tetapkan Gugus Tugas Manajemen Konflik Pertanahan dengan tujuan untuk meninjau ulang, menurunkan dan mengurangi konflik pertanahan dengan meningkatkan manajemen dan praktek resolusi konflik, merekomendasikan praktek dan prosedur untuk menjamin akuntabilitas publik dan pelaksanaan penegakan hukum yang tidak memihak dan transparan. Ini harus mencakup standar pembuktian untuk tanah dan identifikasi hak atas tanah dengan standar yang jelas dan aturan untuk untuk melakukan klaim atas tanah (sedang berlangsung)

- Meningkatkan kerjasama dalam pengembangan sumber daya manusia dan kapasitas kelembagaan seperti yang ada saat ini dengan Swedia, Belanda, Australia dan kalangan akademik dan profesional dari Amerika Serikat, yang terkait analisis dan formulasi kebijakan pertanahan, desain dan pengelolaan sistem informasi pertanahan, dan perencanaan pembangunan ekonomi melalui training pasca-sarjana atau kursus pelatihan singkat. (sedang berjalan)

- Untuk menarik investasi asing, dengan mempertimbangkan secara terbuka dan selektif untuk memungkinkan dan merangsang kepemilikan properti asing yang kini sering dilakukan dengan menggunakan perusahaan lain (yang diajukan) atau nominator yang menghasilkan biaya transaksi yang lebih tinggi, ketidakpastian dan membatasi investasi.

- Untuk mengurangi korupsi dan kolusi dalam urusan tanah, memperjelas dan menyederhanakan semua kriteria alokasi lahan dan prosedur untuk distribusi tanah, sertifikasi, akuisisi, dan transformasi (dan rezoning) kepentingan atas tanah dengan menyediakan regulasi yang transparan, dokumen publik dengan tanah dan informasi pajak yang bersifat online yang bersifat online, dan menyediakan proses hukum (prinsip-prinsip dasar keadilan) untuk gugatan oleh publik dan upaya banding.

EXECUTIVE SUMMARY

In the context of agricultural development and agrarian reform, this report addresses issues associated with the reform of agricultural and natural resource use, management and resulting socio-economic and environmental impacts on rural areas and their populations. Related aspects include production opportunities and constraints as reflected in land resource access, tenure regimes, use and exploitation rights, input cost and availability, land use dynamics, management, rural prosperity and social justice. Boundary conditions discussed include the existing legal and informal land use controls and incentives that shape land use dynamics in the Republic of Indonesia, and the policy effects on the distribution of associated benefits for and impacts on its people.

Agricultural development is one of the most vital agendas of the new SBY administration. New RI policy priorities identified include food security, regional food self-sufficiency, improving agricultural productivity, strengthening intra-sectoral linkages, improving rural incomes, evaluation of subsidies, and fairness in international trade. With the dominance of land-less and small-scale farming, agrarian reform is a critical element in addressing these policy objectives. This will require a focused and dedicated policy initiative that not only addresses land access and security but also input and pricing policies that are effective in improving the economic viability of small-scale farms. Price scenarios that benefit producers have to be combined with increases in productivity to improve rural incomes, post-harvest processing and marketing. In this process, the role and capacity of agricultural extension in improving farm management by providing effective technical assistance, is also essential.

To foster economically viable and environmentally sustainable national land policies, this document encourages the development of a long-term, transparent, hierarchical, pro-active and enforceable land use planning framework. Its implementation is based on the cost-effective mobilization of natural assets and their sustainable production capacity to generate natural resource goods and services. This will require, foremost a consolidation, harmonization and refocusing of existing laws and regulations to mobilize latent production opportunities and target land use (re)development and restrictions, including the use of effective land use controls, incentives and taxation. Such land use planning is the precondition to the establishment of a viable rural economic development program that seeks to optimize production opportunities, promote rural prosperity and reduces environmental impacts and risk.

The National Land Agency (BPN), in close cooperation with the National Development Planning Agency (BAPPENAS), is well-positioned to provide land policy leadership in this effort. Its Land Affairs programs address various aspects of ownership and use rights, conflicts management, land use dynamics and access. By incorporating a systematic Spatial Planning Program with input from, and in partnership with, other relevant government agencies (using the appropriate National Spatial Data Information Infrastructure), aggregate economic sector preferences can be related to spatial priorities

at the national, provincial and local (regency) level. This will provide the essential elements of provincial and local land use plans that are designed to optimize land use benefits, given natural resource production opportunities and needs, while reducing resource degradation and protecting the environment. This specifically should include the prevention of further degradation of land and water resources to safeguard the well-being of future generations, and preserve the remaining biodiversity that not only makes Indonesia unique, but also provides enormous ecotourism and pharmaceutical potential.

In Indonesia, Agrarian Reform is defined as Land Reform (LR) + Access Reform (AR). The first component deals with the aspects of land availability, tenure, title security and use rights, while the latter addresses the factors affecting land productivity, input availability, cost and economic viability (net returns per hectare). The economic viability relates to land qualities - as defined in agro-ecological production capacity, combined with land suitability – when specific land use options are evaluated in term of input cost and product prices, denoting potential net returns.

To make real agrarian reform a possibility, it is recommended that a systematic land evaluation (land suitability assessment using biophysical and socioeconomic land use criteria) be conducted to:

(1) Facilitate the *development of national-level, macro-sectoral priorities and define a 10-year economic development plan that includes the formulation and clear articulation of sector and policy priorities* (agriculture, forestry, tourism, fisheries, economic development, growth management, population control, housing, manufacturing, physical and service infrastructure, resource extraction, environmental management, etc.) and resulting spatial linkages with national land use zoning based on an objective assessment of regional comparative advantages;

(2) *Formulate Provincial Master Land Use Plans* to further detail and spatially identify sectoral priorities and priority zones at the provincial level; and finally

(3) *Develop Local or Regency Land Use Master Plans and Legally Enforceable Zoning Ordinances to clearly define development (type and intensity), land conservation and preservation zones and priorities,* while using land evaluation and sustainability criteria to translate development concepts into reality.

Such hierarchical land use planning framework is mutually reinforcing by linking national priorities -- guided by well-defined resource assets potential (e.g. agro-ecological and environmental suitability considerations and economic land evaluation) -- to provincial and local land use priorities, spatially-defined. This formulation of provincial and regency plans should also include legally mandated government and public planning reviews (with various stakeholder inputs and procedures) and permitting processes (transparent and objective reviews of development, concessions and building permits) that ensure that provincial and local land use plans reflect, reinforce and detail respectively, national and provincial priorities, at the levels of implementation.

Within this Spatial Planning framework, the following major Action Recommendations (100 days, 1 - 5 years) are suggested:

- A formal *integration of current inter-agency spatial planning functions* (such as held by BPN, BAPPENAS, the Ministry if Public Works, the national mapping agency and the various natural resources ministries - such as agriculture, forestry and environment, within a multi-agency task force to prioritize, articulate and direct programmatic initiatives with the ultimate goal to *formulate a 10-year National Spatial Economic Development Plan* (100 days – 2 years, respectively). This process would include a review and updating of existing regional spatial master plans (using up-to-date information) to ensure consistency with national priorities and adjacent regions.

- Accelerate the *consolidation and restructuring of land policy laws to harmonize and clarify sectoral, national, regional and local mandates and legal authorities* for spatial planning and responsibilities for *developing 10-year national and 5-year Regional and Local Land Use Master Plans and their local implementation in the form legal ordinances, and consistent with regional and national plans* (1-2 years). This should include the clarification and promulgation of pertinent regulations and certification of land titles (e.g. *hak malik)* and permanent use rights to individuals and companies, ideally to be simplified and restructured into freehold and leasehold regimes.

- *Accelerate land registration programs by institutional capacity development and reducing impediments to registration*, including the lowering (payment capacity consideration) or elimination of initial registration fees. This should include a streamlining of the land registration system and reduction of transaction cost in digital form and consolidation with tax records to assure future tax assessment and enhance tax revenues that will more than off-set registration subsidies

- *Consider the formalization of community land holdings (land security in adat communities) together with private land titles* based on long-term security interest to help mobilize assets, capital and investments and latent productivity. Permit the formal conveyance of land titles that are long-term limited and renewable using objective and transparent selection criteria and procedures.

- *Clarify Public Legal Authority to take private property for the public good* ("eminent domain") while providing for transparent and impartial public review, appeal procedures and just compensation at fair market values as determined by independent arbitration. (1 year)

- *Establish a multi-agency Land Asset Identification Task Force* with the major responsibility to conduct a systematic, accurate and complete inventory of available land for distribution in targeted (population need-based, see below) areas. This inventory should include bio-physical aspects of land quality and agricultural productivity ratings under irrigated and rain-fed conditions, and result

in the *establishment of Regional Land Banks*. Land availability and selection criteria will reflect the legally defined categories, such as idle, excess and absentee-land held by private and public entities, including the currently 7 million hectares already identified by BPN (1-2 years)

- *Establish a multi-agency Land Access Mobilization Task Force* with the major responsibility to mobilize latent land productivity by ensuring secure access to land (title security and insurance) and the cost-effective availability of micro-capital and material inputs for small-scale landowners, technical assistance for farm management, cooperative ventures, product and value-chain development. (1-2 years)

- *Establish a multi-agency Needs Assessment Task Force* with the major goal to identify priority recipient areas for land distribution based on clear legal beneficiary criteria and regional land bank availability. Ensure that criteria are well-articulated, understood and implemented in an objective and transparent manner in regional land distribution programs. (1 year)

- *Establishment a multi-agency Land Information System Task Force* with the major goal to develop an integrated Spatial Information System that includes complete and current property and parcel tax records, and parcel survey data linked by ownership ID # to facilitate land valuation, taxation, collection, land management, property transactions and title registration. This system should be networked (with security protocols) with national, regional and local offices and compatible with land cover/use and land evaluation data, including topography, soils, hydrology, climate and population data. (5 year)

- *Establish a Land Tenure and Administration Task Force* with the responsibility to define the most appropriate land tenure and use rights regimes in non-traditional and adat communities with the goal to define and ensure long-term individual use rights, promote sustainable use and prevent land speculation and resource exploitation, while reducing environmental impacts and human risk. This should *include a pilot program to identify the optimum regional parameters for homestead garden or "Pekarangan" systems representing small household farming systems as supplemental income and nutrition sources based on land use that integrates of agro-forestry, live stock and fisheries* (1 – 5 year)

- *Establish a Land Conflict Management Task Force* with the goal to review, reduce and mitigate land conflicts by improving management and resolution practices and recommend procedures to ensure public accountability, and the impartial and transparent implementation of the rule of law. This should include evidentiary standards for land and title identification and clear standards and rules for land claims (on-going)

- *Expand existing cooperation in human resource and institutional capacity development* such as currently existing with Swedish, Dutch, Australian and US

academic and professional institutions related to land policy analysis and formulation, land information system design and management, and economic development planning though post-graduate training an short courses. (on-going)

- *To attract foreign investments, consider openly and selectively allowing and stimulating foreign property ownership,* now frequently accomplished by the use of shell companies or nominees that result in higher transaction cost, uncertainty and restrict investments.

- *To reduce corruption and collusion in land affairs, clarify and streamline all land allocation criteria and procedures for land distribution, certification, acquisition, and transformation (and rezoning) of interest in land* by providing regulatory transparency, on-line public records with land and tax information, and provide due process (fundamental principles of justice) for public review and appeal.

A CHALLENGING OPPORTUNITY

With the advent of the newly inaugurated administration of the Republic of Indonesia in the fall of 2009, Land Policy and Economic Development enters into a new era of challenges and opportunities. Challenges are many. They include the traditional socio-economic, cultural and political challenges, but also the various needs for legislative and executive reform. These challenges come with an even greater set of opportunities; to mobilize the enormous and diverse natural assets of the nation and create a better quality of life for all, while recognizing environmental carrying capacity constraints, and thereby ensuring a prosperous future for its citizens

Therefore, the overarching framework is the paradigm of sustainable development--integrating natural resources capital with economic and social capital, to define and select land use alternatives that are socio-economically viable and acceptable, while preserving ecological integrity and productivity. The overall goal of such a strategic planning initiative is to create solutions that are ecologically restorative and socially just, and that promote a reliably prosperous society, long-term.

The staff of the various key government agencies referred to in this document are instrumental in meeting these challenges: the *formal* responsibility, as envisioned in the tasks of talented professionals to achieve these goals with commitment and dedication within their institutional mandates; and the *informal* intergenerational responsibility, shared by many in Indonesian society, namely to fashion a sustainable and equitable future for its people.

ACKNOWLEDGEMENTS

We thank the staff of BPN for their dedicated support associated with this project**.** Names are too many to cite and are listed in the various appendices. They include staff from the central BPN offices in Jakarta, the various field offices involved in coordinating the case study field visits listed in the various project locations. We also thank the academic staff from Lampung University and Bogor Agricultural Universities. In particular, we like to thank the team members of the BPN Land Policy Working group and our colleagues from the various other components of the Land Management and Policy Development Project, including BAPPENAS.

INTRODUCTION

Agrarian Reform, as an effective land policy program with the goal to improve performance and societal benefits of the agrarian sector, is part of coordinated, long-term economic development planning. Its primary goal is to encourage productive and sustainable land uses that enhance benefits and societal prosperity. As such, it encompasses various policy components. They include:

- *Natural resources assessment to define the sustainable production capacity* of the land resource base -- the complex of resources assets available for the production of food and cash crops and the provision of other goods and services, based on the *long-term agro-ecological capacity to sustain production opportunities*.
- *Land use planning and zoning to promote economic development* -- the development of guidelines and regulations to *allocate land resources to sustainable land uses that are socio-economically viable and environmentally acceptable (and in harmony with the long-term agro-ecological production capacity)*
- *Land policy reform by restructuring land policies and laws to optimize tenure regimes and land rights to promote sustainable use*, *social equity and prosperity* -- the utilization of the land resource base to promote the optimum allocation of human, capital and land resources to promote household and societal welfare
- *Access reform to improve the conditions of land resource allocation* in combination with fixed and variable capital inputs, transportation, processing and marketing infrastructure to maximize profitability.

For national agencies, such as BPN and BAPPENAS to carry out this mandate in cooperating with sector partners such as the Ministries of Agriculture and Forestry, a comprehensive and systematic program design is required together with a sustained and effective implementation capacity. This not only requires the institutional capacity to carry out such responsibilities but also monitoring and evaluation to assess program effectiveness and assure the timely attainment of goals and objectives using key performance indicators.

This report addresses the components listed above with respect to the strategic and programmatic initiatives. First, it introduces highly-relevant concepts, analytical procedures, guidelines and essential survey and information systems capabilities for land use planning, policy formulation and development planning. Then, it addresses specific agrarian reform issues related to the mandates of BPN and partner institutions. As such, the report also includes:

a) A review of existing RI policies affecting agrarian reform issues based on literature study, field research, and personal discussions, in particular relevant national policies associated agricultural sector policies. It also suggests cross-institutional cooperation related to land policy. The analysis provides a review of the major policies affecting land use and land use conflicts, while suggesting future policy directions;

b) A comparative perspective on land policy and land use planning with model regulatory frameworks from other countries, such as the Netherlands and New Zealand, is provided. It is expected that these example may be used to help to ultimately structure a long-term regulatory framework that seeks to establish economically viable and environmentally acceptable land use at the national, regional and local levels; and

c) Suggested strategic initiatives and actions to address key issues/problems related to land policy and agrarian reform (with an executive summary).

The research framework -- the context of land management and land use planning, includes the legal and economic development dimensions of relevant land policy issues and strategic initiatives, associated with an effective agrarian reform program. Emphasis is placed on program guidelines, operational characteristics and potential benefits of an outcome-oriented agrarian reform program, including the reduction or elimination of implementation constraints.

Case studies were completed by reviewing the most significant Agrarian reform projects recently conducted by BPN, such as on South Sulawesi, Lampung and locations on Java (Appendix H) using interviews with stakeholders and BPN staff guided by questions identified in Appendix I

The implied objectives of an agrarian reform program in the RI include:

- improved social wellbeing of the rural poor and disenfranchised – including improved income, employment, nutrition and social status
- reduced social inequity as manifested in improved land access, control and title security, use rights, income distribution, education opportunities, health care and other public services
- increasing productivity of idle or underutilized land
- formalization of ownership and use rights through accelerated, transparent and cost-effective land certification
- reduction of legal ambiguity and duplicity through review, harmonization and consolidation of land laws, regulations, and associated implementation and institutional mandates
- reduction of land disputes and conflicts through effective, transparent and objective title certification and arbitration
- the mobilization of latent capital assets in land holdings through ownership formalization to stimulate capital access, productivity and regional economic development
- improved collateral leverage to reduce interest rates on farm loans to secure operating capital and finance capital improvements
- increased land productivity for food and cash crops and related import-substitution opportunities including the benefits of potential value chains associated with small-scale, cooperative fruits and vegetable production
- increased tax revenues for rural infrastructural improvement resulting from improved productivity and land administration
- agro-ecological zoning, land suitability assessment and spatial planning to articulate economic development guidelines based on land evaluation
- improved spatial data management and analysis capacities to generate comprehensive, accurate, net-worked, secure and timely information
- accelerated, long-term economic growth based on sustainable land management and conservation practices
- reduced social unrest, and

- improved political stability
- improved administrative capacity and effectiveness of key agencies, such as BPN and BAPPENAS through human resource and infrastructural development, including integrated cadastral and Land Information Systems (LIS).

1.1 Scope and Objectives of this Report

This land policy advisory note seeks to assist the BPN in developing policies, strategies and program proposal to (a) foster a proposed Agrarian Reform program; and (b) develop a suitable Land Information System. The assistance provides advice on the following:

a. Sharpening the land policy focus towards a more detail formulation of approaches for implementing policies, strategies, impact and risk analyses, and develop a program proposal to strengthen agrarian reform and economic development;

b. Initiating pilot activities related to land policy implementation;

c. Planning and implementing capacity building to strengthen NLA-RI institutional capabilities in above areas.

Analytical elements include:

a. Analysis of existing RI policies affecting agrarian reform issues, in particular national land policies, directly-related sector policies, and required cross-institutional cooperation;
b. A review of current status and policies directions for the future;
c. Assistance to BPN in formulating a coherent and comprehensive guidelines and strategies for implementing the agrarian reform policy, in line with BPN and other GOI's institutional mandates and principles, and in coordination with BPN management and senior officials and with outside stakeholders as identified and invited by BPN;
d. Assistance to BPN to develop an operational proposal for a related BPN Strategic Plan and Land Information System (LIS) in particular on agrarian reform (in line with broader LIS design). This task has to be linked to broader monitoring and evaluation (M&E) required for the agrarian reform and established linkages in data-base management;
e. Support to plan, implement and manage capacity building programs, in coordination with BPN, to strengthen technical capacity in related areas of expertise. The capacity building reflects policy analyses, exchange of experiences and M&E.

Outputs include:

a. This analytical policy note based on a comprehensives review as indicated above.

b. Draft guidelines and strategies to support implementation of an agrarian reform program, including aspects of monitoring and management strategies along with a list of suggested key activities/programs;
c. Proposed capacity building to develop a core team in NLA-RI capable of guiding agrarian reform efforts.

1.2 Development Planning and Quality of Life – Demand and Supply Considerations

The primary goal of *development planning* is to improve the quality-of-life of human populations by means of a systematic evaluation, selection and implementation of *sustainable* development alternatives (the so-called Land Utilization Types of LUTs) that reflect both environmental constraints and opportunities. Here, sustainable development means the promotion of development policies and plans with carefully-defined goals and objectives that aim to *achieve a sustainable flow of goods and services that enhance human quality-of-life*. More precisely, sustainable development must ensure that public policies are based on the selection of development alternatives that are both *ecologically and politically sustainable* and *socio-economically viable*. As such, sustainable development addresses *the development and management of environmental resources to ensure or enhance the long-term productive capacity of the resource base with the goal to improve long-term societal wealth and individual quality-of-life*.

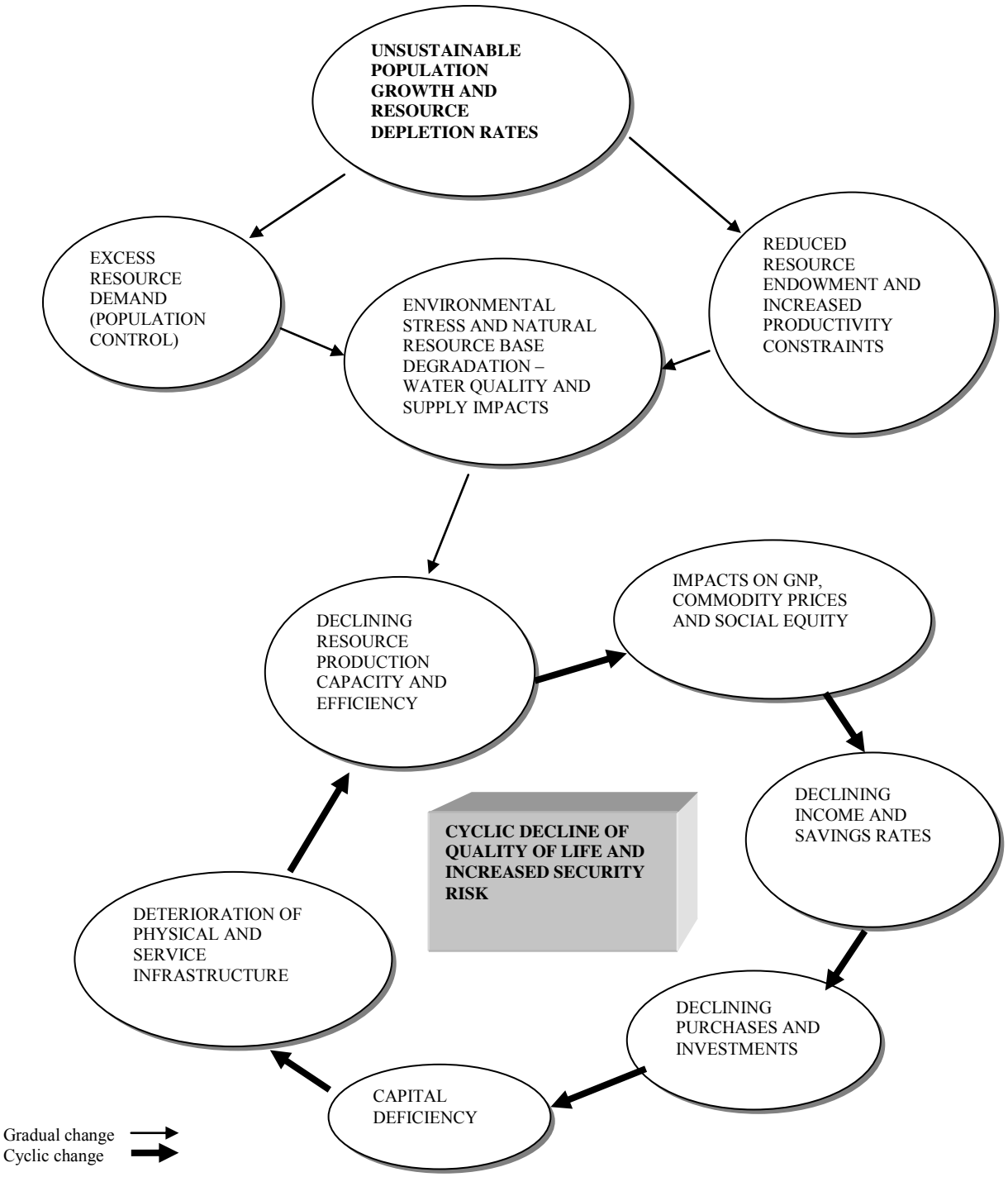
A primary challenge in this public policy formulation process is to *balance* the environmental capacity (production rates) and the derived *supply* of natural resource goods and services with demographic *demand* and, thereby, ensuring that sustainable production capacities are not exceeded, and natural resources degradation is prevented. In a *policy analysis* context, determining *supply* means a systematic assessment of the resource production capacities by location and over time. This assessment must result in quantitative indicators, which directly reflect expected resource production outputs (complex goods and services) using production scenarios based on the long-term production capacity and environmental quality of the natural resources. Demographic or societal *demand* needs to reflect to the available supply of natural resource and its performance – its capacity to deliver goods and services, specifically the ability to affect

quality of life by creating a better place to live -- more capable, productive and efficient in meeting human needs.

The notion of developing comprehensive policies that promote sustainable use of natural resources, maintain resource production capacity and prevent resource degradation was adopted by various UN conferences and supported by many international development agencies. This is especially critically important to nations with lesser discretionary income to meet national demand with the import of essential food commodities or other natural resource products. For these nations, this translates into policies that prevent declining production capacity or reverse trends in environmental degradation, thereby preventing spiraling effects of economic decline, as depicted below (Figure 1.1).

On the *demand side*, concerns about population growth and its impacts were not only expressed at the aggregate national levels but also in terms of population distribution and dispersion. High population growth concentrated in metropolitan areas has, in many nations, caused crises of food security and deteriorating conditions in urban agglomerations where rapid population increases and service demands have outpaced even the most basic infrastructural needs, such as a safe drinking water supply, sewage disposal and treatment, and general education and health care facilities.

Fundamentally, quality of life must reflect the continuum of basic human needs to health risks, environmental quality and resource amenities. A great number of factors affect natural resources production supply and demographic demand. Some of the basic factors are identified below (Figure 1.2). Because the natural endowment and its capacity to produce goods an services is limited -- especially when realistically considering environmental impacts and resource scarcity, nationally and globally, the fundamental need arises to address the notion of national and regional carrying capacities. *The fundamental questions for the Republic of Indonesia is: which level of population growth can be sustained long-term without compromising long-term health, public risk, and the environmental quality (water, air, watershed condition, biodiversity, etc.) on which those conditions depend*? *Which near-term legacy will current generations leave behind?*



Lack of Balancing (National and Regional) Natural Resources Supply and Demand in Public Policy

Figure 1.1 – Impacts of environmental stress and degradation on natural resource production capacity, social equity and security.

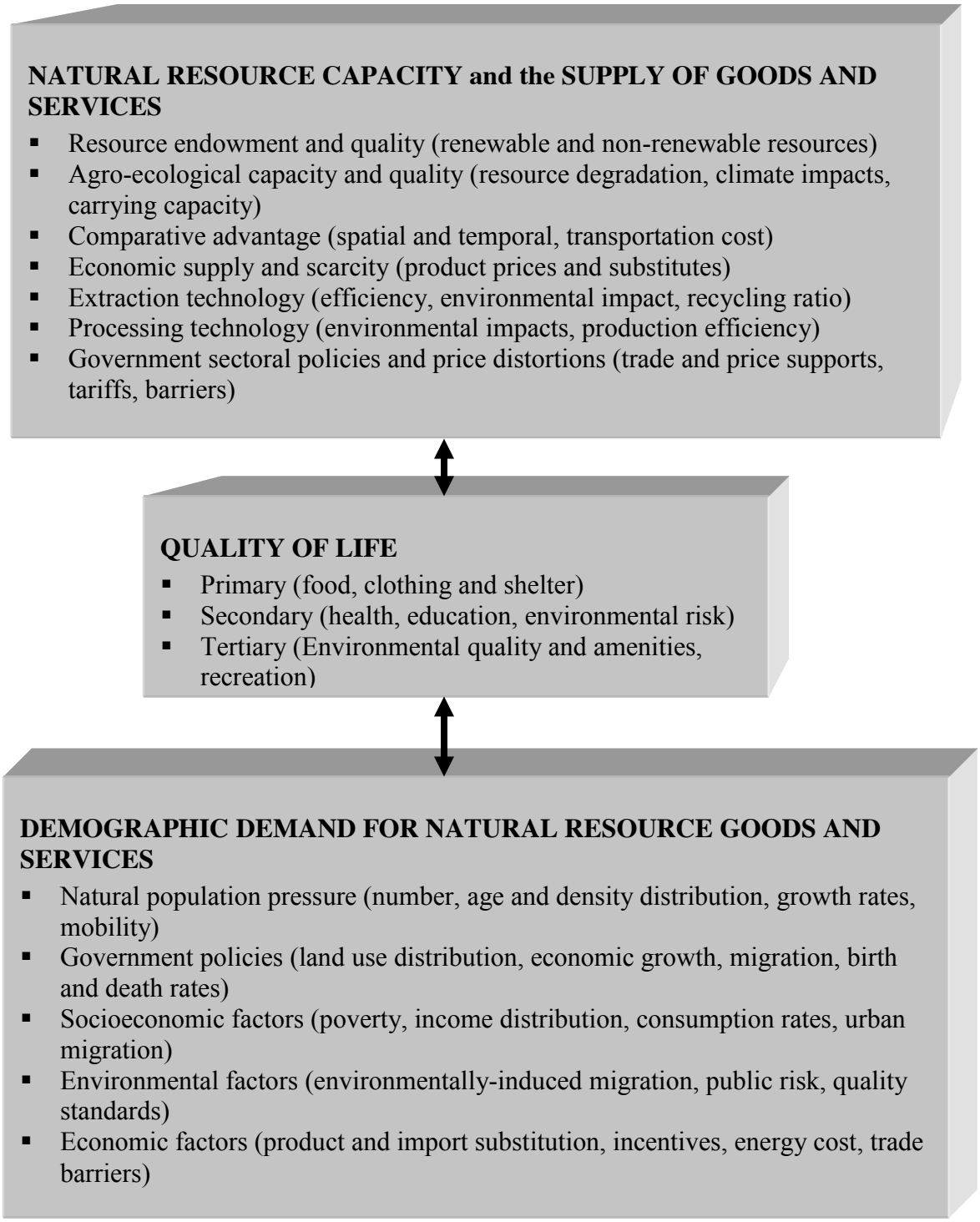


Figure 1.2 – Contextual Policy linkages among Quality of Life, and the Supply and Demand of Natural Resource Goods and Services.

Given current population pressures and its distribution, the issue of population control seems paramount when safeguarding the health of well-being of future generations in the formulation of a comprehensive land use policy. With the current population growth rate, distribution and concentrations, this is a serious question for the new RI administration to consider – and will form the basis for successful long-term public policies that realistically consider sustainable growth, societal prosperity and social equity and justice.

1.3 Integrated Rural Development Planning and Sustainable Land Policies

Within the range of public policy concerns, environmental impacts are increasingly viewed as a fundamental trade-off to economic growth, especially in rapid industrializing nations, such as the BRIC (Brazil, Russia, India and China) economies. Similar questions concerns arise in Indonesia. This perspective is not necessarily correct. *The fundamental issue is not to restrict economic growth and thereby reduce environmental pollution, but to make informed public choices about the type of economic growth to promote, under which circumstances, at which locations, with what environmental controls, and which negative impacts to accept.*

In an agrarian reform program that seeks to restructure production efficiencies and improve rural welfare, this also means making informed choices about which land utilization types (variations of farming and cropping system) to select and matching sustainable land production capabilities with crop requirements. It means conducting land suitability studies that consider both production capacities and economic viability using clearly defined input-output scenarios. This may include the continuum from *small-scale, labor intensive, locally-adapted, "farms" with nutrient recycling* in densely-populated areas dominated by highly productive soils (providing marginal farming households with calories, cash and nutritional value) to large-scale cash crop plantations with higher capital inputs, including capital expenditures for mechanization

and processing, and located at more distant locations from rural communities, possibly on lesser-productive marginal soils. Such approach would require the *demarcation and promotion of small-scale village agricultural zones and large-scale plantation zones* in the context of regional development plans.

The fundamental linkages outlined below (Figure 1.3) may be used to schematically outline these evaluation linkages as describe above, and in the context of sustainable policy analysis and regional planning.

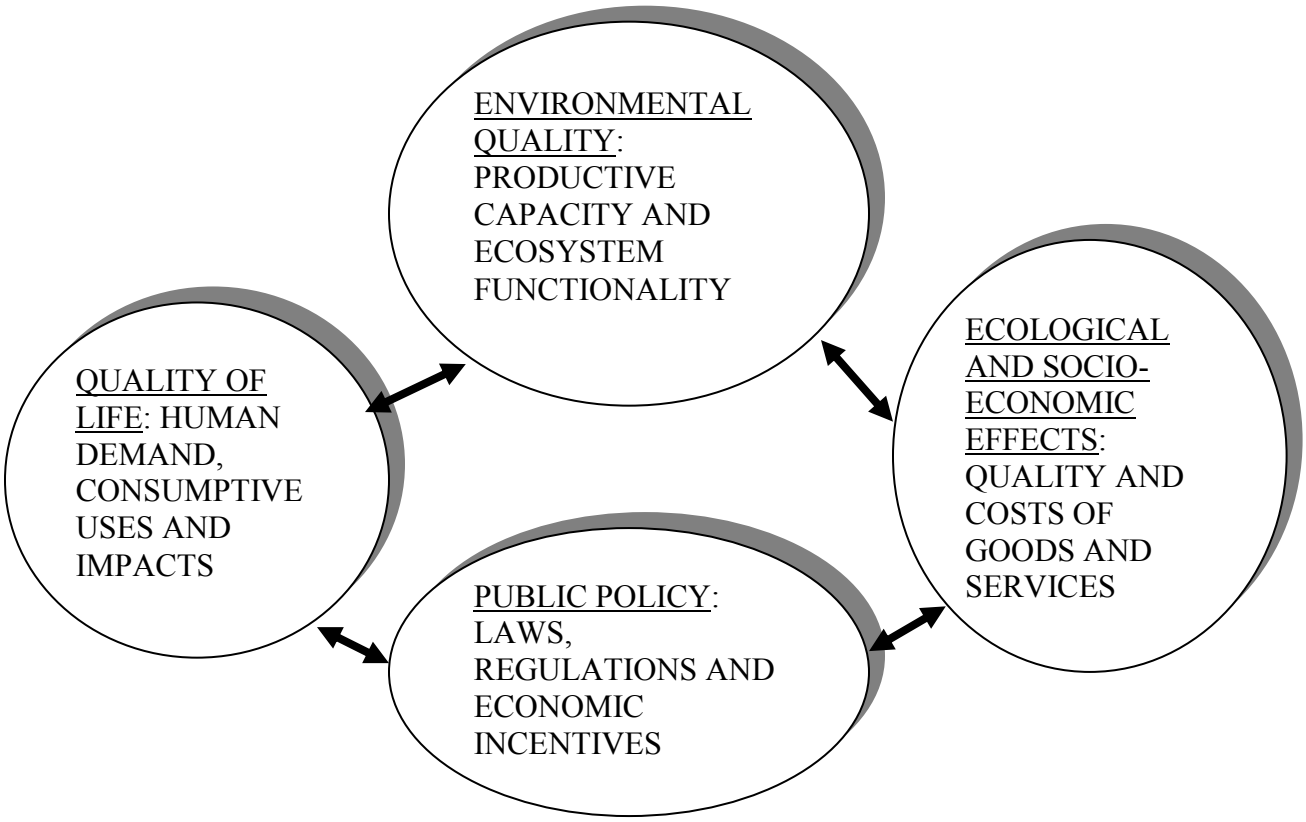


Figure 1.3 - Fundamental Linkages and Effects among Natural Resources, Quality of Life and Public Policies associated with the Use of Natural Resources

The systematic evaluation of natural resource production opportunities and potential opportunities for creating rural prosperity, while considering environmental equality

implications, are fundamental in this public policy analysis. An example of such debate can be found in the expanding and integrating European Community (EC), where policy initiatives address agricultural management practices and environmental impacts, deteriorating water and air quality, restoration of ecosystem functions, and nature preservation. Although EC legislation has already achieved a considerable degree of harmonization, significant differences remain among member states as to their economic ability and political willingness to create an effective environmental policy agenda. Resolving socioeconomic disparities (especially between northern and southern Europe) in rural regions, and addressing the viability of agricultural subsidies and impacts on environmental quality resulting from agricultural subsidies -- such as nutrients, heavy metals and pesticides -- are fundamental issues.

These disparities are not unlike the situation in the Republic of Indonesia (RI). Higher-income regions are observing an agricultural sector in transition. On a regional basis, the reduced GNP- share of the agricultural sector with a lower percentage of employment, environmental impact by plantations, intensive farming systems and bio-industry, and a shift in societal land use perspectives, require a review of land use policies. In addition, countries around the world are increasingly recognizing the critical importance of preserving natural resource assets and ecosystem functions; include their role in water supply and quality management, fisheries and eco-tourism.

Such land use policy focus may be formulated into a strategic action program that sets "sustainable" land use goals and provides more universal access to land resources to increase productivity and address socio-economic disparities. . The action agenda may include policies and objectives that explicitly:

- *improve human quality of life by meeting primary, secondary and tertiary needs*
- *provide equitable access to and availability of natural resources and their products and services*
- *prevent environmental damage and resource degradation*

- *promote sustainable development that addresses present needs without compromising future natural resource production capacity and ecosystem functions and bio diversity*

While in the RI the urgency to enhance quality-of-life is high for a large portion of the population, the principles to avoid lasting environmental damage are also urgent given the state of environmental quality in many urbanized areas, and increasingly so in area subject to intensive land use pressures and surface mining. This urgency must be recognized in a pro-active land policy agenda that seeks to avoid environmental disaster, and reduce environmental impacts and human health risk.

Achieving these long-term objectives depends on the sustainability of land use policies related to industry, energy, transport, agriculture and regional community and rural development. It should be stressed that success depends on two key principles:

a) the *integration of the environmental dimension in all major land use policies* and by establishing environmental protection targets to address causes of resource degradation and environmental deterioration, and
b) *a shared responsibility among the various government agencies, industries and public institutions* and well-articulated and clearly-regulated mandates to gain commitments and agreed-upon policy measures to be achieved, as defined by specific targets and specific progress indicators that can be monitored

A *sustainable land use strategy* includes a wide range of policy instruments, including:

- *legislation to set and enforce environmental standards, monitor performance and progress*, specifically related to water and air quality, and human health risks
- *economic incentives and regulations to increase productivity*, and encourage the production and use of economically viable and environmentally-friendly products and processes;
- *development of an effective agricultural research, education and information infrastructure; and*
- *an adequately-funded and efficient rural extension service* that addresses agricultural production technologies, community develop support, family health

and nutrition, financial assistance and farm budget analysis, and value chain development.

A *rural development strategy* should include the following target sectors: Agriculture (food and cash crops, processing and marketing), Industry (incl. small communal-based manufacturing and repair facilities), Rural Electrification and Communication, Physical Infra-structure (roads, bridges, water supply and treatment), Services Infrastructure (education, health care, land tenure and financial services), and Tourism.

Long-term target themes for rural development should include: watershed and water resource management, waste and water quality management, climate change impacts, acidification and air quality, coastal zone management, land resource conservation and, finally the preservation of critical ecosystems and bio-diversity in the form of national parks and ecosystems reserves.

Public risk assessment and management should include comprehensive, 3-dimensional risk modeling, risk management (mitigation) and natural disaster emergency management, and address:

a) *flood protection and mitigation* including risk assessment associated with the structural integrity of water containment structures (e.g. dams, dikes and flood gates) and potential impacts on downstream catchment areas with flooding and mud slide risk;

b) *volcanic and seismic risk factors*, including volcanic slope stability assessment, tsunamis early warning systems and coastal zone risk analysis, and associated emergency management response schemes

c) *forest fire protection* and community risk assessment, and

d) *health risk assessment* associated with environmental impact and human exposure specifically related to water (untreated waste and pesticides) and air contamination.

Policy instruments should include: a) comprehensive environmental information systems addressing the primary policy themes and key diagnostic, performance and monitoring indicators; b) applied research and spatial analysis indicators; c) sectoral and spatial

planning, d) realistic pricing that does not distort comparative advantage and seeks to encourage market-based approaches and reflect environmental externalities; e) public outreach, information and education, f) human resource development; and g) carefully-structured financial support with targeted environmental incentives and production subsidies; and h) effective policy implementation and enforcement through focused and simplified legislation. The latter is especially important in the RI given the current state of agrarian sector legislation.

1.4 Rural Development Planning and Sustainable Land Use: Indonesian Challenges

It is outside the scope of the report to provide a detailed assessment of the environmental challenges associated with land use and economic development in Indonesia. However, with respect to Agrarian Reform, we also need to take stock of the basic challenges and trade-offs the GOI faces in guiding rural development, land use choices and environmental impacts -- and emphasize TWO BASIC FACTS:

- Many ENVIRONMENTAL AND ECOSYSTEM RESOURCES AND SERVICES are UNIQUE and are VIRTUALLY IRREPLACEABLE – certainly in light of the time span of recent human evolution, settlements and impacts in the region. This not only includes critical habitat and biodiversity loss but also impacts on critical sources of water supply and water and soil quality, agricultural and fisheries potential and other critical "renewable" resources

- OPPORTUNITIES TO PREVENT ENVIRONMENTAL DAMAGE and disaster NOW are much MORE COST EFFECTIVE THAN REMEDIATION AFTER THE FACT (if the practical and economic possibility exists, at all) and do not only come at a much higher cost but at significantly greater PUBLIC RISK AND HEALTH consequences. ACTING URGENTLY IS ESSENTIAL – especially in light of global warming causes and effects that will have dramatic consequences for coastal environments, coastal settlements and current land use, agricultural production potential, and water scarcity and quality.

These issues are especially urgent in Indonesia. Examples include:

- Rapid and uncontrolled development, such as on Kalimantan with new road construction into restricted forest areas, inducing further unplanned and uncontrolled growth
- Illegal logging practices throughout Indonesia affecting water availability and quality and critical wildlife habitat
- Conversion of highly productive and critical farmland for non-agricultural use
- Conversion of important forest wildlife habitat into plantations sometimes underutilized or later abandoned.
- Intrusion in the form of illegal logging, mining, forest squatting and hunting in national parks, such as Java's largest mountain park "Mount Halimum Salka National Park in West Java.
- Rapid deterioration of water quality of interior lakes and some coastal areas as a result of over-fertilization (agricultural subsidies), use of pesticides and discharge of untreated sewage (none of Indonesian's interior lakes contain any potable water any more)
- Lack of enforcement of reforestation provisions for forest concessionaires.
- Significant environmental impacts associated with legal and illegal mining operation (water quality impacts associated with the discharge of toxic substances including heavy metals)
- Deforestation rates at as high as 2.8 million per year, between 1998-2000, and about 1.8 million hectares, more recently.

At the interface of al these issues is the interaction between modern man and the environment, how public policy provides access to our renewable and non-renewable resources, which limitation are imposes on use rates and impacts and which legacy we wish to leave behind for future generations. The central role of PBN in this public policy debate is evident.

2. CONCEPTS, PRINCIPLES, AND GUIDELINES FOR LAND POLICY FORMULATION AND DEVELOPMENT PLANNING

Any systematic attempt to address sustainable development planning should include baseline performance indicators and representative productivity indices. In rural areas, this means defining the productivity of the renewable land resource base and its derived uses, such as represented by the products and services from the agricultural, forestry, and tourism sectors, as well as outputs (ecological functions and derived social values) from natural ecosystems. Realistically, this should reflect both sustainable resource production capacity and economic feasibility. In rural sector planning, this may include the following assessment phases:

1. Assessment of *basic agro-ecological production capacity* on a cropping system or commodity-specific basis;
2. Assessment of *sustainable productivity levels* using adjustment for locally relevant production opportunities and input constraints (e.g. irrigation, fertilization, technology, capital); and the
3. Economic viability of production options (input costs and product prices).

This relationship is further identified in figure 2.1, below.

An example of assessing basic productivity and its long-term sustainability in the form of relevant indicators can be provided in the form of crop productivity or farming systems analysis. For instance, in *agro-ecological production capacity* assessment, the genetic potential of crops grown under specific water supply (deficit) conditions is predicted. The agro-ecological parameters that primarily affect this biophysical production function are soil type (texture), climate (rainfall, temperature, relative humidity, solar radiation, wind speed), and local topography (slope gradient and aspect or orientation).

This *initial estimate* of crop productivity does not assume limitations with regard to farm management practices -- nutrient deficits, salinity impacts or mulching -- or land degradation considerations.

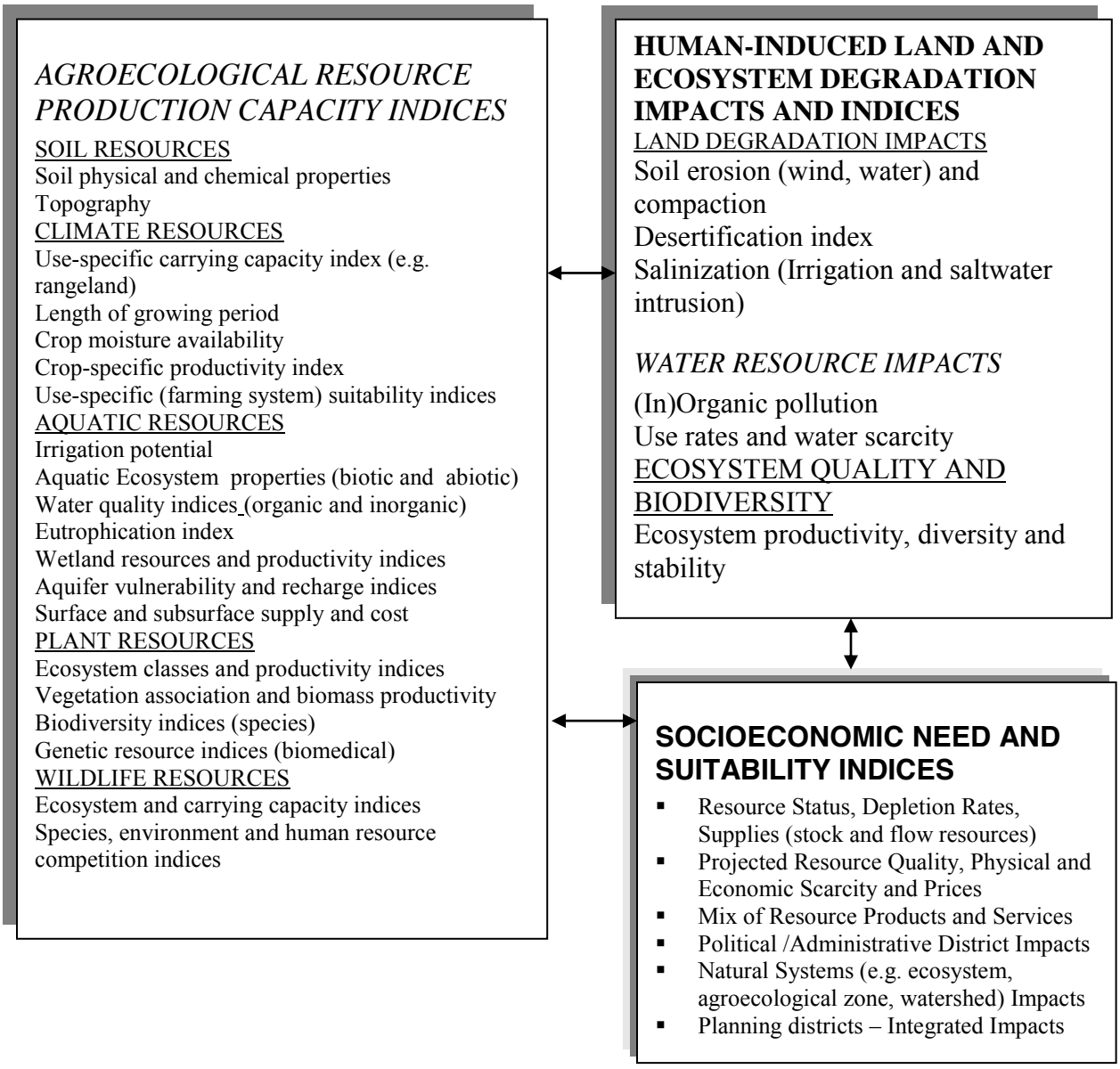


Figure 2.1 – Relevant indicators, derived indices and linkages in natural resource production capacity assessment.

This basic relationship is identified by the crop yield response formula as theoretically detailed in adapted computer-based crop yield models (such as the MSU-CRIES-YIELD model) reflecting soil moisture availability, such as:

$$\left(1 - \frac{y_a}{y_m}\right) = k_y \left(1 - \frac{ET_a}{ET_m}\right)$$

where: y_a = actual harvested crop yield

y_m = maximum harvested crop yield
k_y = genetically determined yield response factor
ET_a = actual evapotranspiration
ET_m = maximum evapotranspiration

The crop yield response factor is based on extensive field trials covering a variety of soils and growing conditions, and reflects high yielding varieties, well-adapted to local agro-ecological conditions.

Assessment of sustainable natural resource productivity levels includes yield adjustment for locally relevant production opportunities and input constraints (e.g. irrigation, fertilization, technology, and capital). In essence, this includes a compilation of :

1) Additional biophysical factors indirectly affecting crop moisture availability, such as soil depth/texture, organic content, net irrigation application, rooting depth, water infiltration rate based on slope/textural classes, and crop nutrient availability; and
2) Socioeconomic conditions that effect the farm input level and long-term effectiveness of management practices (e.g., fertilizer and pesticide inputs, cropping intensity, labor or capital constraints, profit margins, land degradation), which effect sustainable productivity; and
3) Off-farm impacts such as environmental externalities resulting from soil erosion, fertilizer impacts, pesticide applications or general impacts on water quality and availability.

This resource productivity assessment must be further expanded into a socioeconomic evaluation of needs and suitability. Here, need addresses the social demand resulting from expressed social expectations related to the quality of life and associated availability and price or goods and services, while suitability reflects the economic viability of production opportunities, such as land use types or farming systems under prevailing input costs and commodity price scenarios.

The use of the comprehensive and relevant indicators, suggested above, must be incorporated into the larger decision-support framework for policy analysis and rural development planning. In essence, this transforms the *reductionistic* approach -- reducing problem solving to a segmentation of the problem by using descriptive

indicators -- to a *holistic* or systems approach. A holistic approach uses composite indicators of social preferences and performance and can, therefore, accommodate a variety of social assumptions, opinions, and group desires, accounting for public policy tradeoffs involving complex costs, benefits, and risk.

A key requirement in this process is that *environmentally-referenced indicators*, reflecting economic productivity opportunities and environmental impacts, by agro-ecological zones, watersheds or major ecosystems, must be *directly related to political or administrative region*s for the comparative analysis of relevant socioeconomic impacts, and as the basis for strategic planning and implementation. As pointed out earlier, this relationship (figure 2.2) among indicators is reflected in the hierarchy of planning and

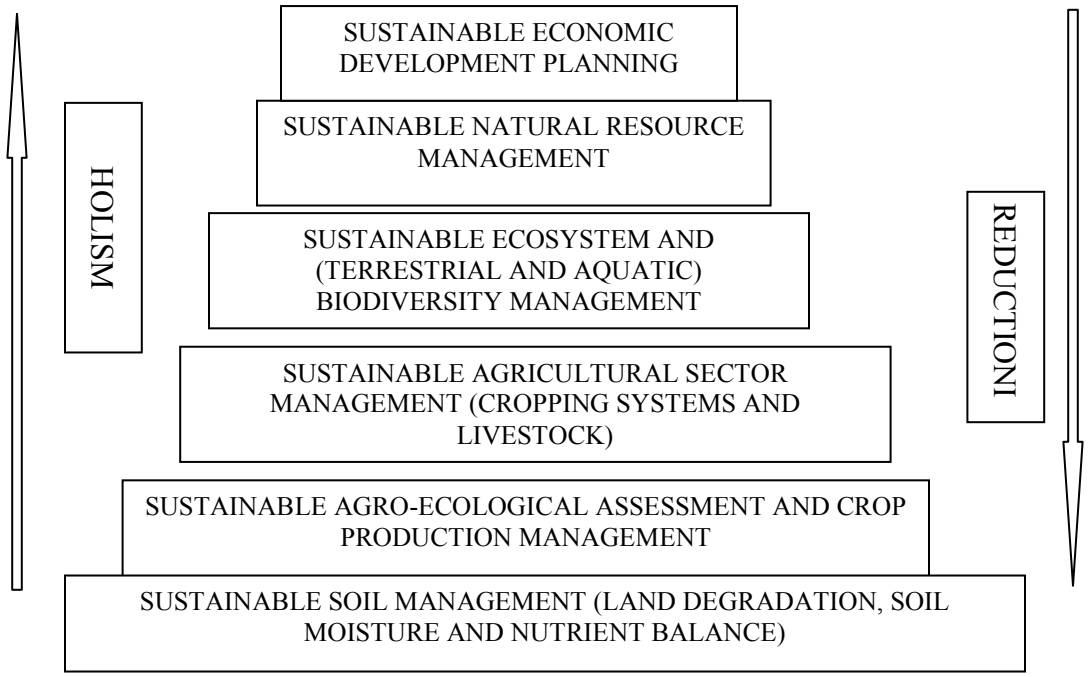


Figure 2.2 – Sustainable Environmental Management and Planning using Descriptive Suitability Indicators and Composite Indices of Social Preferences, Performance and Impact

management and may also be illustrated in the analytical sequence of single issue resource management or comprehensive planning. The key challenge, then, is to define specific management objectives at each level that operationalize private and public

development goals. This involves seeking complimentarity of socioeconomic and environmental goals that are specifically identified as indicators representing needs and opportunity, as well as measures of performance and impact. For example, in sustainable land management and policy formulation this involves indicators that measure land degradation trends and quality, and denote intervention needs and development opportunities, representing various land use types as natural or managed production ecosystems.

Fundamentally, resource use capacity is reflected in land quality indicators representing a potential sustainable use condition of landscape units on a comparative basis and may also expressed at the aggregate level at the local, regional or national scales. Given a specific level of scale, land capacity or quality may include indicators of nutrient and water balance, crop and forest yield trends, unrealized production potential (see below) based on certain land use type and management intensity, natural grassland (range) carrying capacity, land cover and biological diversity, and various indicators of environmental quality.

2.1 Focusing Land Policy and Development Initiatives: Applying the Concept of Unrealized Production Potential

Comparative advantage, expressed as relative measure of productivity or economic performance, can be defined on an agro-ecological zone basis. An agro-ecological zone reflects a relatively homogeneous mapping unit -- based on soil characteristics (primarily soil texture or particle size reflecting soil moisture holding capacity), climate and topographic variables. This so-called Resource Production Unit (RPU) will provide a given level of crop productivity (output) based on its agro-ecologically defined production capacity for specific cropping options and its associated inputs. The theoretical maximum is based on local agro-ecological constraints. This maximum can be compared with the actual productivity level and the difference expressed as Unrealized Production Potential (UPP). Where the UPP is the largest (figure 2.3) the largest set of local production constraints exist (e.g. input availability, cost, land access, technology, etc.) and the greatest opportunity exist to increase productivity in the context of an

agrarian reform program. This provides the spatial analytical framework for the prioritization of integrated rural development and planning initiatives at the regional or national level.

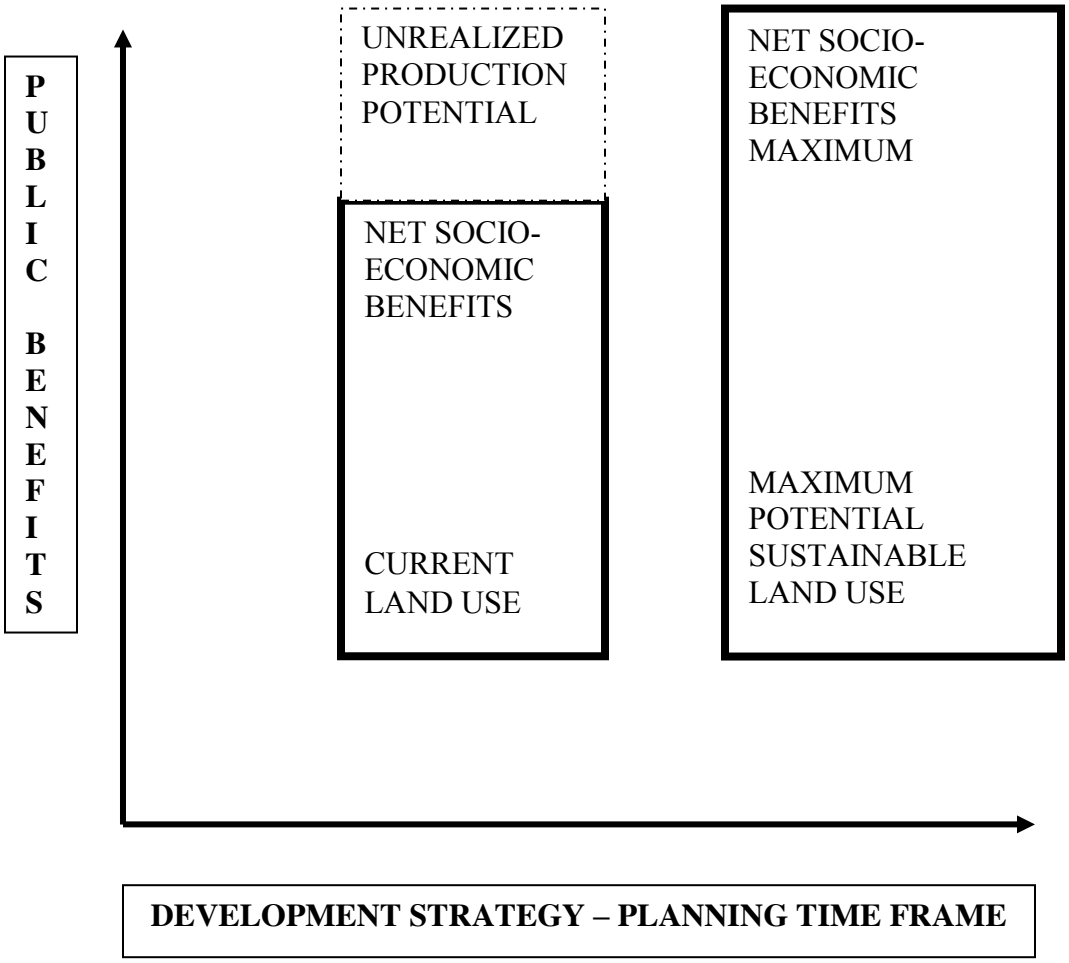


Figure 2.3 - The Concept of Unrealized Production Potential -- the Difference between Current Constrained Land Use Outputs (Total Production of Goods and Services subject to Input and Performance Constraints) and the Theoretical Maximum (Unconstrained) Outputs. Were the Difference is the Greatest, the largest Constraint Conditions exists and the Greatest Potential exists to improve Productivity.

2.2 Land Information Systems and Indicators for Land Policy and Development Initiatives

One of the most significant challenges in development planning is to *derive information cost-effectively and ensure that it is thematically, spatially, and temporally relevant in supporting policy analysis and decision making*. Beyond the traditional data quality standards of precision and accuracy, it is important to identify the MINIMUM information content necessary to meet decision-support objectives, at a given point in time. It may be argued that any redundant information constitutes inefficient use of human and capital resources.

In the process of compiling information a distinction has to be made with regard to the sequence and characteristics of basic data capture and analysis and the use and distribution of relevant information. This process sequence is illustrated below (figure 2.4). It is especially important to differentiate among the various information compilation steps, namely:

- The use of *relevant, descriptive qualitative and quantitative diagnostic indicators* in the problem identification;
- *Problem-oriented fact finding* involving the use of primary and secondary data sets compiled in a spatially referenced information system (GIS), linked with analytical *performance assessment models,* such as agronomic productivity forecasting and socioeconomic impact assessment models;
- The *compilation of single indicators or composite prescriptive indices* that identify potential solutions and alternative problem solving approaches; and
- The *selection of planning and implementation alternatives based on composite performance indices* that reflect planning impacts, intended public policy consequences, and the aggregate impact on the quality of life over time, by location and the populations affected.

The formulation of the latter two categories - involving the identification of potential solutions, the selection of preferred alternatives, and implementation strategies - must be

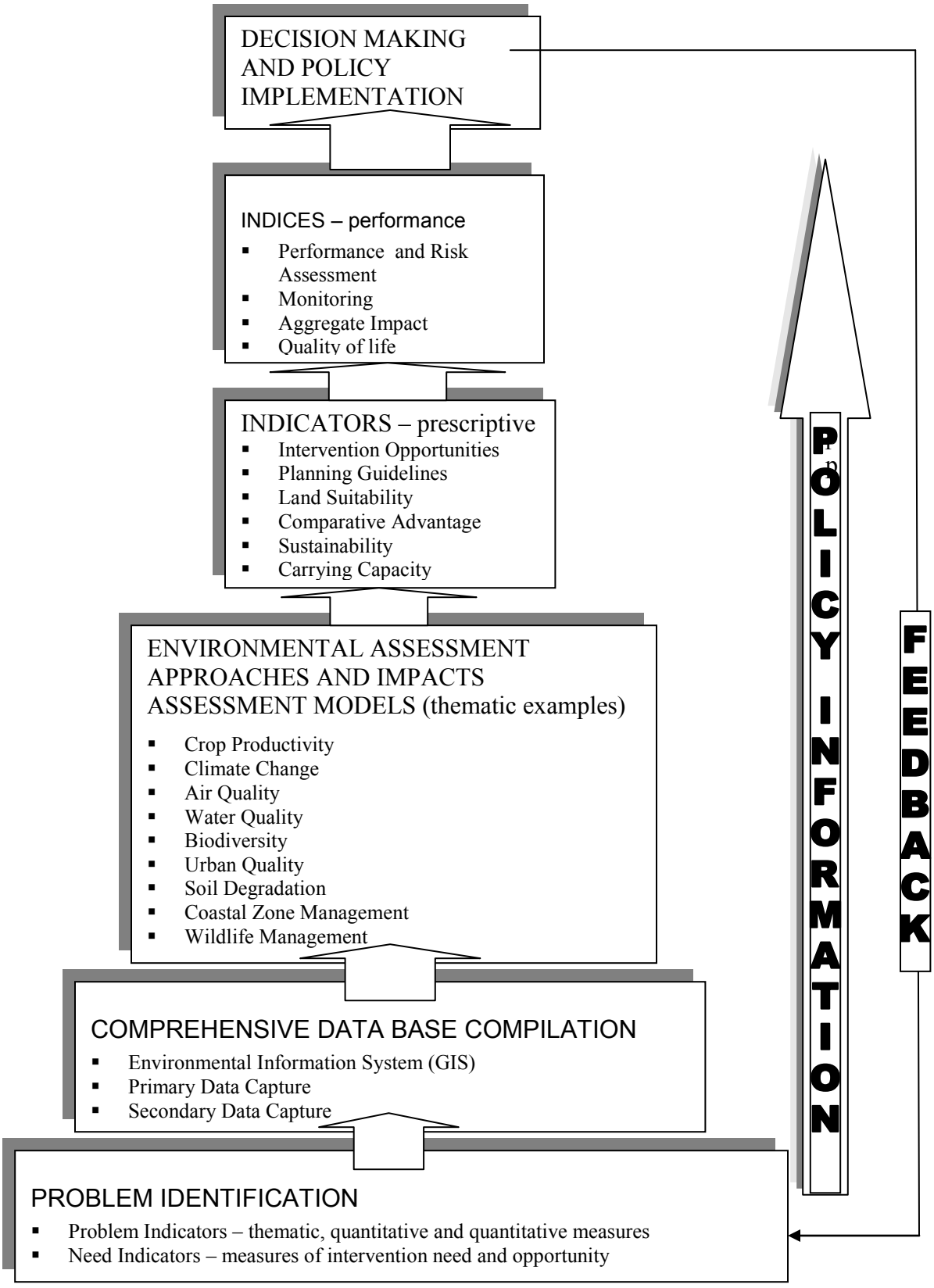


Figure 2.4 – Hierarchical information flow and use of basic data, indicators and indices in development planning and public policy formulation

addressed effectively by the compiled information. To this end, consideration should be given to the formulation of a National Spatial Data Infrastructure (NSDI) that may be viewed as a network of Spatial Data Infrastructures (SDI) linked to address specific applications by specific government agencies. The primary purpose of a SDI is to provided improved access to spatial data (reflecting time, cost, quality, relevancy, and standardization issues) and support NSDI policy analysis needs on a economic sector or issue basis (e.g. environmental impact analysis, rural development planning, transportation planning or agricultural or tourism sector analysis). This involves the identification of critical qualitative and quantitative indicators and derived indices, as viewed from the perspective of the various national or regional agencies with associated mandates in economic development and environmental protection.

Composite indices designed to meet decision support requirements may reflect traditional economic measures of economic efficiency and also measures of public risk of the impact of human activities or development actions on the environment. Rather then viewing risk solely as a physical health factor, it is suggested that risk in policy formulation reflects the broader view of human well-being or quality of life. More recently, the issue of social equity in involuntary environmental risk exposure has received increased attention. Elements that may be included into this assessment are water and air pollution, environmental disease vectors and their controls, occupational health, food safety, and traffic safety. A modified risk equation can be used in this process to assess the composite indicator of environmental risk as:

$$R_n = \sum_{i=1}^{n} r_n \times p_n \times v_n - t_n$$

where r = is the expected value of the magnitude or degree of risk (expressed as social cost)
p = the exposure probability (expressed as frequency or probability of occurrence (%) (this factor may be weighted for large impact areas where significant spatial decay of impacts is anticipated)

v = the vulnerability of the target population (e.g., age and weight factors)
t = the potential risk reduction factor (e.g., prevention or mitigation policies)
n = the number of risk variables involved

Risk assessment must be viewed as a distinctly different component in public policy studies than risk management. The former is a *scientific* assessment of potential health risk that may result from development impacts on the environment, while the latter addresses concerted public policy efforts to reduce risk through education, regulation, and mitigation. Risk management uses the scientific results of risk assessment as expressed in comparative indices, while assessing the implications using economic, social and legal considerations to formulate policy decisions and regulatory interventions.

Environmental quality and public health risk are directly associated with the impacts of land use policy on quality of life and are receiving increased attention, world-wide. Land policy initiatives should not only address economic development but also deteriorating air and water quality, restoration of ecosystems functions, and nature preservation needs. It is important to seek legislative agreement and support for these initiatives in the early stages of environmental degradation. We view this as critically important in Indonesia. Intervention scenarios will be much more cost efficient that retroactive mitigation efforts. *This represents a critical opportunity for the RI to address significant environmental concerns, particularly in land and water quality management*

The primary need exists to establish harmony among laws and regulations, and to develop the political willingness to create an effective environmental policy agenda for the 2010, and beyond. Environmental and land use policy should be primarily directed toward the prevention of water and air pollution and reflects *proactive, comprehensive laws and regulations regarding the impacts of land use (including deforestation and mining) on environmental quality*.

The challenge is to evolve an integrated systems approach to natural resource evaluation and impact assessment that fosters the development of a decision support system which is effective in making informed public policy choices. Such a policy analysis system, as outline below (figure 2.5) consists of three major functional components, comprising

diagnostic, prescriptive, and performance (monitoring) indicators and their derived resulting indices. It includes:

- A comprehensive *Resource Evaluation System* – to assess primary production capacities (agro-ecological productivity)
- A *Land Use Evaluation System* – the assess land suitabilities (economic viability and public risk variables), and
- A *Public Policy Analysis System* – to conduct macro socio-economic analysis

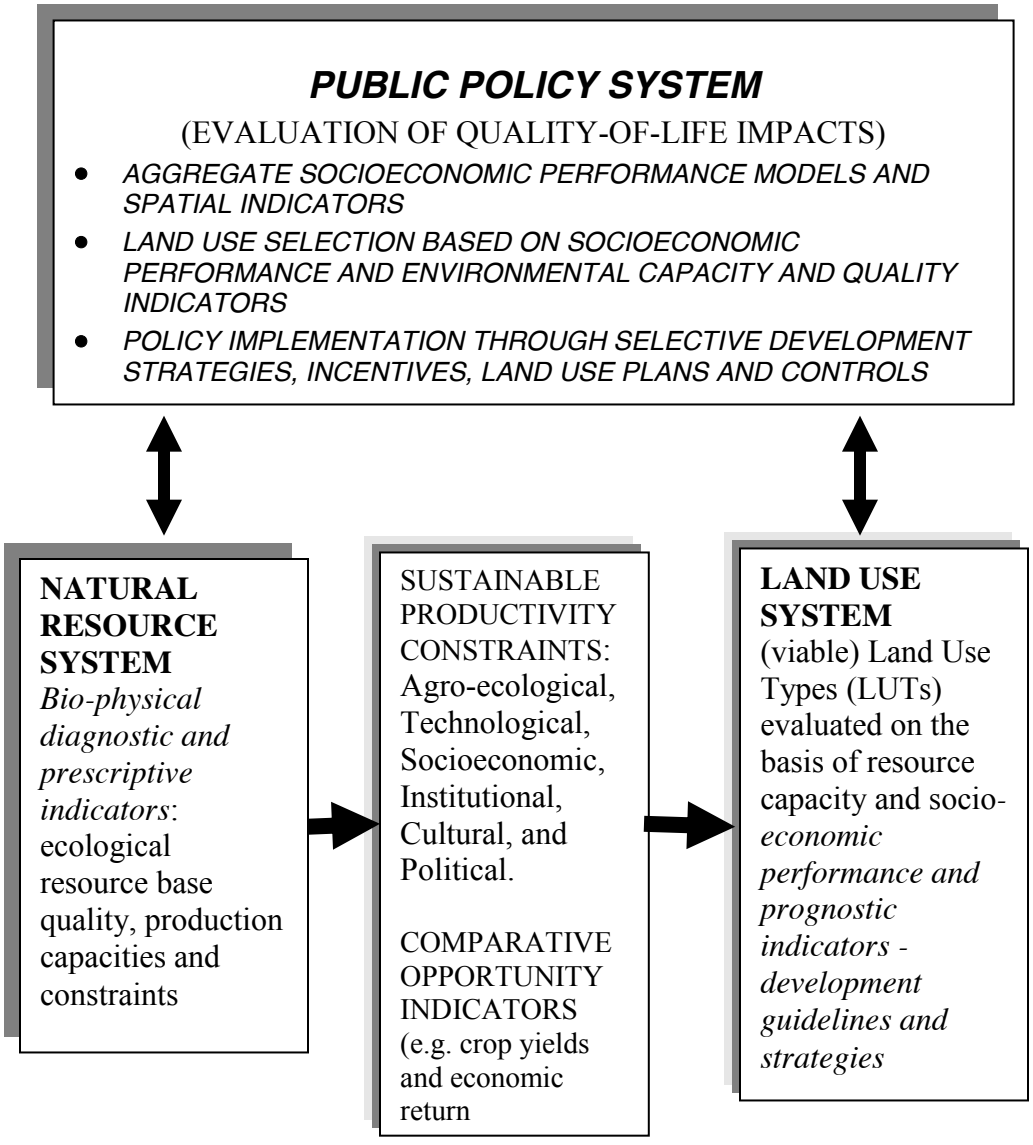


Figure 2.5 – Major system linkages of resource assessment, land evaluation, economic development planning and land use policy formulation

Public interests largely reflect the long-term environmental stewardship principle that includes public interests in resource conservation and environmental quality. Private interests largely reflect more short-term economic interests that are directly affected by ownership rights, laws, and regulations. In this regard, the goal of public land use policy is to balance public and private interest (reduce human risks, preserve environmental quality and stimulate economically viable production opportunities) by the formulation of multi-jurisdictional (e.g. national regional and local), *resource policy systems* that include the institutional controls and capacity to:

a) *Identify the comparative advantage* of resource use opportunities (e.g., resource endowment, use capacity and use efficiencies) in the context of environmental constraints (e.g., carrying capacity and resource depletion rates) – the *resource evaluation framework*

*b) Evolve guidelines and decision-support system*s to evaluate public and private sector benefits (e.g., benefit/cost, benefit/risk) of land use alternatives and associated environmental impacts – the *policy analysis framework*

c) *Development implementation and evaluation* through effective development strategies, land use plans, laws and regulations, and performance monitoring – the *policy implementation framework*

In general, public development policy attempts to guide the identification and selection of "best resource use" options reflecting both *public* land use alternatives and the aggregate socioeconomic and environmental impacts of *private* land use choices. It aims to mobilize the production of goods and services as resource outputs to meet societal needs and to improve resource productivity, input, and management efficiency, while attempting to optimize product distribution and availability. In this context, natural resource assessment is a systematic process of fact finding, interpretation, and identification of development alternatives and associated impacts. This process is by nature holistic and multidisciplinary, reflecting the best fundamental understanding of the structure and dynamics of ecosystems and the linkages among a complex set of biotic and abiotic factors. Sustainable development fundamentally reflects this understanding and, therefore, the perceived opportunities and environmental limits that provide guidelines for improved decision making, environmental management, and development planning.

This understanding is never absolute, lacking essential knowledge about complex ecological relationships, complicated by spatial and temporal inaccuracies, affected by adaptive impacts and policy changes, and influenced by changing valuations of public benefits, costs and, risks.

To effectively challenge this decision-making complexity, a systems approach to economic development and environmental assessment is needed. The approach should be:

1) *Issue-oriented* to improve the RI ability to identify the qualitative and quantitative dimensions of the problem(s),
2) *Diagnostic* in its analytical approach to identifying potential solutions that are sustainable and economically viable , and
3) Focus on *problem solving* by providing the minimum information needed to make informed decisions.

2.3 Land Evaluation and Suitability Assessment for Land Policy and Development Planning

The critical analytical process that determines the comparative land suitabilities associated with different production options if referred to as *Land Evaluation for Development Planning*. Land evaluation is designed to:

- Identify inappropriate land uses that lead to inefficient use or exploitation of natural resources resulting in the degradation or destruction of land resources and undermine the long-term productive capacity of our natural resources based, and eventually lead to poverty and scarcity of products and ecosystem services;
- identify the best land use alternatives for a given parcel of land given prevailing inputs, costs, technology and public preference, thereby seeking the long-term creation and preservation of prosperity
- develop rational land use planning and select appropriate and sustainable uses of natural and human resources on a parcel and administrative district basis

Land evaluation is the assessment of land performance for a specified land use – the land use objective or alternative – the so-called Land Utilization Type (LUT) subject to local constraints and input regimes

Land evaluation reflects the notion that land (and its use) varies in its bio-physical and socio-economic properties and that for each use a suitability determination can be made and expressed in physical and/or economic terms. Basic suitability differences can be systematically evaluated based on agro-ecological properties. These suitabilities based on the variation of physical, economic and social variables, and the performance of the land for a given land use can be predicted with a degree of certainty, given the variability of data and production assumptions.

This suitability assessment for agricultural, forestry (or any other land use including industrial or tourism) provide a parcel-based and aggregate (political or administrative district-based) comparative framework that provide users and decision makers -- such as land use planners, state institutions, politicians and agricultural support services – with spatial information to make predictions and guide land use decisions and policy formulation..

2.4 Land Information System Functions for Suitability Assessment, Land Policy Formulation and Development Planning

The basic role of Land Information Systems (LIS) to support land suitability and impact assessment is critical (Fig. 2.6). Increasingly, these spatial analytical functions are combined with mapping systems that can be used to identify property ownership by parcel descriptions (cadastral maps) used to demarcate property boundaries, land use rights and land valuation for tax assessment. Significant improvements have been made in computer-assisted (automated digitizing) input, compatibility with satellite data input and rectification, spatial analytical and modelling software, and mapping output.

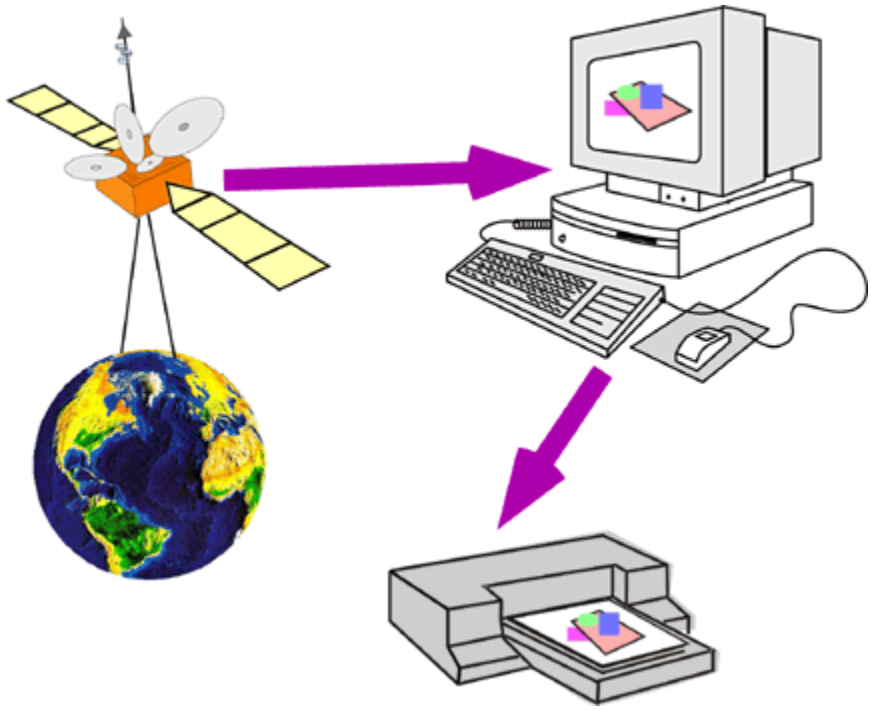


Figure 2.6 - Three major components of a Land Information System. These components consist of input devices, computer hardware and software, and output subsystems. A Land Information System (LIS) is a uniquely adapted system with (automated) digitizer input, mapping output and dedicated spatial analytical and display capability, including cadastral information.

2.4.1 LIS Components and Analytical Capabilities

A LIS consist of the capabilities if a Geographic Information System (GIS) with the cadastral mapping and relational data base components of a land registration and taxation system. Ideally, it should included protocols to link the GIS components with applied models, such crop yield and econometric or optimizing models. The real power of this combination is that aggregate analysis results can be converted to spatially-referenced output. For instance, the output of an optimizing linear programming model that seeks to identity a specific crop mix to be produced in a certain province to meet food an export goals, can be translated into the ideal crop mix per agro-ecological zones for economic planning purposes.

Operationally, a GIS can be divided into five components: People, Data, Hardware, Software, and Procedures. All of these components need to be well-designed and operationally-integrated to serve a public function cost-effectively. They include:

People

The people are the component largely-determine operational efficiency. They include positions like GIS managers, database administrators, application specialists, systems analysts, and application programmers. They are responsible for maintenance of the geographic database and provide technical support. GIS staff needs to be educated in systems capacity and applications. BPN should develop a long-term systems development that includes a human resource development plan based on institutional priorities and resource availabilities. One suggested educational institution to meet BPN's need is ITC in the Netherlands that provides dedicated system and application training financed by Dutch technical assistance programs.

Procedures

Procedures include how the data will be archived and retrieved, input into the system, networked, transformed, analyzed, and presented in a different form. The analytical procedures reflect the information needs (from data to analysis to information). The ability of a GIS to perform these spatial functions cost-effectively and accurately to meet the institutional mandate determines it functionality.

Hardware

Hardware consists of the technical equipment needed to run a GIS including a computer system with enough power to run the software, enough memory to store large amounts of data, and input and output devices such as scanners, digitizers, GPS data loggers, media disks, and printers.

Software

There are many different GIS software packages available. All systems must be capable of effective data input, storage, management, transformation, analysis, and output. Dedicated systems functions such as found in an LIS will reflect additional capabilities, methods, system resources, and ease of use. Modern GIS systems permit the storage of

both graphical and descriptive in a single database, known as the object-relational model. They also include protocols to develop mathematical equations that guide a series of spatial analyses, such as useful in overlay and suitability analysis.

Data

One of the most time consuming and costly aspects of a GIS is database creation and maintenance. The inherent aspect of spatial data is that they most are dynamic and need frequent updating, such as is the case for cadastral records and land cover/use changes. Here temporal and spatial accuracy are critical both in the source and use of secondary and during input and conversion. Institutional protocols in this regard should be carefully reviewed.

In general terms, a GIS combines computer cartography with a database management system. The major components common to a GIS are three subsystems: (1) an input system that allows for the collection of data to be used and analyzed for some purpose. This typically includes digitizing devices that permit the transformation of analog maps to digital form; (2) computer hardware and software systems that stores data, allow for data management and analysis, and can be used to display data manipulations on a computer monitor; and (3) an output system that generates hard copy maps, images, and other types of output.

Historically, two major GIS systems evolved, raster (or cell-based) systems and polygon systems. The first type had the advantage of being directly compatible with satellite data and facilitated map overlay analysis at the compromise of spatial accuracy. The second being more capable of storing map data, initially compromised overlay and image analysis. Examples of the first type are SYMAP developed at Harvard in the 60s, the CRIES-GIS develop at MSU (70s and 80s) and ERDAS (80s), initially developed at Georgia Tech. The evolution of polygon systems was accelerated by the development INTERGRAPH and ARC-INFO by ESRI, California, The latter has almost evolved to an international standard in GIS applications. Polygon systems are also typical for stand-alone, cadastral information systems.

Two basic data types are normally entered into a GIS. The first type consists of real world phenomena and features that are mapped. Usually, these data elements (attributes, such as soil or climate data) are stored points, lines, or polygons that are referenced geographically in a coordinate system that is replicated in the data base. These mapped data are entered into the GIS by devices like scanners, digitizers, Global Positioning Systems (GPS), air photos, and satellite imagery. The associated attribute values (such as soil types with their physical and chemical properties or census information) are then referenced by these spatial identifiers (points, lines, or polygons mapped in the GIS). These data sets can then be analyzed to determine spatial relationships such as frequencies, co-occurrences or unique combination of attributes to identify unique spatial locations (e.g. land suitabilities - physically or economically).

The geo-database is the common data storage and management framework for an LIS. It combines spatial data with a relational data base to create a central data repository for spatial data storage and management. It can be leveraged in desktop, server, or mobile environments and allows store of GIS data in the field and net-worked locations, while providing central location data access, management and security.

A unique capability of the GIS component of a LIS is the ability to take secondary data, conduct analysis of uniquely interest to a specific region and to derive tertiary data that may be extremely helpful in certain policy application. An example is provided in the 2 figures below. The first map indicates distribution of earthquake events and the second relative surface depth. These inputs can be used to develop input into a tsunami risk analysis model that seeks to ascertain relative risk by location as part of the development of an Emergency Management Program (EMP).

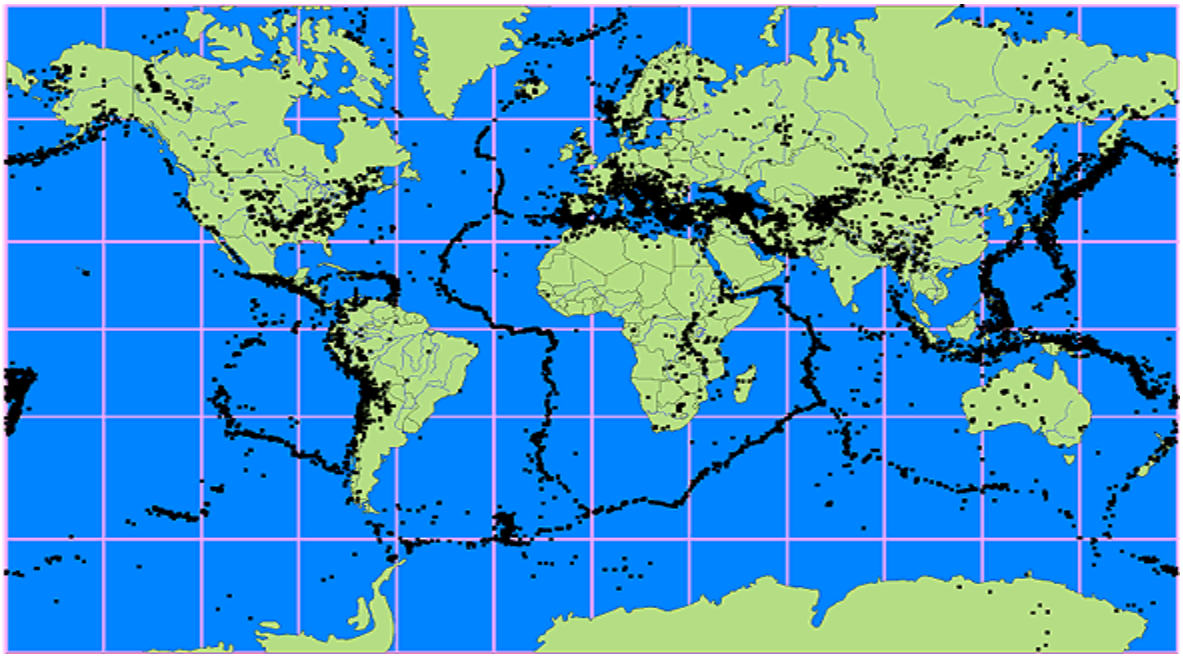


Figure 2.6.1 - Distribution of earthquake events that have occurred over the last century. (Source: PhysicalGeography.net)

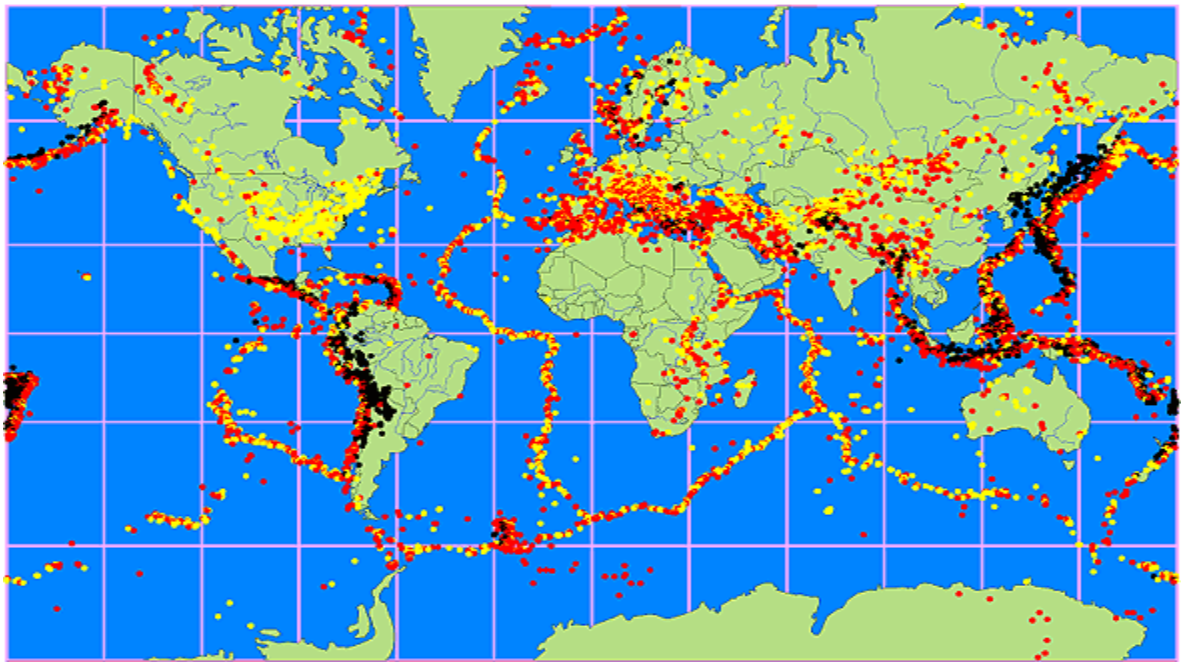


Figure 2.6.2 - Earthquake events organized according to depth and impact(yellow (shallow) = surface to 25 kilometers below the surface, red (intermediate) = 26 to 75 kilometers below the surface, and black (deep) = 76 to 660 kilometers below the surface). (Source: PhysicalGeography.net)

2.4.2. Cadastral and LIS Information

Examples of basic land use and cadastral maps date back many years, such as in the example provided below (Fig. 2.7) - the city map of Ambon (1726). *Cadastral surveys* document the boundaries of land ownership, by the production of documents, diagrams, sketches, plans (plats in USA), charts, and maps. Originally, they were originally used for land valuation and taxation. Rectified cadastral survey or topographic maps (representing a true orthographic projection of the land surface) can be used as a base map in Geographic/Land Information systems used to compile other thematic map overlays, such as land use, soils, infrastructure, etc. The depiction of land ownership can be an important element in land evaluation or impact studies

A cadastral map shows the boundaries and ownership of land parcels. Some cadastral maps show additional details, such as district names, parcel ID and tax numbers,

Figure 2.7 – Land Use and General Parcel Map of Ambon (1726) (Souce: Van Keulen Atlas, Amsterdam)

certificate of title numbers, positions of existing structures, section area and/or lot numbers, street names, boundary dimensions and references to prior maps.

An example of a modern cadastral map is provided, below (Fig. 2.8). Cadastral maps should reveal the national grid, cadastral boundaries, parcel-identifiers, street addresses, buildings, house numbers, and geodetic control points. Parcel related attributes can be visualized on the cadastral map. Cadastral parcel data should be stored in one separate layer, buildings in a different overlay.

Spatial data are represented in the database using geometric data types such as 'point', 'line' and 'box'. In addition to the use of these data types, some important capabilities could be build in such as topology and historic information. Furthermore, nation-wide unique identifiers should be all geographic objects, e.g. boundaries, topographic lines (buildings) and unified surveying and mapping attributes.

The following data base system is utilized in the Dutch cadastre and may serve as an example of a modern system:

*"Data tables include **boundary** (cadastral boundaries), **parcel** (parcel identifiers), **symbol** (cartographic symbols), **GCP** (Geodetic Control Point), **line** (topographic lines) and **text**. The spatial extension of the objects in the table includes boundary, parcel and line and is indicated with a minimal bounding rectangle of type '**box**'. The box covers a boundary or a topographic line or a complete parcel. The box can be spatially indexed and is useful for efficient retrieval purposes based on rectangle selections. There is no need for the geometric data type 'polygon', because the area features are stored topologically in the parcel table and boundary table using the so-called 'CHAIN-method'. The edges in boundary table contain references to other edges according to the winged edge structure, which are used to form the complete boundary chains. From this data structure polygons can be generated on demand. Currently, topology is only maintained for the cadastral data and is being introduced for the topographic data, based on demand.*

This approach allows calculations on correctness of topology after adjustment of the surveyed new boundaries to the cadastral data. Furthermore it opens the possibility to relate attributes to the boundaries between parcels, e.g. relation to the source documents of surveying, date of survey, names of persons locating the boundary, etc. If each parcel would be represented in the database by a closed polygon, it would be complicated to represent the basic object of cadastral surveying: one boundary between two neighbor parcels. Closed polygon representation would lead to double (or triple or even more)

storage of all co-ordinates (except the territorial boundary), which complicates the data management in a substantial way. Closed polygon representation can result in the introduction of gaps and overlaps between parcels, which has no relation to reality. One more reason for the boundary based approach is in the classification of boundaries: the administrative cadastral and political subdivision in sections (cadastral zones),

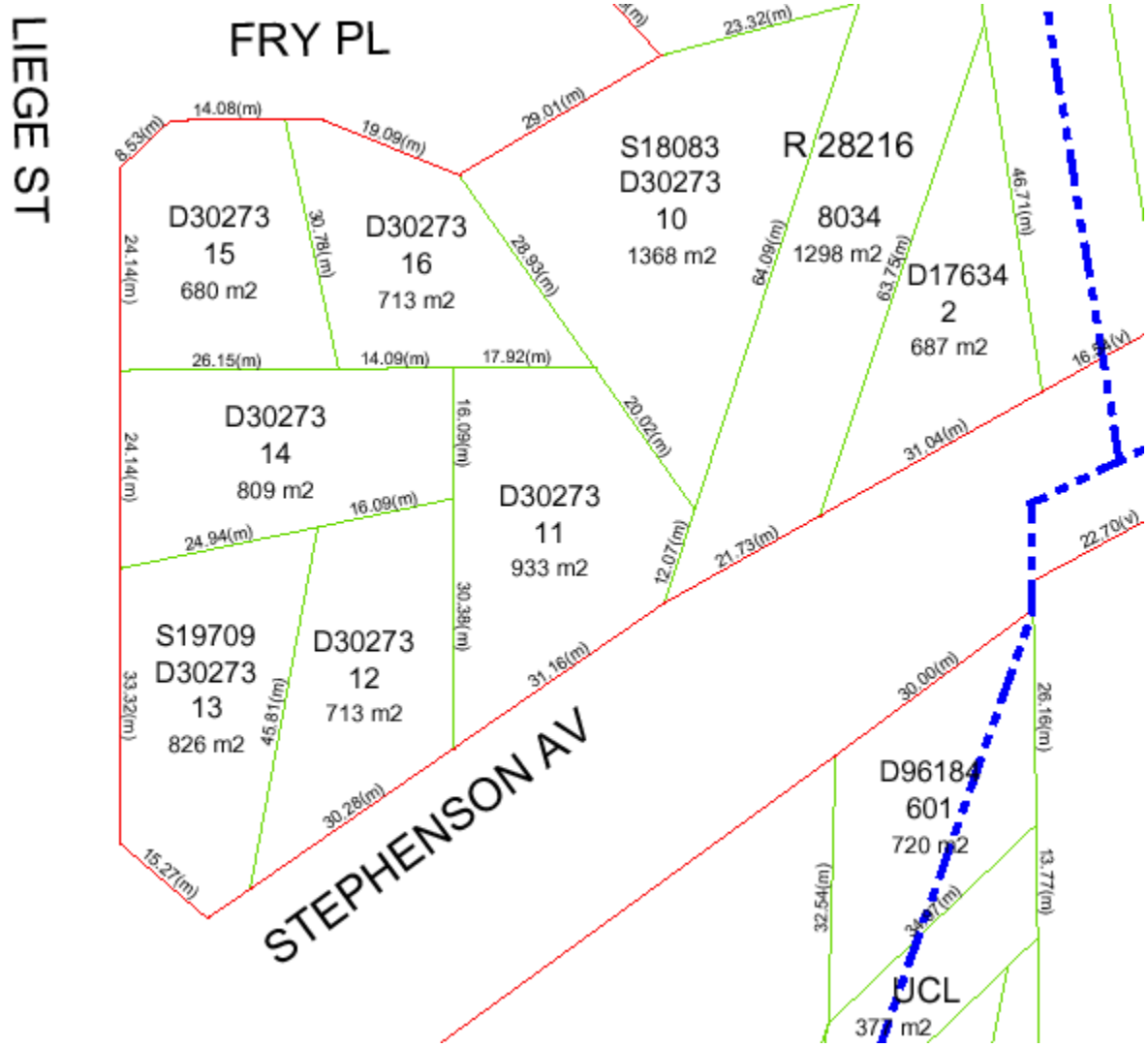


Figure 2.8 – Example of a Modern, Large-scale Cadastral Map

municipalities and provinces is possible by classifying boundaries as 'section-boundary', 'municipal-boundary', 'province-boundary' or 'national boundary'. A 'national boundary' is by definition a 'province boundary' and a 'municipal-boundary' and a 'section-boundary' and a 'parcel-boundary'; etc. "

In term of dedicated spatial analysis software, the micro computer has revolutionized the field of land evaluation, as well as every other field of applied science. The possibility

exists to distribute highly detailed spatially-referenced data and conduct distributed analysis within institutions and field offices at the district, local or project level. It is feasible to have a regional-level land information system, including remote sensing analysis capability, with PC-based hardware and software, together with centrally-shared data storage, digitizers, plotters, and laser color printers. At a more sophisticated level, national organizations and universities may use LIS and centralize automated data input and storage while providing powerful analytical workstations.

Land Information Systems should include standard productivity operations such as report writing, area calculations, cross-tabulation and other statistical analysis on land records and parcels (reference the occurrence of 2 or more thematic variables) and produce this output is tabular (spreadsheet) and graphic form (histograms and maps). LIS capabilities should include data base operations based on address and parcel IDs, for updating land registration and taxation records, thematic overlays and proximity analysis, conditional queries, permit 3-dimensional modeling and linkages with aggregate models (econometric, yield modeling, risk, simulation and impact models). The base reference coordinates should permit input of rectified ortho-photoquads and satellite image data. An image analysis capability to update land cover/use data and derive other thematic maps such as vegetation and coastal zone dynamics is an important asset.

The multi-purpose functionality of LIS makes it an ideal tool to support spatial planning and impact assessment. The land registry and cadastre equally serves a multi purpose. It should provide and register information on legal transfer of title or use rights, the right of disposal of the seller, the agreement between buyer and seller, title rights and restrictions (easements). The official public registry should reflect certified ownership rights and the deed should suffice to give substantial evidence of ownership. The registers and cadastral maps therefore guarantee in practice legal land tenure security, and security in the land market. The same is valid for securing loans by mortgages. Information on taxable persons, taxable objects, and taxable values, should be derived from the files of the National Land Agency, and on regular basis supplied to the municipalities as main source data for their land taxation. All local data should be stored centrally and updated of a

regular basis for safekeeping. All land information from the files of the National Land Agency should be available for legitimate use by government bodies and be available for public inspection and retrieval at cost.

Typically, public registers are registers in which official (notarized) deeds are recorded as they are submitted. In the Civil Code (Roman-French law) older real estate rights have priority over recent rights. The moment of recording can therefore be of crucial importance, e.g. by legal foreclosure and execution. Public registers by consequence are not easy accessible. The administering agency may provide title extracts on request and at cost. The essential elements from the deed are the same as used for input into the cadastral registers and maps, providing registers on name, parcel (both administrative description and map), and street address. In essence, the cadastral registers and maps are auxiliary registers to provide access to the public registers. The public registers are kept in analogue format: books with paper deeds, and should be copied in microfiche and secured at a save location. Both cadastral registers and cadastral maps should be digitized for net-worked file sharing and security.

Some specific recommendations for the RI include: a) the specific identification of individual ownership and land use rights on title certificates (deeds) based on a restructured and transparent system of land ownership rights; b) work toward the future use of digital records and the electronic submission of deed to the regency and central office; c) develop a full integration of a centralized land data base, including topographic base, cadastral map and legal/administrative data; including quality control (verification) and archiving; d) consider consolidation of regional data compilation at the provincial level to redue cost and facilitate networking and archival operations with the national office of BPN

2.4.3 Institutional Role of LIS/GIS in Inter-agency Collaboration and Public Policy Support

Above, a number of applied uses for GIS-supported spatial analysis are discussed, as they are throughout this report. Some of these major national support functions include the

ones outlined, below (fig. 2.9). If a truly integrated national data base infrastructure is envisioned, the principal users may include BPN, BAPPENAS, the National Mapping Agency, Ministries of Public Works, Agriculture, Forestry, Environment and Tourism, and related agencies with responsibilities for public health and safety. *It is suggested that an inter-agency task force be established to develop a National Spatial Data Information (NSDI) infrastructure with centralized data capture and archiving, universally accepted standards, networked data access, down and upload capacities based on unique needs (such as the cadastral information used by BPN).*

Figure 2.9 – National GIS-support functions and task force associated with the mandates of BPN, BAPPENAS, the National Mapping Agency, Ministries Public Works, Agriculture, Forestry, Environment and Tourism, and agencies with responsibilities for public health and safety.

This will not only create a cost-effective national spatial information system capacity but will also permit networked data base linkages with dedicated abilities based on specific agency needs.

2.5 Integrated Survey Capacity for Mapping and Land Evaluation

The most fundamental capacity is the ability to develop reliable topographic maps with geographic coordinates (Universal Transverse Mercator) that serve as reference for the national cadastre and base maps for the development of analog thematic maps (land cover/use, soils, infrastructure, water resources, climate variables, etc.) depicting various land attributes used in land evaluation. Until recently, the basic tools used in planar surveying were a tape measure for determining shorter distances, a level for determine height or elevation differences, and a theodolite used to measure angles (horizontal and vertical), combined with triangulation. Starting from national primary, secondary and tertiary reference positions (benchmarks) with known location and elevation, the distance and angles to the unknown point are measured and mapped.

A more modern instrument is a theodolite with an electronic distance measurement device (EDM) data processor. Modern "total" stations are fully robotic, can e-mail point data to an office computer and connect to satellite positioning systems, such as a Global Positioning System (GPS). Though real-time differential GPS systems have increased the speed of surveying, they are still only horizontally accurate to about 20 mm and vertically accurate to about 30-40 mm. However, GPS systems do not work well in areas with dense tree cover or construction obstacles. These "total" stations are used widely, along with other types of surveying instruments. One-person, robotic-guided total station allows surveyors to gather precise and rapid measurements. A faster way to measure large areas with less detail without many visual obstacles is with a helicopter equipped with a laser scanner, combined with a differential GPS to determine the position and elevation of the helicopter. To increase precision, beacons are placed on the ground (about 20 km apart). This method reaches precisions tolerances of 5-40 cm, depending on flight height.

Today's capacity makes it possible for a single surveyor to accomplish in a day what used to take weeks with an entire team, and with a higher level of spatial accuracy.

2.6 Land Surveys for Integrated Data Base Development and Land Development

Various land survey can be carried out to establish base reference maps and track real estate transaction and land development. These capabilities should be part of the various government agencies responsible for the development planning, implementation and monitoring and evaluation. They also form the basis for building cadastral and tax records related to real estate property and transactions. They include:

- *Topographic Survey*: a survey that measures the elevation of points on a particular piece of land, and presents them as contour lines on a plot. The resulting topographic maps with spatial reference points, such as using the Universal Transverse Mercator (metric) projection, and surface features such as roads, waterways, built-up areas (for detailed maps individual structures), forested and wetland areas, these map are the base reference map for Land Information Systems on which thematic information may be draped as several digital overlays in a digital data base, such as land cover/use. soils, hydrology, vegetation types, political/administrative boundaries, climate, ecosystems, population density, census tracks, etc.
- *A comprehensive survey* that incorporates elements of the boundary survey, mortgage survey, and topographic survey. In the US, such survey meeting American Congress on Surveying and Mapping standards is referred to as the *ALTA/ACSM Survey* and is often required to formalize real estate transactions.
- An a*rchaeological survey* used to accurately assess the spatial references points relationship of archaeological sites in a landscape or to accurately record finds on an archaeological site. In many nations these surveys are require if the presence of archaeological features is identified and prior to site development can be authorized
- *Project or "As-built" Survey* is a survey conducted several times during various stages of a construction project to verify, for local and state planning boards (USA), that work authorized was completed to the specifications set on the *Plot Plan or Site Plan*. This usually entails a complete survey of the site to confirm that the structures, utilities, and roadways proposed are built in the proper

locations as authorized in the *Plot Plan or Site Plan* by local planning authorities. These surveys are usually done 2-3 times during the building of a house; once after the foundation has been completed; once after the walls are put up; and at the completion of construction.

- *Boundary Survey*: a survey to establish the boundaries of a parcel using its legal description which typically involves the setting or restoration of monuments or markers at the corners or along the lines of the parcel, often in the form of iron rods, pipes, or concrete monuments in the ground, or nails set in concrete or asphalt. In the past, wooden posts, blazes in trees, piled stone corners or other types of monuments have also been used. A map or plat is then drafted from the field data to provide a representation of the parcel surveyed.
- *Construction surveying (otherwise "lay-out" or "setting-out")*: the process of establishing and marking the position and detailed layout of new structures such as roads or buildings for subsequent construction. Surveying is regarded as a sub-discipline of civil engineering all over the world. All Degree and Diploma level Engineering institutions have detailed items of Surveying in the curriculum for undergraduate courses in the discipline of Civil Engineering. It is suggested that al relevant PBN staff meet these criteria.
- *Deformation Survey:* a public safety survey to determine if a structure or object is changing shape or moving. The three-dimensional positions of specific points on an object are determined, a period of time is allowed to pass, these positions are then re-measured and calculated, and a comparison between the two sets of positions is made. Such surveys are routinely conducted in areas subject to volcanic or seismic activity such as along fault zones, slopes or dams
- *Engineering Surveys*: those surveys associated with the engineering design (topographic, layout and as-built) often requiring geodetic computations beyond normal civil engineering practice and precision.
- *Erosion and Sediment Control Plan*: a plan that is drawn in conjunction with a *Subdivision Development Plan* that denotes how upcoming residential or commercial construction activities will effect the movement of stormwater and sediment across the construction site and onto adjacent properties and how

developers must adjust grading and site preparation activities to limit the depositing of more stormwater and sediment onto adjacent properties as a result of the construction project.

- *Foundation Survey*: a survey done to collect the positional data on a foundation that has been poured and is cured. This is done to ensure that the foundation was constructed in the location authorized in the *Plot Plan*, *Site Plan*, or *Subdivision Plan*. When the location of the finished foundation is checked and approved the building of the remainder of the structure can commence. This is different than the "*As-Built" Survey, above,* which is not to be done until all work or phases thereof are completed.
- *Geological Survey*: generic term for a survey conducted for the purpose of recording the geologically significant features of the area under investigation. In the past, in remote areas, there was often no base topographic map available, so the geologist also needed to be a competent surveyor to produce a map of the terrain as a spatial reference for geological information. More recently, satellite imagery or aerial photography is used as a base, where no published map exists. Such a survey may also be highly specialist - for instance focusing primarily on hydro geological, geochemical or geomagnetic themes.
- *Hydrographic Survey*: a survey conducted with the purpose of mapping the coastline and seabed for navigation (nautical charts), engineering, or resource management purposes. Coastal zone mapping (navigation) and the monitoring of coastal dynamics and risk analysis (flood protection, tsunami early warning system, etc.) should be interrelated elements of government mapping programs.
- *Mortgage Survey or Physical Survey*: a simple survey that generally determines land boundaries and building locations. Mortgage surveys are required by title companies and lending institutions when they provide financing to show that there are no structures encroaching on the property and that the position of structures is generally within zoning and building code requirements. Some jurisdictions allow mortgage surveys to be done to a lesser standard, however most modern minimum standards require the same standard of care for mortgage surveys as any other survey.

- *Plot Plan or Site Plan*: a proposal plan for a construction site that include all existing and proposed conditions on a given site. The existing and proposed conditions always include structures, utilities, roadways, topography, and wetlands delineation and location if necessary. The plan might also, but not always, include hydrology, drainage flows, endangered species habitat, emergency management issues; multi-year flood plans (e.g. 50 or 100 year flood event to avoid building in flood prone areas) traffic patterns and capacities for emergency response planning.
- *Soil survey*, or soil mapping, is the process of determining the soil types or other properties of the soil cover over a landscape, and mapping them for others to understand and use. A detailed soil survey lists the primary physical (texture or particle size) and chemical properties of soils to about a 2 meter depth.
- *Hydrological survey* is designed to map surface and subsurface phenomena associated with the presence of water such as water bodies, stream flows, aquifers and associated groundwater supplies and dynamics.
- *Subdivision Plan*: a plot or map based on a survey of a parcel of land. Boundary lines are drawn inside the larger parcel to indicate the creation of new boundary lines and roads . The number and location of plats, or the newly created parcels, are usually discussed back and forth between the developer and the surveyor until they are agreed upon. At this point monuments, usually in the form of square concrete blocks or iron rods or pins, are driven into the ground to mark the lot corners and curve ends, and the plat is recorded in the cadastre (USA, elsewhere) or land registry (UK). In some jurisdictions, the recording or filing of a subdivision plat is highly regulated. The final map or plat becomes, in effect, a contract between the developer and the city or county, determining what can be built on the property and under what conditions. Always upon finally completion of a subdivision an *As-Built Plan* is required by the local government. This is done so that the roadway constructed therein will pass ownership from the developer to local government by way of a contract called a *Covenant*. When this stage is completed the roadways will now be maintained, repaved and serviced by

local government. In the US, this is funded by local property taxes levied or a parcel basis.

- *Tape Survey*: this type of survey is the most basic and inexpensive type of land survey. Popular in the middle part of the 20th century, tape surveys while being accurate for distance lack substantially in their accuracy of measuring angle and bearing. Considering that a survey is the documentation of one-half (1/2) distances and one-half (1/2) bearings this type of survey is no longer accepted amongst local, state, or federal regulatory committees for any substantial construction work. However for determining the extent of property boundaries this type of survey is the least expensive, least time consuming and least invasive, while being nowhere close to accurate for the standards that are practiced by professional land surveyors.
- *Wetlands Delineation & Location Survey*: a survey that is completed when construction work is to be done on or near a site containing defined wetlands. Building permits should avoid construction in wetland areas and preserve the critical wetland functions such as flood protection, water quality protection by reducing sedimentation and chemical recycling, preservation of ecosystem functions such as fish spawning and wildlife habitat, etc. Depending on local, regional, or national regulations, wetlands are usually classified on the basis temporary inundation and boundaries are determined by observing the soil type (organic matter), vegetation type, erosion patterns or scour marks, hydrology, and morphology. A survey is done to drawn reference boundaries to ensure construction outside wetland habitat.

2.7 Guidelines and Regulatory Frameworks for Land Use Policy and Planning

To offer an example of a hierarchical planning system with integration of National, Regional and Local Planning, the example of the Netherlands and New Zealand are introduced.

2.7.1 Planning in the Netherlands

Planning policy in the Netherlands may be viewed as more proactive than Michigan's - combating land use pressures and conflicts, and managing economic growth and environmental impacts associated with intensive land use patterns and a capital- and technology-intensive agricultural sector associated with relatively high nutrient and pesticide loadings. Dutch land use intensities, both agricultural and industrial, is high – especially in the west, and environmental impacts and land scarcity are historically reflected in land use planning and policy.

During the early part of the 1900s, one could characterize Dutch land use policy as reactive and agricultural sector-oriented, and more proactive and comprehensive since the 1950s. This approach received considerable international acclaim as a viable and resourceful approach to land use planning and economic development. As part of this regulatory framework, policy mandates and planning instruments have been developed to direct urban development and control sprawl. These demonstrate a significant political commitment, leadership and institutional capability to effectively address growth management pressures.

The Netherlands is considered a decentralized unitary state. The national government and national parliament legally determine the decision-making authority of its 12 provinces and 496 municipalities.

Table 1 provides an overview of the governmental levels. In Europe, a decentralized unity state means that government powers are divided among various entities with right and duties specified in the constitution. These entities should pursue policies consistent with those promulgated by higher government units.

Table 2.1 – Governmental organization of the Netherlands

Level of government	Elected representative bodies	Non-elected body with executive responsibilities	Executive bodies
National	Parliament — with First and Second Chambers	Cabinet (typically coalition government composed of three or more parties)	Ministries
Provincial	Provincial council	Appointed queen's commissioner	Provincial executive
Municipal	Local (city) council — includes municipality with adjacent rural area (similar to a U.S. county)	Appointed queen's mayor	Municipal executive

This division of administrative responsibilities - national, regional (provincial) and local (municipal districts with surrounding rural areas) - delegates a high degree of authority to the regional and municipal levels within the framework of *a hierarchical planning system*. In many respects, this system may be compared to the U.S. system of state, county and local administration – however, with in the Netherlands the municipal level representing a combination of major and minor municipalities and their surrounding rural townships. Current political discussions take place to replace the appointed major with an elected position.

Comparatively speaking, the European Union may increasingly be viewed as the fourth or federal layer, with the obligation to translate directives of the European Union into national legislation. This hierarchical planning system is administratively enforced by the allocation of national tax revenues, directly and indirectly via the European Union. The Dutch government contributes on balance about 3 billion Euros of national tax revenues to the European Union to support development assistance to other EU nations or for other aspects of European policy implementation, such as agricultural subsidies. This is, on a per capita basis, the highest of all member states. In 2005, both the Netherlands and Great Britain are trying to negotiate a substantial revision of this net capital contribution to the E.U.

The E.U. also provides funds to implement specific directives such as agricultural policies and the revitalization of nature preserves or ecosystem networks. Institutions

responsible for implementing land use planning in the Netherlands are the national government, the provinces and the municipalities. Table 2.2 summarizes the main policy institutions at each level.

Table 2.2 – Land Use Policy Institutions of the Netherlands

Level of public administration	Institutions
National	• National Spatial Agency (DGR) • National Spatial Planning Commission • VROM Council (Housing, Spatial Planning and Environment)
Provincial	• Provincial Spatial Planning Committee • Provincial government
Municipal	• Municipal government

National Planning

At the national level, the Ministry of Housing, Spatial Planning and the Environment (VROM) issues the principal national guidelines on spatial policy and development. It encourages other tiers of government and private parties (such as nature conservation and management organizations) to cooperate at the early stage of new land-use projects. The overall goal is to examine economic development options and, in collaboration with provincial and municipal governments, to draw up long-term development plan. The *Spatial Planning Act* provides the legal framework for planning in the Netherlands.

The municipalities (jurisdictions that include surrounding rural areas) are responsible for planning at the local level. The municipal councils draw up detailed land-use plans, which have to be approved by the provincial authorities. The provincial authorities draw up regional land use plans, primarily sectoral development plans that are coordinated national and, increasingly, internationally.

This general framework is further defined in the outline of institutional responsibilities provide below (Fig. 2.10).

Adherence to national strategic plans is ensured by the States General[1] by exercising the *right of approval*. The minister is advised by the following institutions:

- The Governmental Commission of Planning — the highest level commission for coordinating the planning policies of the national government.
- The Ministerial Council (VROM) — an independent council that advises the national government and represents many outside constituencies.
- The National Spatial Planning Agency — assists the minister of VROM in developing spatial planning policy.

National land use planning is promulgated by a *national plan* composed of major spatial planning decisions of four types:

- *National planning policy document* ("nota ruimtelijke ordening") — a document (revised every 10 years) that articulates spatial policy directives for provincial and municipal governments on a sectoral basis, including aspects of the types and location of housing, urban development, nature and landscape preservation, water management and infrastructural development.
- *National structure plan* — a spatial outline of national land use policy, such as regional urban growth, environmental preservation or industrial development directives.
- *Structure scheme* — a national structure plan for a single policy sector.
- *Particular projects of national importance*

In the latest and *Fifth National Policy Document*, land use development guidelines are formulated through 2020, with additional perspectives for the period up to 2030. Topics include needs for residential development, including the mix of private and social housing, preferred locations for residential development and urbanization, nature and landscape development and preservation, watershed management and the spatial requirements to accommodate economic growth. It is a legally binding document that

[1] The State General (Parliament) consists of 2 policy chambers: the Second Chamber of Parliament with 150 members, directly elected for 4 years; and the Senate, elected by members of the provincial authorities.

outlines regional development guidelines to be refined by provincial and municipal government land use plans.

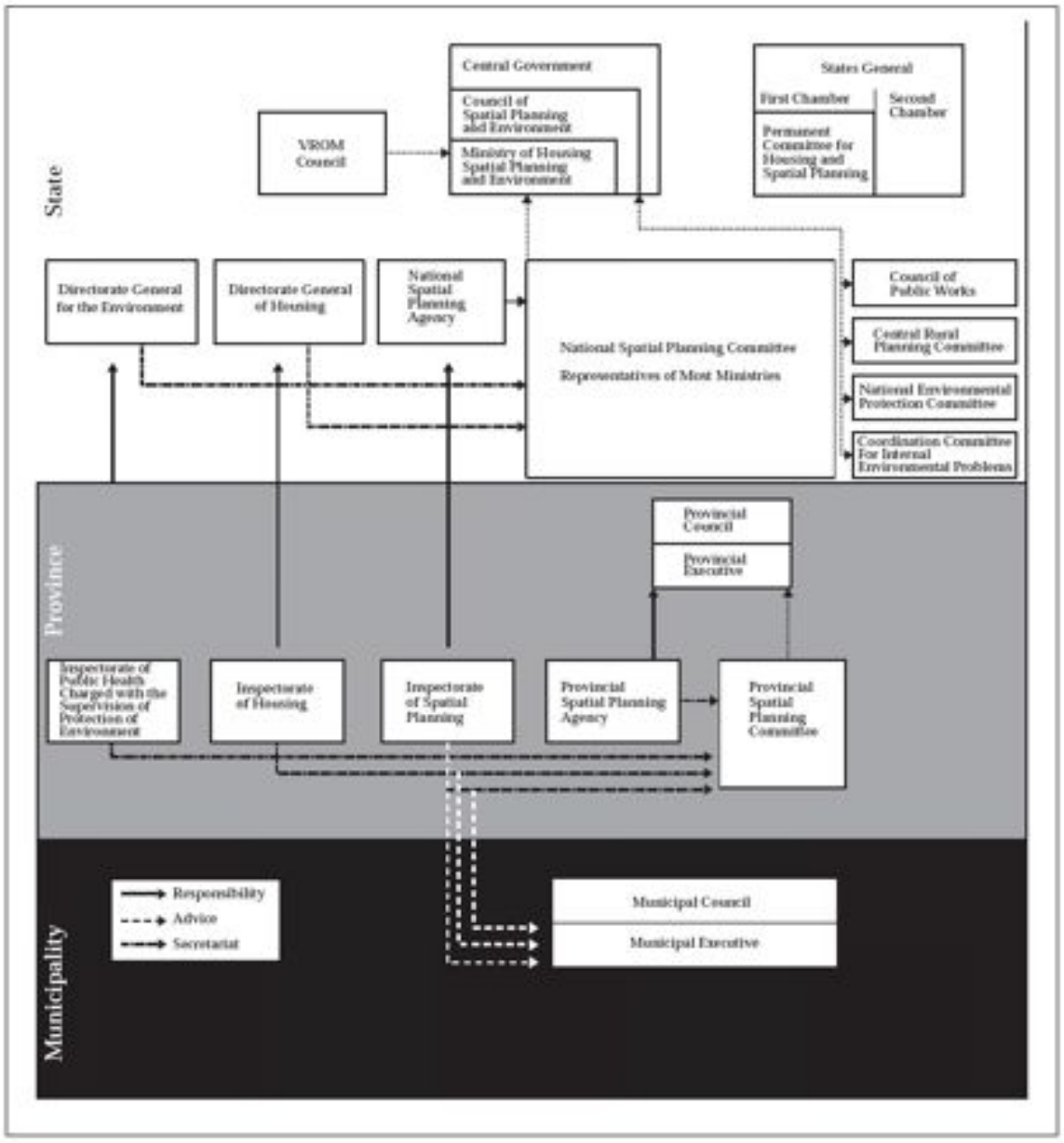


Figure 2.10 – Institutional mandates for spatial planning in the Netherlands.

National spatial policy is presented in *structural outline plans* (with general locational preferences) and national policy documents. These documents contain the main principles of the spatial policy, further reinforced and detailed in *spatial allocation plans* at the provincial and municipal levels. Each *key decision* specifies its duration and is

(mostly) directive or legally binding. Projects of national importance can be legally binding, such as those associated with the development or augmentation of major infrastructural facilities or networks. To assure cooperation among various jurisdictions or levels of government in the implementation of key decisions, the national government may issue:

- *Directives* on what a province should include in its *regional plans* and what a municipality should include in its *allocation plan* (a specific land use designation plan).
- *Orders* that *regional plans* or *allocation plans* be revised.

In addition, these directives and orders may but need not be based on key spatial planning decisions.

This division of administrative responsibilities - national, regional (provincial) and local (municipal district, including surrounding rural area) - delegates a high degree of authority to the regional and municipal levels within the framework of a hierarchical planning system. Institutions responsible for implementing land use planning in the Netherlands are the national government, the provinces and the municipalities.

Provincial Planning

Provincial land use planning responsibilities include:

- The detailing of relevant aspects of national land use planning policy at the provincial level — in the form of *provincial*(or *regional*) *plans*.
- The implementation of provincial planning policy.
- The supervising of spatial planning policy implementation by the municipalities within the province — in the form of local *structure plans* and *land use destination* (in fact detailed *land allocation*) *plans*.

The provincial governmental powers are divided constitutionally among:

- The crown's commissioner.
- The provincial council, which promulgates spatial policy.

- The provincial executive, which prepares and develops policy through plans and memoranda.

The provincial executive is assisted by the provincial spatial planning agency. The provincial planning committee is advisory to the provincial executive and coordinates departmental actions and policies. It also plays a key role in the vertical coordination and detailing of national and local land use planning. To this end, the provincial (regional) council develops a *regional plan* — enabled by the Spatial Planning Act — that is revised every 10 years. It identifies desired future development in the province and, although not directly legally binding for citizens or local jurisdictions, identifies generally desired future developments at the municipal level, to be subsequently detailed in local *structure plans* and local land use *destination plans* (see below). The provincial executive has the authority to approve local land use plans on the basis of their compatibility with the regional plan. To enforce compliance, the province may issue specific orders and directives to municipalities.

Local Planning

Provinces or regions are subdivided into municipalities ("gemeentes"), which include a municipal seat in the major town and minor towns or villages with their surrounding rural areas (Fig. 2.11). They possess similar authority, but their autonomy is subordinate to provincial and national land use policies.

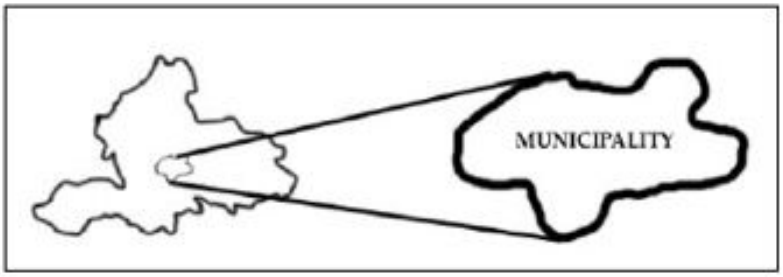


Figure 2.11 - Local planning unit — Includes major municipality with minor towns or villages and surrounding rural areas (this could be compared to a major incorporated U.S. city and its surrounding townships or county).

The Spatial Planning Act mandates that municipalities prepare and implement local land use policy and plans. They may also implement special national and provincial land use policies on the basis of funded mandates. Policies are typically further detailed at the local level by means of *structure plans* and *destination (land allocation) plans* (see below). For implementation of national planning objectives at the regional and local levels, provincial and municipal government funding largely originates from national government sources in the form of general or specific grants based on the number of inhabitants. Funding allocations to the provinces and municipalities reflect the nature and magnitude of development priorities as identified in the *national plan*. Therefore, this funding provides a significant land use control mechanism at the local level.

National revenue is largely raised through national income and sales taxes. Taxation at the provincial and municipal level is very limited. This is an important difference between the Netherlands and the United States because it eliminates the major incentive for local governments to pursue development solely for the purpose of expanding the local tax base. In the Netherlands, local taxes include a limited form of real estate tax (the major source) and a levy for municipal services such as water and energy (natural gas) consumption, and sewage and solid waste services. Local tax revenue amounts to about 16 percent of local funding (Fig. 2.12).

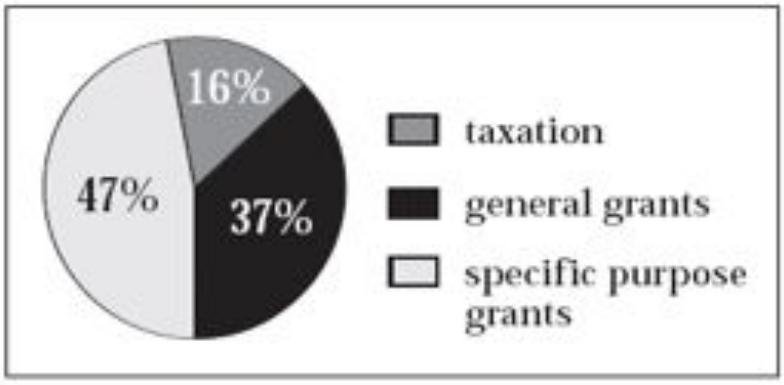


Figure 2.12 - Municipal income sources (1999). (Source: European Union, Committee of the Regions)

Major capital improvements may be financed by bond issues. Municipal councils may determine local property tax rates subject to national government-imposed limits. Non-profits such as church organizations and agricultural land are exempt from property tax.

Special taxing authority is provided to local water boards, which may proportionally assess beneficiaries for drainage services and flood protection. Very little tax revenue comes from provincial levies.

The local administrative powers are constitutionally divided among the appointed mayor (discussions on changing this to an elected position are currently taking place), the municipal executive and the elected municipal council. The municipal council is principally charged with the approval and implementation of local land use planning policy. The mayor and executive branch (principally the Department of Public Works and City Development) are responsible for the preparation of plans and supporting memoranda. The major local planning implementation tools are the *structure plan, the allocation plan, the urban renewal plan and the living conditions ordinance*, the latter for use in urban areas.

The Structure ("Structuur") Plan

The *structure plan* outlines the future structural development of the municipality with its rural hinterland and is to be revised every 10 years. It is comparable to the master or comprehensive plans of Michigan townships, but it is more detailed in defining the desired planning objectives and general locations of major land uses. It also outlines the direction and limitations of urban expansion into the surrounding rural area. Sometimes it reflects interjurisdictional plans if jointly prepared and approved by an adjacent municipality — the so-called intermunicipal structure plan. The function of the plan is to determine prospective spatial and socioeconomic development, and to serve as a reference for the formulation of municipal planning policy by merging national and regional land use policies with local preferences.

The *Spatial Planning Act* gives the municipal council the right, but not the obligation, to adopt a structure plan. It is not legally binding but may have legal and potentially financial consequences for certain actions, such as the identification of areas for urban renewal, land acquisition, expropriation and urban expansion. It is also the basis for the approval of the land *allocation plan* by the provincial government.

The Land Allocation ("Bestemmings") Plan

The *allocation plan* is a legally binding document, much like the zoning and wetland preservation ordinances used in Michigan. The *Spatial Planning Act* mandates that each municipality establish an *allocation plan* subject to revision every 10 years for the territory outside the built-up areas. For urbanized areas, the development of an *allocation plan* is optional. The allocation plan effectively designates specific land use for a 10-year time span, demarcating urban growth and service boundaries and the detailed location, specific land use and density of residential, institutional, recreational and industrial land development. All building permits are issued in compliance with the *allocation plan*. Subject to reviews and approvals, exemptions may be granted with cause, analogous with the zoning variances in Michigan.

However, exemptions are rarely granted and are subject to extensive approval proceedings. *Allocation plans* are generally quite detailed in their designation of land uses, including detailed maps with the specific type, the land use mix and the height of development permitted for a given location. Local jurisdictions have some latitude in determining the specific land use plan details, including use regulations.

The Urban Renewal Plan

This plan has the same legal status as the *allocation plan* and addresses the revitalization of urban areas. It is mandated by the *Town and Village Renewal Act* and is implementation-oriented, whereas the *allocation plan* is prescriptive in nature.

Living Conditions Ordinance

This urban development tool is also mandated by the *Town and Village Renewal Act*. It is a proactive ordinance designed to prevent urban deterioration specifically associated with living and working conditions, or aesthetics. With this ordinance, intervention takes place more quickly and permits a municipality to influence urban revitalization more effectively than would be case in an *allocation plan* or an *urban renewal plan*. This ordinance may specify use rules to prevent or reverse deterioration of residential or commercial buildings. It is designed to enforce standards rather than improve conditions.

Growth Management and Open Space Preservation

The structure and allocation plans reflect national and regional growth priorities in aggregate land use categories (space allocated, housing units, commercial and industrial acreage, etc.). The implied hard growth boundaries for a designated time period encourage concentrated development patterns of compact urban agglomerations.

The planning instruments outlined above are instrumental and effective in directing and controlling growth. First, they focus on the development of the "compact city model": the creation of mixed land uses (living, working, education, recreation and public services) reachable by various modes of public transportation, a constant revitalization of the central city including its housing and retailing sectors, and the promotion of walkable communities enhanced by easy access to schools and recreational facilities. Second, the local government is an active participant in the development process, buying land and controlling infrastructural development and defining access to basic services such as water, sewer and utilities. This amounts to precisely defined growth boundaries over time, prevents significant land speculation, and directs and controls residential development in green space as necessary to accommodate urban expansion where it is most suitable or desirable. The notion of *development rights* held by private landowners is therefore limited by the growth zones identified in *local allocation plans* and modified for future time periods, as necessary, to serve the public interest and development priorities. Both planning practices and fiscal policies reinforce long-term planning at the national, regional and local levels while effectively preserving open space.

2.7.2 Planning in New Zealand

More than 90 percent of New Zealanders are urban dwellers even though the country's economy is reliant on exporting primary products to distant global markets. A majority of the population lives in and around the five metropolitan regions: Auckland, Hamilton, Wellington, Christchurch and Dunedin. The drivers of urban growth in New Zealand are much the same as in Indonesia even though the scale of the problem is relatively much smaller. Contemporary urban growth trends through out New Zealand reflect long

standing cultural preferences for low density living in peri-urban settings dependent on easy access to private transport. These forces have encouraged population dispersal, which, if not managed well, could become sprawl. The growth pressures in New Zealand cities, as elsewhere, are focused on the suburban and fringe locations while a number of the inner city areas are in relative decline in terms of population and economic activity. Metropolitan Auckland, a large part of the North Island north of Taupo and Christchurch in the South Island face many of the same pressures and potential problems as urban areas in many industrialized nations.

With a population of just over a million, Auckland is a relatively small metropolis by global standards. However, its population is distributed over a large land area equivalent to that of European and Asian cities with populations two to three times that of Auckland. Until recently, the metropolitan form and function of Auckland had evolved since the 1870s in an incremental *ad hoc* fashion. Overlapping, fragmented local government jurisdiction was considered a major constraint on effective governance. The cumulative impact of shortsighted decisions has become manifest during the last decade. Auckland has suffered a series of serious crises that have been attributed to an overburdened and aging water, transport and power infrastructure.

Local government authorities within Auckland embarked on a strategic metropolitan growth management initiative about a decade ago that has the potential to significantly enhance the institutional capacity for regional governance. A number of other provincial metropolitan cities in New Zealand, including Christchurch and Tauranga, have also recently embarked on strategic planning initiatives that have been motivated by the apparent success of Auckland. The new Local Government Act, enacted in 2002, envisages elected local government authorities in New Zealand taking a lead role to formulate and implement strategies for sustainable development in collaboration with other stakeholders.

The following section will review the significance of the Auckland initiative from a wider perspective of collaborative planning. Lessons from around the world suggest that

sticking to an agreed vision over the longer term is crucial to achieving community objectives for promoting urban sustainability. In Auckland, New Zealand's largest metropolitan city, the region's councils have finally decided to work together, in co-operation with central government and other stakeholders, to implement the growth strategy and meet regional needs. They have been compelled to do this in response to the growth crisis facing the metropolitan community.

The Institutional Framework

Most of the responsibility for urban growth management in New Zealand is devolved to elected regional and city and district councils. Central government has refrained from taking a strong proactive role to provide policy direction in this sphere. Thus, New Zealand does not have a national urban growth strategy or a national land use strategy. The apparent rationale for this policy stance on the part of successive central governments has been that the land use regulation function is deemed primarily a local government responsibility, arguably a reflection of the ideological importance attached to private property ownership in New Zealand. This situation may bear a distant resemblance to the "home rule" ideology in some states in the US. However, in contrast to the more *voluntary* and sometimes limited pro-active planning role of local government in the US, in New Zealand elected urban territorial local authority jurisdictions have been *required* by the Parliament since the 1950s to undertake land use planning and regulation under the town and country planning legislation.

However, developing capability for planning at a metropolitan regional level has proved more problematic. In the metropolitan regions of Auckland, Wellington, Christchurch and Dunedin, fragmented local government, parochialism and fiscal competition for growth amongst contiguous authorities have constrained regional cooperation in the past. Two particular objectives of the wide ranging local government reforms under the Local Government Act 1988 were to amalgamate small territorial jurisdictions into larger units to provide economies of scale and stronger capability for governance at the local level and at the regional level to amalgamate special purpose ad hoc jurisdictions such as river

catchment (watershed) boards with overlapping jurisdictions into elected regional authorities.

The principal legislative instrument for urban planning in New Zealand is the Resource Management Act 1991 (RMA)[2], which has several positive attributes as an environmental planning statute. It provides a statutory framework for a holistic and integrated approach to environmental planning and management based on ecological and democratic principles. It replaces a large number of formerly separate and sometimes inconsistent overlapping environmental statutes to provide a relatively integrated focus on natural resources and the built environment.

The purpose of the Act is defined in terms of the principle of sustainability. The Act recognizes that government has an important role in environmental planning and defines a hierarchical, three-tier planning framework. This hierarchy is based on the assumption that decisions should be made as close as possible to the level of community of interest where the effects and benefits accrue. Within this hierarchy, regional councils have a pivotal role in integrated resource management while the role of city and district councils is focused more explicitly on land use planning. While there have been difficulties in securing cooperation between the local and regional government tiers in some metropolitan communities such as Christchurch, local government authorities in Auckland have been relatively more successful in developing a collaborative approach to address issues of urban growth management, as discussed in the next section.

The more recently enacted Local Government Act of 2002 significantly widens the political mandate of local government (territorial and regional councils) in New Zealand to empower it to promote the objective of sustainable development encompassing social, economic, cultural and environmental well-being of communities. A key instrument to achieve this objective will be the preparation and implementation of Long Term Council Community Plans (LTCCPs), based on wide ranging community consultation and input

[2] The Resource Management Act 1991 combined the Town and Country Planning Act; 1977 with several other environmental statutes.

by stakeholder groups. The LTCCPs are expected to become the key strategic planning and public accountability document for all council activities. With specific reference to urban growth management, the LTCCPs are expected to provide the long term policy direction for regional policy statements and district plans prepared under the RMA. How well these two planning statutes will succeed in working together to address problems of urban growth management in New Zealand communities' remains to be seen.

The Auckland Experience [3]

Burdened by a historical legacy of lack of political leadership and poor planning, Auckland has recently manifested a stronger political commitment to address issues of urban growth management within the metropolitan region. Urban growth pressures and associated congestion and pressures on services are most severe in Auckland compared to elsewhere in New Zealand:

- The Auckland region is home to almost 1.2 million people and has grown by 90,000 people (8.4 percent) since 1996.
- The region has 30 percent of New Zealand's population of 3.8 million.
- 54 percent of population growth over the last two decades was due to natural increase and the balance due to domestic and international migration.
- 32 percent of New Zealand's workforce is in the Auckland Region.
- The region is projected to reach 2 million people by 2050 (an average increase of 20,000 people per year).
- Much of the region's infrastructure needs upgrading to meet increasing demand and higher environmental standards. Over $2 billion needs to be spent in the next 25 years on water supply, drainage and transport alone.
- Car use is growing by around 4 percent per year.

The Auckland Regional Council was established following local government reforms in 1988. Its predecessors had not proved particularly effective in addressing issues of

[3] The following review is based on information obtained from the website for the Auckland Regional Growth Forum (www.growthforum.govt.nz) and interviews with two senior staff members of the Auckland Regional Council.

growth management on account of local parochialism and pressures from vested development interests. The Regional Council's urban growth strategy is for *regional* urban containment matched by urban intensification policies at the *local* authority level. This strategy has been developed during the last ten years and is being implemented through a two-pronged approach. The first is via the Regional Policy Statement prepared in 1994 within the statutory context of the RMA. The second is a non-statutory collaborative strategic planning initiative which commenced in 1997 to bring together the technical and political interests of the Auckland Regional Council and the constituent local authorities and other public and private sector stakeholders. This initiative is known as the Auckland Regional Growth Forum.

The Regional Policy Statement

The Metropolitan Urban Limits (MULs) is a technique used in the operative *Auckland Regional Policy Statement* to define the boundary between the urban area and the rural part of the region. The notion of controlling the outward spread of Auckland through an urban growth boundary type mechanism has been a policy in Auckland regional planning documents for nearly 50 years. The reasons for doing this have changed over time. Originally, the primary objective was to sequence growth so that infrastructure could be provided more efficiently and to protect highly productive agricultural land. More recently, the main objectives of the MULs have been broadened to protect sensitive rural and coastal environments from peripheral growth and to achieve containment and intensification of the urban area.

The method by which the metropolitan urban limits have been determined and implemented in Auckland has also changed over time. Earlier, under former town and country planning legislation, the determination and implementation of the MULs was left primarily in the hands of the individual territorial local authorities (TLAs), which was not very effective. Under the RMA, the location of MULs has been defined in the Regional Policy Statement (RPS) by the Auckland Regional Council. The RMA stipulates that district plans must not be inconsistent with regional policy statements. Thus, the MULs within the RPS have a controlling effect on land development policies of individual

territorial local authorities. For this reason, the role of the Auckland Regional Council to determine urban growth limits was initially contested by some territorial local authorities but subsequently affirmed by the Courts.

The Auckland Regional Growth Forum (ARGF)

The Auckland Regional Growth Forum (ARGF), established in 1996, is a cooperative partnership between the Auckland Regional Council, the region's territorial local authorities and other stakeholder groups to further develop and implement the strategy for managing the effects of growth in the Auckland region as set out in the Regional Policy Statement. The ARGF was established to examine the options and alternatives for future growth and to manage its effects on the environment, infrastructure and local communities. Faced with a rapidly growing population, a demand for 300,000 more dwellings by 2050 and huge infrastructure costs, the councils were compelled to work more closely to resolve urban growth issues, a significant political departure from the situation hitherto.

The Auckland Regional Growth Forum has 10 political members (mayors and councilors), three from the Auckland Regional Council and one each from the seven territorial local authorities. A "Steering Group" comprised of senior officers from the same authorities, plus the Ministry for the Environment, provides overall technical direction. The Auckland Regional Growth Forum is a standing committee of the Auckland Regional Council. It is funded by the Auckland Regional Council through the regional land rate. Other participating councils also fund the time of their elected representatives and staff to support the Growth Forum. A 1998 amendment to the Local Government Act 1974 formalized the existence and role of the Growth Forum and established Infrastructure Auckland to make grants for land, passenger transport and storm water infrastructure projects in the region.

The Regional Growth Forum has developed a Regional Growth Strategy looking ahead to the year 2050 , which is now in the process of being implemented (Figure 2.13).

The need for such a strategy reflects the councils' desires to work more collaboratively to resolve urban growth issues. The Auckland Regional Growth Strategy is a product of over three years' planning involving technical investigations, political workshops and extensive consultation with public and private sector organizations in the region, as well as the general public and central government agencies. It builds on a draft strategy published in 1998 and takes account of comments to that document. The Regional Growth Strategy emphasizes an integrated approach to the long-term management of the Auckland region. The strategy brings together a wide range of important policy directions for the region, encompassing a partnership approach between Growth Forum members and close consultation with their stakeholders and communities.

The Auckland Regional Growth Strategy was formally adopted in November 1999. It provides a vision for what Auckland could look like in 2050 with a population of 2 million (Figure 2.14). It promotes quality compact urban environments and identifies, among other things:

- Areas in the region where urban development should not occur;
- Opportunities for peripheral urban development and intensification in the future;
- Appropriate locations for further employment growth; and
- The implications for transport and other regional infrastructure.

Chapter 2 of the Growth Strategy provides a list of the values that the regional community has said they want to protect and enhance over the next 50 years. These desired regional outcomes include improving air and water quality, protecting the coastal environment, habitat and heritage, and ensuring employment and housing choice and business opportunity. Chapter 3 of the Growth Strategy outlines how these outcomes will be achieved and what will be important for successful implementation of the strategy.

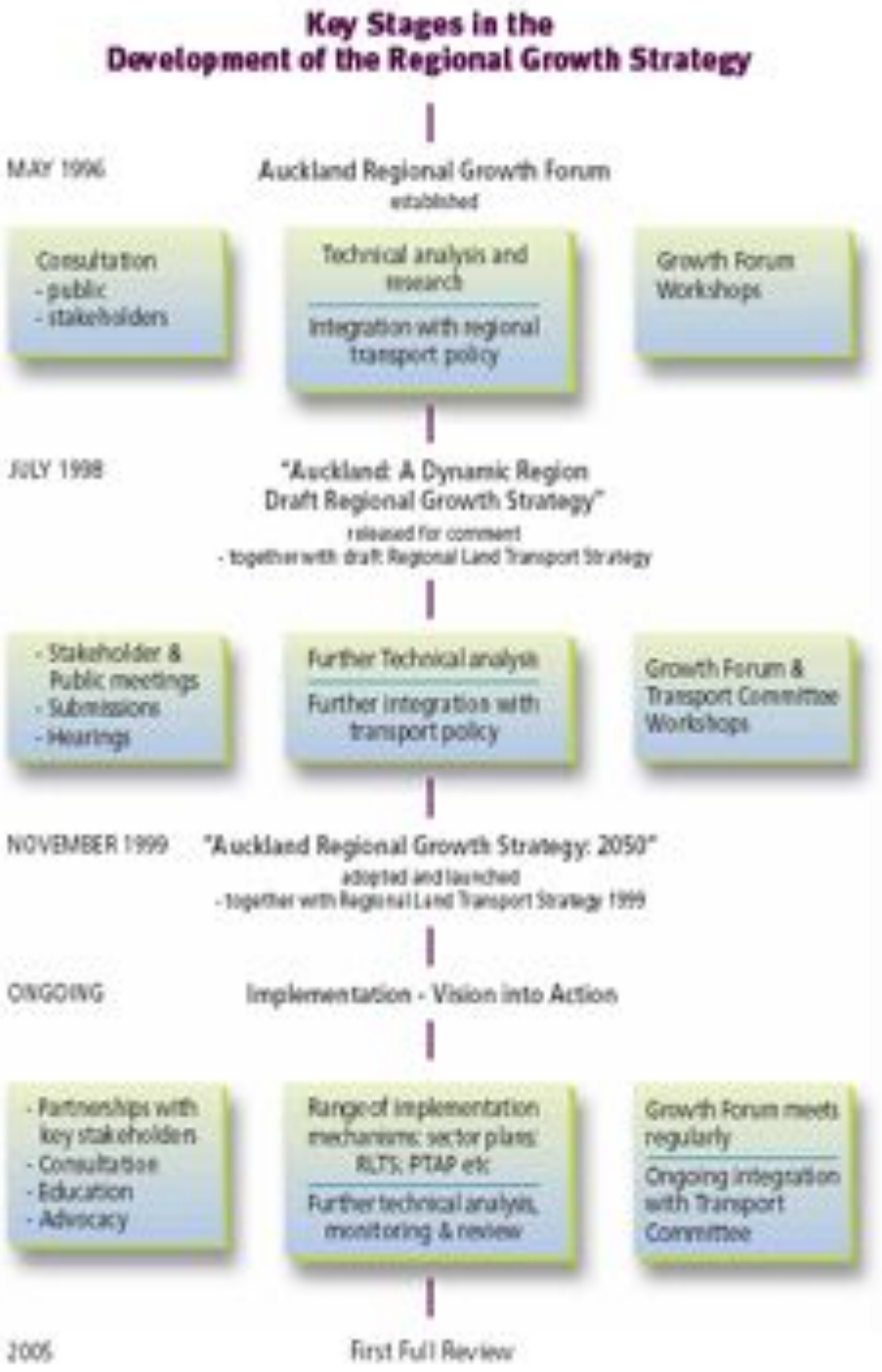


Figure 2.13 – The ARGS Development Process (Source: Regional Growth Forum 1999).

The key outcome areas relate to:

- social infrastructure
- housing choice and affordability
- amenity and design
- business and employment opportunities
- transport
- regional transport needs
- servicing employment areas
- transport needs of rural and coastal towns and suburban areas
- transport needs of intensive urban areas
- environment
- physical infrastructure.

Implementation Process

When the region's councils signed the Memorandum of Understanding in November 1999, they affirmed their support for and commitment to the implementation of the Auckland Regional Growth Strategy.

The process for implementing the Growth Strategy has five themes:

- partnerships and relationships;
- the need for alignment of policy and funding;
- long term vision and identified short term actions;
- wide and adaptable range of implementation mechanisms; and
- a process to keep the vision alive.

Keeping the vision alive is a key role of the Regional Growth Forum. It is also responsible for coordinating the implementation of the strategy, as well as its monitoring and review.

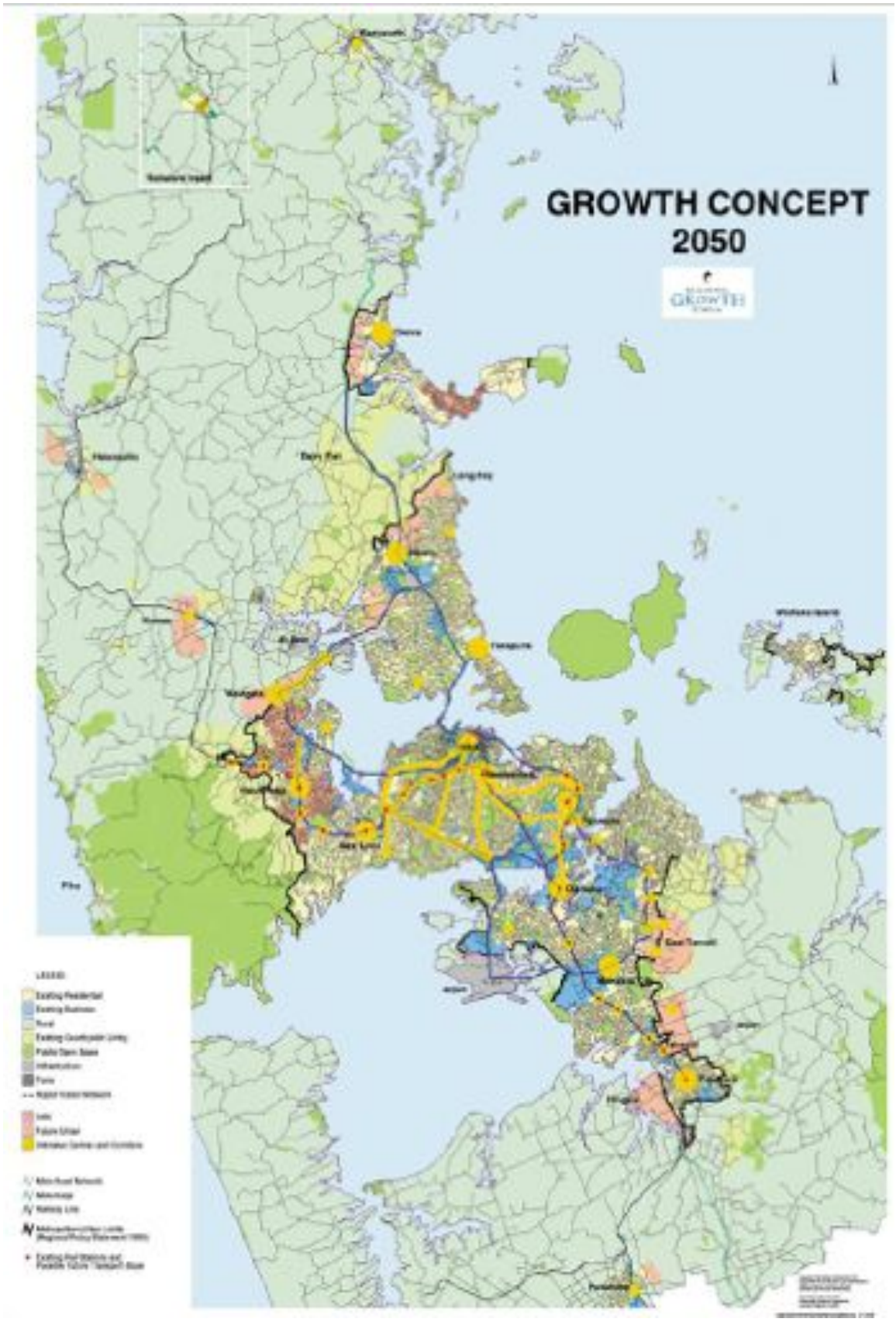


Figure 2.14 – The growth concept: 2050. (Source ARGF 1999)

Growth Forum partners (the ARC and the territorial local authorities) are developing a strong advocacy role. They are principally responsible for ongoing participation and for aligning their own policy and funding to support the strategy. The ARC is also responsible for the Regional Land Transport Strategy, environmental management, regional plans and purchasing passenger transport services from public transport operators. The territorial local authorities are responsible for local land use planning and infrastructure provision. Implementing the sector agreements involves participatory community processes and a close working relationship with infrastructure providers, land owners and the development industry.

A range of policy mechanisms is being used to implement the Auckland Regional Growth Strategy, as shown in Figure 2.15.

Figure 2.15 – Policy mechanisms to implement the regional growth strategy (Source: ARGF, 1999)

It is expected that policy approaches and tools will inevitably evolve and change over time and around the region through an adaptive learning process. Some of the key drivers of the implementation process are as follows:

- **Translating vision into action**

The key planning approach is to provide more detail about the timing, sequencing and form of growth and associated infrastructure through Sector Agreements (discussed below). This process seeks to bring the broad vision of the Regional Growth Strategy down to action and to fine tune what the strategy means on the ground.

- **Aligning policy and funding**

The region's councils are committed under the Memorandum of Understanding to align their own corporate policy and funding priorities and processes to support the strategy. This means that councils have agreed to initiate changes, within three years, to regional and district plans under the Resource Management Act 1991, to ensure consistency with the Regional Growth Strategy, and to implement the endorsed sector agreements. They have also agreed that by no later than 2003/4 financial year their individual strategic, long term financial and asset management plans and funding policies will clearly identify and support the implementation of the Regional Growth Strategy.

- **Sector Agreements give more of the detail**

A sector agreement identifies capacities for growth in each of the regional sectors and the timing and sequencing of the release of that capacity to 2021. It also identifies the provision of associated infrastructure, when statutory processes to release will commence and how these processes will be funded. Sector agreements have now been developed and endorsed for all parts of the region.

The **Southern Sector Agreement** (covering sequencing, timing and capacity for urban development for Manukau City, Papakura and Franklin Districts) was endorsed by the Growth Forum in March 2001. Consequently, the councils have notified changes to

district and regional plans to adjust the metropolitan urban limits (MUL) and to incorporate new greenfield areas in Flatbush and Takanini. Planning is also underway for more intensive nodal development focused initially on Papakura Central, the Glenora and Spartan Roads of Takanini, Pukekhoe Central, Papatoetoe/Hunters Corner, Manukau City Centre and Manurewa. The sector will accommodate a further 106,000 population in the next 20 years, and 275,000 population over 50 years through greenfield, nodal and infill development. The southern sector councils are now working on a rural sector agreement in order to understand more clearly the capacity and demand for rural growth and its implications, both in the rural areas and on the take-up of urban development opportunities.

The **Central Sector Agreement** was endorsed by the Growth Forum in September 2001. The central sector, which falls entirely within Auckland City, will accommodate up to a further 94,000 people by 2021. Priority areas for growth include the Central Area and Western and Eastern Strategic Growth management Areas (SGMAs) identified in the Liveable Communities 2050 Strategy. This includes centres such as Avondale, Panmure, Glen Innes and Newmarket, as well as new development areas such as Sylvia Park.

A joint **North-West Sector Agreement** (covering North Shore and Waitakere Cities and Rodney District) was endorsed by the Growth Forum in September 2001. The North-West Sector Agreement will add population capacities of 76,000 to North Shore City, 74,000 to Waitakere City and 71,000 to Rodney District, by 2021. In Waitakere, the council is working through more detailed planning matters associated with intensification within the existing urban area, the sequencing of development and MUL changes for the future growth areas in the northern part of the city, as well as resolving outstanding District Plan appeals.

- **Getting the transport network right**

A doubling of the population will have major impacts on the transport system – major transport improvements are needed. These will have significant community and environmental implications.

An effective transport system is a key component of the Growth Strategy. The strategy sees a shift in land use patterns to focus growth in more intensive mixed use centers associated with access to the northern, western and southern passenger transit corridors, as well as the main arterial roads. The growth strategy recognizes that transport requirements and priorities for employment and residential areas (rural, suburban and intensive) will differ.

The concentration of more people in an urban area gives more opportunities for better passenger transport – more choice of routes and higher frequencies. Passenger transport investment can also be a catalyst for achieving urban intensification. Significant improvements will be needed to support the mixed use more intensive centers and corridors. Careful design will be essential to maintain and improve liveability in these areas and to manage the conflicting needs of pedestrians, cyclists, buses, cars and passenger transit systems. Future roading investment will also be needed to maintain accessibility on the region's arterial network and to the port and airport.

The Regional Land Transport Strategy is the key mechanism to develop the transport system. Released in 1999, it is currently under review. The region's Passenger Transport Action Plan identifies passenger transport investment required to help achieve transport and growth objectives.

- **Cost sharing arrangements**

Much of the Auckland region's infrastructure is already under pressure and needs upgrading to meet increasing demand and higher environmental standards: wastewater and storm water treatment, water supply, transport, energy, refuse disposal, as well as providing for education, health, community services and open space. Over $7 billion needs to be spent in the next 25 years on water supply, drainage and transport alone.

While a mixture of land tax and user charges will continue to meet the bulk of those costs, development levies and other funding mechanisms are expected to feature more prominently (e.g. congestion pricing). Other funding bodies such as Infrastructure Auckland (transport and stormwater), the government's road funding agency

(Transfund), and service delivery companies such as Watercare and private companies, such as Telecom, will also be important in the mix. The coordination of this investment is crucial.

- **Monitoring**

A monitoring program has been developed with a threefold focus: measuring growth in the region, measuring the effects of that growth on valued aspects of the region, and measuring the implementation efforts of the Forum partners (ARGF, undated). A crucial part of the Regional Growth Strategy is the concept that the document will change as circumstances change. Such changes might include central government policy reforms or significant market shifts. Like wise, periodic monitoring may indicate that strategy outcomes are not being achieved over time. Some key indicators being monitored are: is the Growth Strategy promoting strong supportive communities, a high quality living and natural environment and good accessibility? Are more people living in intensive mixed use areas? Do they like it? Are they traveling less for work and leisure and have travel choices improved? Can new and expanding businesses find suitable premises or land, in the right locations and with the appropriate infrastructure? Are the beaches any cleaner? Are people happy with local parks, shops, health, recreational and education facilities? How do they rate Auckland as a place to live?

The Growth Strategy is also subject to an annual audit of performance**.** This focuses on whether each of the Growth Forum partners (the region's councils) are pulling their weight in terms of their own responsibilities for implementing and supporting the Growth Strategy. Certain commitments are outlined in the Memorandum of Understanding and in the sector agreements, endorsed by all councils.

The results of the monitoring program are used to assess whether or not the outcomes of the strategy are being met and whether changes to implementation methods or the policy itself are needed when the strategy is reviewed. The strategy looks out 50 years and the achievement of some of the desired regional outcomes will only be measurable in that longer term. The Growth Strategy will be reviewed every five years. The first major

review will be in 2004/5, when there will be an opportunity for wide public and stakeholder input to complement research and monitoring data.

Conclusions on New Zealand's Planning

In contrast to the other metropolitan cities in New Zealand, Auckland has manifestly been more successful in crafting workable institutional arrangements for developing and implementing a strategy for addressing wide ranging and inter-related concerns related to Auckland's urban form and structure sustainability framework. These issues have been recently addressed in Auckland through a process of public dialogue and research in the context of the preparation of the *Auckland Regional Policy Statement* and the parallel *Urban Growth Forum*. The Forum considered strategic growth issues for the next 50 years. More significantly, this Forum brought the councils together and, as an important milestone, led to the signing by both Mayors and Chief Executives in November 1999 of a joint Memorandum of Understanding (MoU). Central government has played a key role in encouraging collaborative planning.

That memorandum also identified the urban growth related issues to be covered by all councils and service agencies in three Sector Agreements covering the whole region. This work was undertaken during 2000/2001and included a program for staging of the development, management of the urban limits and provision of utility services. Sector Agreements have been prepared by the local councils in consultation with the regional council, service providers, central government agencies, land owners and the private sector. Each Sector Agreement also defines a means of monitoring the programme to ensure it meets the targets of the Regional Growth Strategy.

After the signing of the Urban Growth Forum's MoU, the Sector Agreements were adopted within the second three year electoral term of the councils. Thus, the whole of this non-statutory exercise that binds the political and technical arms of the city/district councils together with the regional council took only six years and was free from major Environment Court (and High Court) actions, in significant contrast to the experience with the Regional Policy Statement during the mid-1990s. It could be argued that such a

public information and consultation process is essential for all of the five metropolitan regions in New Zealand. It provides leadership and guidance on sustainable development and lays the groundwork for managing cumulative effects of urban growth and change within the context of the RMA.

However, on account of contextual differences, it would be unrealistic to expect that the Auckland growth management model can be read across elsewhere in New Zealand or, indeed, overseas. Inevitably, tensions continue to surface in the negotiations amongst the different Auckland stakeholders during the course of implementing the growth strategy. What the Auckland case study clearly demonstrates, nevertheless, is that in a plural land owning democracy such as New Zealand or Michigan, an urban metropolitan region cannot be planned by a single regional authority alone. Cooperation, mutual respect and collaboration must be achieved between district and regional councils as planning authorities, other statutory and community stakeholder groups and central government. An agreement or Memorandum of Understanding (MoU), outside the statutory RMA process, as emerged from the Auckland Regional Growth Forum, can be an effective political catalyst and a foundation for a statutory regional plan. The MoU was necessary to the development of an agreed Regional Growth Strategy and management of the Metropolitan Urban Limits (MUL). The outcomes of these consultative processes can then be embedded in the more explicit statutory provisions of the Regional Policy Statement (RPS) for a regional settlement strategy and in the more detailed district plan provisions for land use regulation by territorial local authorities.

The relationship between the LTCCPs, required to be completed by all local authorities by 2006 under the provisions of the new Local Government Act 2002, and the Auckland Regional Growth Strategy still remains to be clarified. It is likely that the Regional Growth Strategy will sit under the umbrella of the LTCCP for the Auckland region as may the reviewed Regional Land Transport Strategy and possibly other regional strategies for affordable housing, open space, the coast and for recreation.

2.8 Guidelines and Indicators for Monitoring and Evaluation

The principal goals of monitoring and evaluation is to ensure that (clearly defined) program or project objectives are reached by means of monitoring and evaluation at intermediate and final stages of implementation. Resulting feedback is used to make the necessary implementation adjustments, assuming that it is still realistic to achieve basic goals and related objectives. Goals and objectives should be well-articulated and expressed in qualitative or (ideally) in quantitative terms: objective target indicators that can be measured and evaluated.

Base line studies are part of this process. They help to diagnose issues and problems and, therefore can be used to *express the current state or problems in terms of diagnostic indicators*. As such, base line studies or resource inventories represent the first phase of economic development planning and project feasibility studies. The inventory identifies the *status* of principal components of the four ecosystem components -- soil, water, plants and wildlife, as well as non-renewable resources such as minerals, but also identifies current land cover/use *patterns and trends*. Most base line studies define the bio-physical parameters of the *resource base* and, therefore, may be used to derive composite biological productive indices. Examples include wetland ecosystem productivity or the agricultural productivity of certain agro-ecological zones.

For instance, a comparative crop productivity index may be derived, using a combination of soil types (e.g., textural classes), climate parameters (soil water balance) and topography (impacts on surface recharge and evapotranspiration) to depict relative production (moisture) constraints by agro-ecological zones or administrative district. In the case of food security concerns, this provides an example of a diagnostic (problem) index, which may be used to identify the comparative advantage of alternative locations to meet national or regional food production needs. Similarly, current use intensity and trends may be used to identify potential conflicts, now and in the future, where existing carrying capacity may be exceeded or where harvest/depletion rates exceed reproductive capacity.

Such diagnostic demand analysis framework, including some relevant diagnostic indicators, is suggested to systematically identify needs, opportunities and targets in the form of biophysical and socioeconomic indicators.

Performance and monitoring indicators are primarily intended to evaluate the degree of success (or failure) in reaching development objectives, measured in the form of specific standards or policy targets. Below, several examples are introduced which attempt to illustrate the use of composite indicators in this regard. It is important to realize that development of these indicators is not an objective in itself, rather the intent is to design effective measures that can be used to evaluate program or project performance and adjust policies and their implementation. The following grouping of major policy target areas is suggested with a focus on relevant measures with respect to:

a) the *status and quality of the resource base* – emphasizing supply-side policy issues or supply indicators,
b) the *resource capacity, use rates and trends* – emphasizing demand-side policy issues or demand indicators,
c) *natural and human-managed ecosystems*, their relative exposure and vulnerability to human intervention and use – emphasizing life support indicators, and
d) *land use policy and quality of life impacts* – with an specific emphasis on human exposure and risk - emphasizing impact indicators.

The following examples of *aggregate target indicators* that can be measured and monitored are provided:

- <u>*Resource Capacity and Quality*</u>. Here various composite indicators may be used to define the productive status (supply, availability and quality) of renewable and non-renewable resource, including soils, minerals, air and water. For instance, the following composite environmental indicators may be used to describe air, water or soil quality:

  a) Climate change – including single concentration indicators for CO_2, CH_4 and N_2O
  b) Ozone depletion – including CFC-11 and - 12 emissions

c) Acidification of the environment – SOx, NOx, NH_3 emissions and concentrations

d) Eutrophication of the Environment – N, P concentrations in water and soil

e) Dispersion of toxic substances – including heavy metals and known carcinogens

f) Dispersion of toxic substances Indicator – pathways and dispersal rates effecting risk,

g) Generation and disposal of solid waste, and

h) Composite pollution indicator – the latter a composite of 6 indicators each measured in units of environmental pressure equivalents, including environmental change, acidification, eutrophication, toxic dispersion, waste disposal and disturbance.

- *Resource Depletion*. This composite indicator can be formulated for countries and regions, measuring the ratio of resource depletion and the gross capital formulation. It illustrates how human activities based on natural resources production or extraction can be sustained. This includes typical examples of mineral and fossil fuel extraction and also those of renewable resources (the supporting resource base), including managed ecosystems such as agriculture, fisheries and forests, and groundwater systems. Examples include water resource use/demand and quality, forest biomass regeneration, reforestation and harvest rates, aquatic resources including fishery stocks and harvest rates, soils resources and degradation rates. The ratio with capital formation illustrates the value of the decline of the resource stocks (or capital) relative to the value of investments in human-made capital. This ratio identifies sustainable use policies as those creating new fixed assets equal or of greater value than those depleted by resource use.
- *Ecosystem Protection and Vulnerability*. This composite indicator is designed to represent the degree of protection that essential and critical ecosytems are accorded through national environmental policies, laws and regulations. It may reflect the type, degree and areal extent of ecosystem protection and the vulnerabilities of ecosystems and the composing species. Biodiversity, as a measure expressing the number of species per area unit, can be used as an effective indicator in this process. However, policies should not focus simply on this single performance indicator but rather attempt to measure integral ecosystem characteristics, including their functional

capacities, connectivity and fragmentation (critical size). Vulnerability must address the degree of protection through buffer zones and other management practices, which may threaten the long-term viability of ecosystems.

- *Human quality of life conditions*. This include the basic notion of primary needs (food, shelter and clothing and related measures of employment and income), the secondary needs such as more discretionary measures as education, health care and environmental risk factors (e.g. water quality and sanitation), and the tertiary needs or wants, such as access to recreational opportunity, other community services and other aspects of environmental / ecosystem quality.

An example of a systematic framework to develop specific indicators by linking indicators to specific development goals is provided in the table (2.3), below.

Table 2.3 - Comparative World Development Indicators linked to the Eight Millennium Development Goals for Indonesia (Source: World Bank).

MILLENNIUM DEVELOPMENT GOALS	YEAR			
	1990	1995	2000	2007
Goal 1: Eradicate extreme poverty and hunger				
Employment to population ratio, 15+, total (%)	63	62	63	62
Employment to population ratio, ages 15-24, total (%)	46	43	45	41
GDP per person employed (annual % growth)	4	7	3	2
Income share held by lowest 20%	..	..	..	7.1
Malnutrition prevalence, weight for age (% of children under 5)	31.0	27.4	24.8	24.4
Poverty gap at $1.25 a day (PPP) (%)	..	..	..	..
Poverty headcount ratio at $1.25 a day (PPP) (% of population)	..	..	..	..
Prevalence of undernourishment (% of population)	19	13	..	17
Vulnerable employment, total (% of total employment)	..	63	65	63
Goal 2: Achieve universal primary education				
Literacy rate, youth female (% of females ages 15-24)	95	..	..	96
Literacy rate, youth male (% of males ages 15-24)	97	..	..	97
Persistence to last grade of primary, total (% of cohort)	78	..	86	79
Primary completion rate, total (% of relevant age group)	94	96	95	99
Total enrollment, primary (% net)	..	..	97	97
Goal 3: Promote gender equality and empower women				
Proportion of seats held by women in national parliaments (%)	12	13	8	11
Ratio of female to male enrollments in tertiary education	..	..	76	79

Ratio of female to male primary enrollment	96	96	97	96
Ratio of female to male secondary enrollment	83	..	95	100
Share of women employed in the nonagricultural sector (% of total nonagricultural employment)	29.2	29.0	31.7	29.3
Goal 4: Reduce child mortality				
Immunization, measles (% of children ages 12-23 months)	58	63	72	80
Mortality rate, infant (per 1,000 live births)	60	48	36	25
Mortality rate, under-5 (per 1,000)	91	66	48	31
Goal 5: Improve maternal health				
Adolescent fertility rate (births per 1,000 women ages 15-19)	..	52	49	40
Births attended by skilled health staff (% of total)	32	37	64	..
Contraceptive prevalence (% of women ages 15-49)	50	55	..	61
Maternal mortality ratio (modeled estimate, per 100,000 live births)	..	..	..	420
Pregnant women receiving prenatal care (%)	76	82	..	93
Unmet need for contraception (% of married women ages 15-49)	14	11	..	..
Goal 6: Combat HIV/AIDS, malaria, and other diseases				
Children with fever receiving antimalarial drugs (% of children under age 5 with fever)	..	..	1	..
Condom use, population ages 15-24, female (% of females ages 15-24)	..	..	..	..
Condom use, population ages 15-24, male (% of males ages 15-24)	..	..	..	..
Incidence of tuberculosis (per 100,000 people)	343	304	270	228
Prevalence of HIV, female (% ages 15-24)	..	..	..	0.1
Prevalence of HIV, male (% ages 15-24)	..	..	..	0
Prevalence of HIV, total (% of population ages 15-49)	..	..	0.1	0.2
Tuberculosis cases detected under DOTS (%)	..	1	20	68
Goal 7: Ensure environmental sustainability				
CO2 emissions (kg per PPP $ of GDP)	0.6	0.5	0.6	0.6
CO2 emissions (metric tons per capita)	0.8	1.2	1.4	1.9
Forest area (% of land area)	64	59	54	49
Improved sanitation facilities (% of population with access)	51	51	52	52
Improved water source (% of population with access)	72	74	77	80
Marine protected areas, (% of surface area)	..	..	..	..
Nationally protected areas (% of total land area)	..	..	..	11.2
Goal 8: Develop a global partnership for development				
Aid per capita (current US$)	10	7	8	4
Debt service (PPG and IMF only, % of exports, excluding workers' remittances)	26	17	11	6
Internet users (per 100 people)	0.0	0.0	0.9	5.8
Mobile cellular subscriptions (per 100 people)	0	0	2	36
Telephone lines (per 100 people)	1	2	3	8
Other				
Fertility rate, total (births per woman)	3.1	2.7	2.4	2.2
GNI per capita, Atlas method (current US$)	620	1,0	590	1,65

GNI, Atlas method (current US$) (billions)	111.0	194.8	122.5	372.6
Gross capital formation (% of GDP)	30.7	31.9	22.2	24.9
Life expectancy at birth, total (years)	62	65	68	71
Literacy rate, adult total (% of people ages 15 and above)	82	..	..	92
Population, total (millions)	178.2	192.8	206.3	225.6
Trade (% of GDP)	49.1	54.0	71.4	54.7

Source: World Development Indicators database

The UN introduced the **Human Development Index (HDI)** to measure the status of human development. While maintaining the importance of GDP for measuring living standards, the supporters of this approach argue that the level of people's welfare should also be measured by two other parameters: longevity and knowledge.

Longevity is measured by life expectancy at birth, while knowledge is measured by a combination of the adult literacy rate and the combined primary, secondary and tertiary gross enrollment ratio in education. This alternative measurement is a breakthrough since it combines the need for short-term policy (economic growth) and long-term policy (higher social investment in education and healthcare). In Indonesia, economic growth can (and has been) achieved in a relatively short period, such as with the discovery of new oil fields or new investment in the mining sector, and the exploitation of its natural resources.

Achievements in education, nutrition and the health care however, require a long-term continuous policy commitment and social spending that may take decades to deliver the expected outcome.

The HDI has been quite useful in measuring relative progress in the improvement of people's welfare and compare it with other countries. Tracing back its HDI trough the 1980s, Indonesia's HDI has been consistently at the bottom half of the ASEAN list, together with Vietnam, Laos, Myanmar and Cambodia. However, from 2000 to 2008, Indonesia's HDI grew from 0.671 to 0.726, with most of the growth reached between 2000 and 2004 (0.714 in 2004). Income disparity however continues to increase.

In the HDI only income and gross enrolment are somewhat responsive to short term policy changes. For that reason, it is important to examine changes over time. The human development index trends tell an important story in that respect. Between 1980 and 2007 Indonesia's HDI rose by 1.26% annually from 0.522 to 0.734 today. The 5 columns below summarize the relative world ranking of Indonesia by composite HDI, Life Expectancy, Literacy, Combined Educational Enrollment and GDP[4].

HDI value	Life expectancy at birth (years)	Adult literacy rate (% ages 15 and above)	Combined gross enrolment ratio (%)	GDP per capita (PPP US$)
111. Indonesia (0.734)	99. Indonesia (70.5)	61. Indonesia (92.0)	115. Indonesia (68.2)	121. Indonesia (3,712)

2.9 Agrarian Reform, Crop Diversification and Import Substitution Opportunities for Rural Development in the RI

One fundamental objective of rural development is to optimize crop production opportunities given existing production practices and evolve these practices and cropping systems over time to meet domestic and export needs. Given the small scale, subsistence agriculture of areas considered for priority agrarian reform initiatives, it is essential to look at crop diversification and expansion opportunities for small scale producers that could meet domestic needs. It is well-know that large amount of products are imported to meet domestic demand, such as from China.

In this context, the potential role of small-scale producers, aided by potential cooperative input, harvesting, processing, and marketing arrangements should be investigated. Small scale producers could focus specifically on fruits and vegetables, grown on existing or new homesteads as part of a land distribution scheme, or could cultivate larger areas held as communal land and given land use rights on substantial hectares to cultivate. The

[4] For a complete listing of measures included in Indonesia's 2009 world rank of 111 see: http://hdrstats.undp.org/en/countries/data_sheets/cty_ds_IDN.htmlhttp://hdrstats.undp.org/en/countries/data_sheets/cty_ds_IDN.html

question is which agricultural products should be considered in such agrarian reform scheme, based on domestic need reflected in the import trends of fruits and vegetables?

This question may be answered by the following paragraphs and tables, in a summary compiled by Morelink Asia Pacific (Personal Communication received August 2008). Indonesian fruit imports continue to expand, reaching 463,000 tons (US$412.8 million) in 2007, an increase of 18% on the previous year. Over the last 13 years, Indonesian fruit imports have increased by an average annual growth rate of 41% (in volume), up from 72,600 tones (US$59.7 million) in 1994[5]. The main fruits imported in 2007 were temperate fruits comprising apples (145,301 tons), pears (94,518 tons), mandarins (89,125 tons), grapes (27,395 tons) and oranges (23,567 tons). These five fruits comprised 82% of the volume of Indonesia's fruit imports in year 2007.

Most of the growth over the last thirteen years in volume of imported fruit has occurred with pears (up 1,207%), mandarins (up 907%), grapes (up 472%) and apples (up 362%). Imports of tropical fruits (mainly durian and longan from Thailand) have been increasing also and comprised about 17% of fruit imports in 2007. Table 2.4 summarized these trends

Table 2.4 - Indonesia Fruit Imports (in tons)

Product	1994	2003	2004	2005	2006	2007
Oranges	18,447	24,225	50,928	29,712	26,151.3	23,566.7
Mandarins	8,851	31,279	43,279	53,659	68,535.4	89,125.5
Grapes	4,792	14,469	28,715	25,330	26,365.6	27,395.3
Apples	31,428	71,390	114,031	126,973	122,011.4	145,301.6
Pears	7,743	32,691	74,277	80,395	80,657.7	94,518.6
Apricots	16	109	2	5	2.6	2.1
Cherries	20	100	58	41	65.6	20.6
Peaches	32	152	162	108	126.9	70.8
Plums	133	210	208	215	185.8	199.5
Strawberries	43	597	229	241	191.3	129.0
Kiwifruit	0	1,125	629	626	580.9	898.3
Avocados	16	43	30	19	19.3	17.6
Mango	8	348	689	869	966.3	1088.2
Lemon	127	95	286	562	636.0	785.4

[5] Morelink Asia Pacific (August 2008)

Grapefruit	150	64	352	350	657.3	302.1
Water melon	140	39	148	668	441.8	921.2
Other melon	0	142	656	171	207.3	111.0
Other berries	1	749	98	23	15.2	33.0
Durian	432	3,099	11,087	11,351	16,334.2	23,149.0
Other Tropical Fruit	281	18,378	34,073	42,275	47,067.6	55,504.6
Total	72,661	199,304	359,935	373,594	**391,219.6**	**463,140.1**

Source: BPS (Bureau of Statistics Indonesia)

Similarly, Indonesian vegetable imports increased by an average of 65% per year since 1994 to reach 505,000 tonnes (US$193 million) in 2007, up from 54,000 tonnes in 1994 (US$33 million). The main vegetables imported in 2007 were garlic (341,102 tonnes), shallots (107,649 tons), onions (25,448 tonnes) and carrots (20,433 tonnes). These four vegetables comprised 98% of the volume of Indonesia's vegetable imports in year 2004. (Table 2.5)

The major suppliers of the four main imported vegetables are as follows:

- Garlic - China (99%)
- Shallots – Thailand (76%), Philippines (11%)
- Onions – New Zealand (40%), Netherlands (33%), India (12%), China (8%)
- Carrots – China (91%)

Table 2.5 – Trends in Indonesia Vegetable Imports over a 13-year Period

Total of Indonesia's Imports of Selected Fresh Vegetables, by Volume, 1994 – 2007 (Tons)

Commodity Descripton	1994	1996	1998	2000	2002	2006	2007
Potatoes, Fresh or Chilled Seed	866.0	1,209.7	362.9	1,255.2	1,435.7	1,487.2	1,392.7
Potatoes, Fresh/Chilled other than Seed	332.1	894.4	682.3	4,569.1	2,336.4	4,210.6	5,559.2
Tomatoes	219.0	141.5	108.9	606.8	1,710.6	227.5	207.8
Onions	6,340.0	10,242.6	10,392.9	13,357.9	12,913.1	21,247.3	25,448.8
Shallots	15,213.3	42,057.4	43,016.8	53,710.8	32,928.8	78,462.1	107,649.2
Garlic	29,625.6	59,893.1	138,492.5	174,035.7	226,084.9	296,475.8	341,102.0
Leeks	90.6	159.0	281.0	163.8	2,021.6	959.4	929.1
Cauliflowers & Head Broccoli	160.5	179.0	166.8	172.1			

					204.2	660.6	615.9
Brussels Sprouts	1.2	8.5	8.1	2.5	74.8	22.4	12.7
Cabbages	305.6	222.4	16.4	187.8	171.4	169.8	256.1
Cabbage Lettuce	175.1	93.9	253.1	111.0	142.0	272.0	278.7
Mushrooms	79.9	64.0	42.1	70.6	26.6	335.9	608.4
Carrots	103.5	99.0	79.9	309.8	1,262.3	8,026.8	20,433.0
Asparagus	2.2	1,003.7	4.7	231.7	8.6	94.1	87.9
Celery	137.6	65.0	93.0	118.2	144.2	197.9	231.1
Total	**53,652.2**	**116,333.2**	**194,001.4**	**251,903.0**	**281,465.2**	**412,849.4**	**504,812.6**

Prepared by : Morelink Asia Pacific (August 2008)

Source : The Indonesian Bureau of Statistics (BPS)

To ascertain the domestic production response, the following tables are useful (Table 2.6 and 2.7).

Indonesia produced 16.6 million tons of fruit in 2007 up from 7.2 million tons in 1998; an increase of 15% per year over the last nine years. The main fruits produced in 2007 were bananas (5.5 million tons), orange (2.6 million tons), pineapple (2.2 milion tons) and mango (1.8 million tons). The biggest growth over the last nine years has been with orange, pineapple and mango.

Table 2.6 - Fruits Production in Indonesia, 1998 - 2007, (tons)

Table. Fruits Production in Indonesia, 1998 - 2007, (tons)

No	Commodity	Year							Growth
		1998	2000	2002	2004	2005	2006	2007	07/06
1	Avocado	130,950	145,795	238,182	221,774	227,557	239,463	201,635	-15.80
2	Orange	490,937	644,052	968,132	2,071,084	2,214,019	2,565,543	2,625,884	2.35
3	Lansat	92,144	111,248	208,350	146,067	163,389	157,655	178,026	12.92
4	Durian	210,116	236,794	525,064	675,902	566,205	747,848	594,842	-20.46
5	Mango	600,059	876,027	1,402,906	1,437,665	1,412,884	1,621,997	1,818,619	12.12
6	Papaya	489,948	429,207	605,194	732,611	548,657	643,451	621,524	-3.41
7	Snake fruit	353,248	423,548	768,015	800,975	937,930	861,950	805,879	-6.51
8	Pineapple	326,956	393,299	555,588	709,918	925,082	1,427,781	2,237,858	56.74
9	Banana	3,176,749	3,746,962	4,384,384	4,874,439	5,177,607	5,037,472	5,454,226	8.27

10	Rambutan	277,879	296,103	476,941	709,857	675,579	801,077	705,823	-11.89
11	Sapodilla	46,759	53,275	69,479	88,031	83,787	107,169	101,263	-5.51
12	Guava	148,462	128,621	162,120	210,320	178,509	196,180	179,474	-8.52
13	Star fruit	47,590	48,252	56,753	78,117	65,967	70,298	59,984	-14.67
14	Watery Rose Apple	49,884	63,302	97,296	117,576	110,704	128,648	94,015	-26.92
15	Mangosteen	23,511	26,400	62,055	62,117	64,711	72,634	112,722	55.19
16	Jack fruit	353,981	369,875	537,186	710,795	712,693	683,904	601,929	-11.99
17	Soursop	40,358	40,115	52,974	82,338	75,767	84,373	55,798	-33.87
18	Breadfruit	25,816	35,435	47,549	66,994	73,637	88,339	92,014	4.16
19	Other fruits	129,854	137,705	119,339	N/A	N/A	N/A	N/A	N/A
20	Melon	221,314	27,081	59,106	47,664	58,440	55,370	59,815	8.03
21	Watermelon	-	179,860	266,904	410,195	366,702	392,586	350,780	-10.65
22	Passion Fruit	-	-	-	59,435	82,892	119,683	106,788	-10.77
	Total	7,236,515	8,412,956	11,663,517	14,313,874	14,722,718	16,103,421	16,648,303	3.38

Source : Statistics of Annual Fruit and Vegetable Plants, BPS (the Indonesia Bureau of Statistic) Catalog No. 5205010

Indonesia's vegetable production increased by an average of only 1% per year since 1998 from 7.8 million tons to reach 8.4 million tons (excluding almost 31 million tons of mushrooms) in 2007 from almost one million hectares of land with an average yield of 9.6 tons per hectare.

The main vegetables grown in Indonesia (besides mushrooms) are as follows: cabbages (1.3 million tons), chili (1.1 million tons), potato (1 million tons), shallot/onions (80,000 tons) and tomato (635,000 tons).

Table 2.7 – Vegetable Production in Indonesia, 1998 - 2007, (tons)

Vegetables Production in Indonesia, 1998 - 2007 (Tons)

No	Commodity	Year						
		1998	1999 1)	2000	2001 2)	2002	2006	2007
1	Garlic	83,664	62,222	59,008	49,573	46,393	21,050	17,313
2	Shallots	599,304	938,293	772,818	861,150	766,572	794,931	802,810
3	Cabbage	1,459,232	1,447,910	1,336,410	1,205,404	1,232,843	1,267,745	1,288,740
4	Mustard Green	462,384	469,996	454,815	434,043	461,069	N/A	N/A
5	Leeks	287,506	323,855	311,319	283,285	315,232	571,268	479,927
6	Carrot	332,846	286,536	326,693	300,648	282,248	391,371	350,171
7	Chinese Radish	12,651	13,967	7,745	6,880	7,779	49,344	42,076
8	Potatoes	998,032	924,058	977,349	831,140	893,824	1,011,911	1,003,733
9	Red Beans	104,148	98,854	100,914	98,721	94,650	125,250	112,272

10	One time to harvest	4,339,767	4,565,691	4,347,071	4,070,844	4,100,610	4,232,870	4,097,042
11	Chili	848,524	1,007,726	727,747	580,464	635,089	1,185,057	1,128,792
12	Cucumber	506,889	431,950	423,282	431,921	406,141	598,890	581,206
13	Egg Plant	311,765	300,323	270,748	244,371	272,700	358,095	390,846
14	French Beans	311,994	282,198	302,624	227,862	230,020	269,532	266,790
15	Tomatoes	547,257	562,406	593,392	483,991	573,517	629,744	635,474
16	Pumpkin	84,873	121,233	158,654	134,676	172,125	212,697	254,056
17	Swamp Cabbage	201,147	211,597	215,303	193,825	205,351	292,950	335,087
18	Spinach	98,410	81,433	65,723	64,360	71,011	149,435	155,862
19	Beans	447,596	386,188	313,526	317,408	310,297	461,239	488,500
	Several times to harvest	3,358,455	3,385,054	3,070,999	2,678,878	2,876,251	4,157,639	4,236,613
	Negligent	127,136	127,026	141,116	169,902	167,884	-	-
	Total	**7,825,358**	**8,077,771**	**7,559,186**	**6,919,624**	**7,144,745**	**8,390,509**	**8,333,655**

Source: BPS - Statistik Indonesia and Directorate Gen. of Horticulture Production Development
Catalog BPS No. 5205009

Note: (1) Excluding Timor Timur since 1999
(2) From 2001, Include four provinces id. Bangka Belitung, Banten, Gorontalo & North Maluku

There are 31 provinces in Indonesia that produce over 20 types of vegetables. However, 85% of all vegetables are grown on the islands of Java and Sumatra. The major vegetable producing provinces are: West Java (36%), Central Java (13%), East Java (12%) and North Sumatra (10%); these four provinces account for over 70% of all vegetable production.

As can be observed from the data, there exist considerable opportunity to expand production and meet domestic demand for fruits and vegetable, especially on Java and Sumatra. It is recommended that a systematic analysis will be conducted to explore production opportunities for the most promising crops, and use these data to identify cropping systems that may be most beneficial in advancing local agrarian reform programs. As such, these crop mixes may also become be part of agro-forestry systems that are suitable for homestead gardens, the focus of the next section of this report.

2.10 Defining Prototype Homestead Agro-forestry Systems and Potential Land Utilization Systems in Pilot Agrarian Reform Schemes.

As indicated earlier, the primary objective of land evaluation is to determine the suitability of land use alternatives given prevailing agro-ecological conditions. In the context of potential large land distribution schemes, the question is how to define Land Utilization Types (LUTs) that reflect the most promising farming system or agro-forestry mix that could represent a series of best land use alternatives and derived household production systems. Such LUTs would ideally be the focus of agrarian reform pilot schemes based on well-defined tenures and land rights arrangements based on private or communal property rights or a mix, thereof, and potential cooperative arrangements on input, harvesting, processing, packages and transportation within the new or existing community development program.

A recent evaluation of homestead agro-forestry systems on Java indicated that small households cultivating as little as 120-1000 square meters may already benefit for such land use arrangements, even if the primary source of income is outside the household[6].
A survey of very small scale homestead farming systems in three Javanese provinces was conducted to analyze the potential beneficial effects on household's quality of life. Aspects included: (1) diet and nutrition, (2) income, (3) level of goods and material assets, (4) family status, (5) credit access, and (6) the role of women in managing production and marketing.

The survey encompassed sites on West , Central and East Java, representing a wide range of agro-ecological, 6 watersheds, elevation, socio-cultural conditions and stages of development. The plot sizes evaluated ranged from < 120 m^2 with no other agricultural land (OAL) to 120-400 m^2 with < 1,000 m^2 OAL. The average household plot size was about 240 m2 (with open space of at least 140 m^2) and OAL of 500 m^2. Around 5.7% of the sample villages were, by national standards, considered to be at an advanced

[6] Arifin et al., 2009. IPB.

development state, with 82.9% at medium state, and the rest least developed. On the average, very small homestead plots contributed little to household diet in terms of reduced food expenses (9.9%). Nutritional benefits are primarily in the form of vitamin A and C - 2.4% and 23.6% of recommended dietary allowance (RDA), respectively and only 1.9% of either carbohydrates or protein. These small plots contributed around 11% to household income, about 80% derived from animal products i.e. chicken, eggs, fish and meat. As expected, plot size and value of household assets appear closely correlated and increase based on access to other agricultural land. About 55% of the households feel that social status will decline as a result of loss of access to land and their ability to use small scale homestead plots. The need for credit access is especially critical for the smallest lot owners. Women play the most important role in plot maintenance and plant-, animal- and fish production, while also managing family expenses for food, clothes, child health care and education. It appears that their role is less significant in managing family debt, the purchase of agricultural inputs or other family expenditures. Overall, homestead gardens also perform an important social function. They help establish family and territorial identity, and provide for neighborhood cohesion and beneficial communal interaction. It is suggested that an agrarian reform program that includes the distribution of land to land-less people and small-scale homestead farms is carried out in relation to the prevailing agro-ecological conditions and associated land carrying capacity and productivity ratings. Overall, such initiative should be within the framework of a sustainable community development project and a well-defined regional economic development strategy. A minimum household plot size should be defined to accommodate an acceptable, future standard of living. This may be accomplished uniquely at the individual household level or in combination with large scale communal garden systems with shared titles, individual plots and with associated benefits of economies of scale by reducing costs of capital-, material- and mechanized inputs, and harvesting, processing and marketing.

Experience indicates that there is significant benefit in integrating diverse production system, such as food and cash crops, animal and fish production, especially in a closed-loop nutrient recycling system in combination with organic farming. Coupling

agricultural with non-farm activities, including value-added enterprises, would provide for increased economic stability and potentially, higher household revenues. In this approach, credit access and the role of adaptive species selection, cooperative input acquisition, processing and marketing should be considered together with access to effective rural extension services. Research findings also show that some *pekarangan* owners have access to additional land cultivated to support household needs, and that this may be an important factor in land use intensification and the provision of sustainable income levels. The sustainability of *pekarangan* depends, in part on the land use interface between biophysical (agro-ecological) regions and socio-economic-cultural domains. Ideally, they represent an interconnected micro system that is self-propagating, self-nourishing, self governing and self-fulfilling (Figure 2.15).

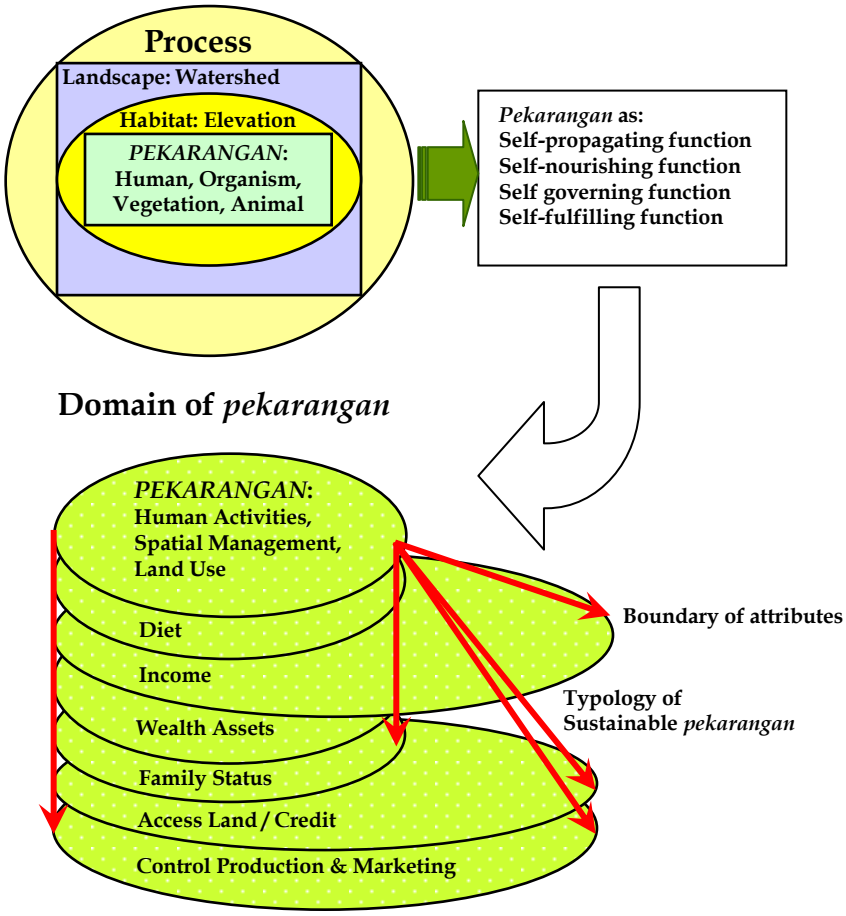


Figure 2.15 - Structural and functional elements of *Pekarangan* (Arifin et al, 2009)

Hence, micro landownership and land use structures (e.g. land cover/use mix, land access and security, and transformation) define the basic structure, current and future functionality of *pekarangan*, including their ability to supplement household needs. Macro-agroecological (climate, soil, topography and watershed) parameters in combination with socioeconomic attributes at the community and regional level, such as employment opportunities, wage rates, credit access, input availability and cost, production efficiency and marketing, are other important determinants.

Socio-economically, we may distinguish four basic functions of *pekarangan*.

First, *subsistence production*, such as a complement to staple crops, producing mainly fruits, vegetables, spices, and many non-food products. Aside from crops, the system includes animal production, with high nutritional value in terms of protein, minerals, and vitamins, also contribute to food security in times or seasons of scarcity.

Second, *"commercial" production for supplemental income*, particularly in regions with good market access and a well- functioning market. This includes perennial crops, such as fruit trees, cacao, and coffee. It may also include vegetables, ornamental pants and derived ornamental products, such as dried flower arrangements. Earlier research on Java indicated that this portion of income from *pekarangan* varied from 1 – 7 % (Arifin, Chozin, Sarma, and Sakamoto, 2006).

Third, the *socio-culture functions*. These include varies service functions such as providing for the exchange of *pekarangan* products and planting material, its role as status symbol and its aesthetic and other service functions, such as the children play yard, a place for neighbors to socialize, its magical value and as a location for religious ceremonies. For instance, Hindu Balinese families need their *pekarangan* as a place for ceremonial sacrifices.

Forth, *pekarangan* fulfill *ecological and environmental functions*. Its multi-layered vegetation structure resembles a natural forest and offers a habitat for a diverse community of wild plants and animals.

The integrated production systems of plants, livestock and fishponds provides for an efficient use of organic fertilizer and helps to recycle nutrients and reduces runoff and water contamination. Sometimes this is done especially effectively, such as the construction of poultry pens over a fish pond, providing for effective nutrient recycling and reducing potential water contamination by nitrates and phosphates (Figure 2.16)

Figure 2.16 – Poultry pens situated over fish ponds – efficient nutrient recycling in small-scale, subsistence, agro-forestry systems, (Schultink, 2006)

The relative contributions of these homestead agro-forestry system can be significant. Even the smallest homestead plots show beneficial effects. In the table (2.8) below

Table 2.8 - Total and per square meter income originated from homestead plot (Arafin et al, 2009). G1-G4 represent different size categories by various agro-ecological zones.

Source of income in *pekarangan*	**G1**	**G2**	**G3**	**G4**	**G1&G3**	**G2&G4**	**All group**
	Income (Rp/year) from a *pekarangan*						
Crop	33,215	111,458	239,833	160,250	136,524	135,854	136,189
Animal	538,506	679,917	1,275,806	909,083	906,931	794,500	850,715
Sale or leasing goods	38,500	57,778	119,972	252,375	79,236	155,076	117,156
Crop and animal	571,271	791,375	1,515,639	1,069,333	1,043,455	930,354	986,905
Crop, animal and sale or leasing good	609,771	849,153	1,635,611	1,321,708	1,122,691	1,085,431	1,104,061
	Income (Rp/year/m^2) from a *pekarangan*						
Crop	1,294	1,709	10,198	1,523	5,746	1,616	3,681
Animal	17,034	26,500	15,246	6,951	16,140	16,726	16,433
Sale or leasing goods	2,406	3,484	631	2,177	1,519	2,830	2,175
Crop and animal	18,329	28,209	25,444	8,474	21,886	18,342	20,114
Crop, animal and sale or leasing good	20,735	31,693	26,075	10,651	23,405	21,172	22,288

One of the key issues in agrarian reform - and the (re)distribution of land or the certification of (informal) ownership - is the latent use of “dead assets” tied up in unregistered land titles. This prevents or limits the use of land or homesteads as collateral in farm loans and in practice results in excessive interest charges. In Indonesia, it is not uncommon for farmers to pay interest charges of 10% per month or 30-40% per year on small farm loans that provide badly needed operating capital or are used for capital improvements. As can be seen below (Table 2.9), informal credit access is the prevalent condition for all homestead properties, across agro-ecological zones, resulting in excessive interest charges and a major constraint in mobilizing latent productivity.

Strong consideration should be made to combine any pilot or future land distribution scheme with the provision of micro-credit while using land or land use rights as a form of collateral. To provide clear incentives for land-less people or small land holders to become part of such scheme, very beneficial farm loan terms should be considered and the process should be very clear, transparent and objectives. Actual distribution of loans

should take place by official or lending institution representatives outside the immediate area to reduce potential conflict of interest and minimizes the chance for corruption.

Table 2.9 - Homestead farmers' response to the availability of formal and informal credit

Sources of formal and informal credit	**G1 (%)**	**G2 (%)**	**G3 (%)**	**G4 (%)**	**Average (%)**
Formal credit:					
• KUD	30.6	22.2	25.0	27.8	26.4
• BRI	25.0	30.6	27.8	27.8	27.8
• Village Bank	13.9	11.1	11.1	8.3	11.1
• Others	2.8	2.8	5.6	5.6	4.2
Total	72.3	66.7	69.5	69.5	69.4
Informal credit:					
• Informal lender	89.3	61.3	75.0	68.0	73.4
• Other	10.7	38.7	25.0	32.0	26.6
Total	100.0	100.0	100.0	100.0	100

3. INDONESIAN LAND POLICY CONTEXT

Indonesia's land use context and issues are diverse and reflected in it its land policy challenges and needs. The most intensive land use is found on Java and Bali. Of the more than 231 million people (2009) living on about 190 million hectares, the highest population densities and land intensities are found on Java (more than 134 people per km^2) and Bali, both with almost 89% of developed land. The least developed is Papua with about 97% of undeveloped land. The major land use categories are summarized below with land use identities by major regions (Fig. 3.1)

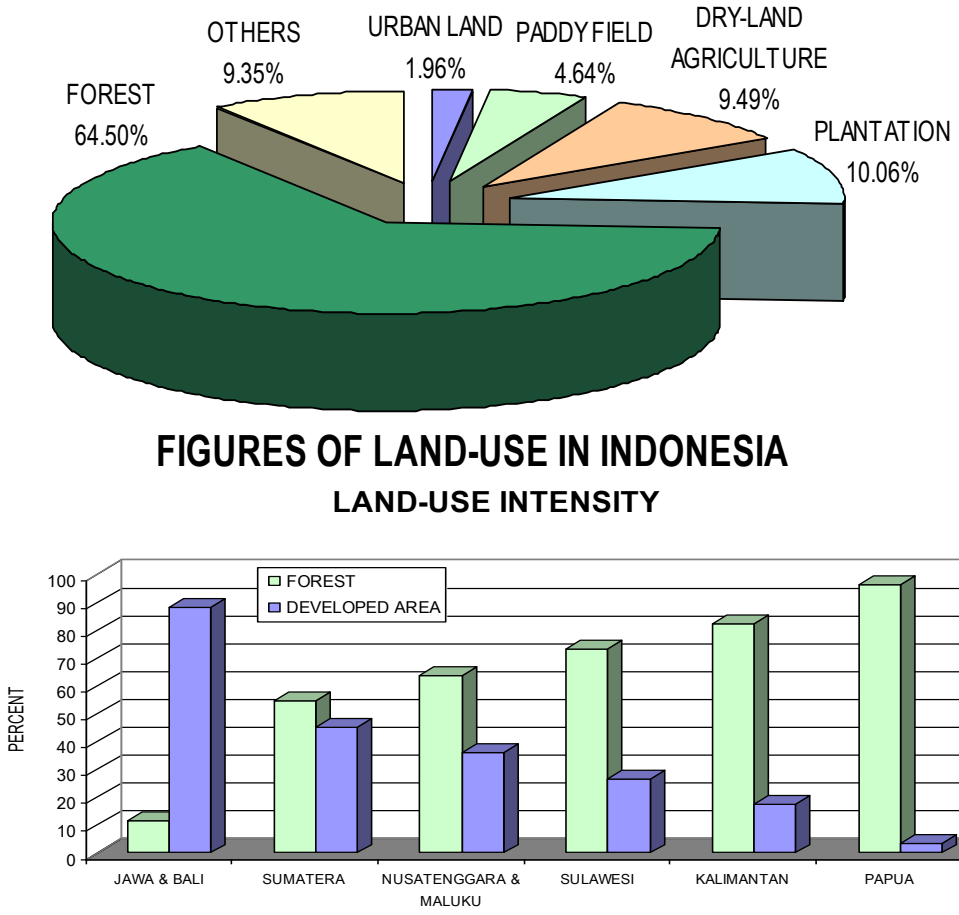


Figure 3.1 – Land Use Distribution and Regional Land Use Intensity (BPN, 2009)

The percentage of forest land includes, according to various sources, recently deforested areas, degraded forest and scrub forest. These sources suggest that about 55% is a more realistic estimate.

Sawah land, the system providing the basic food source, is also declining. Below an example (Fig. 3.2) of 2 provinces on Kalimantan, a decline primarily caused by expanding mining operations.

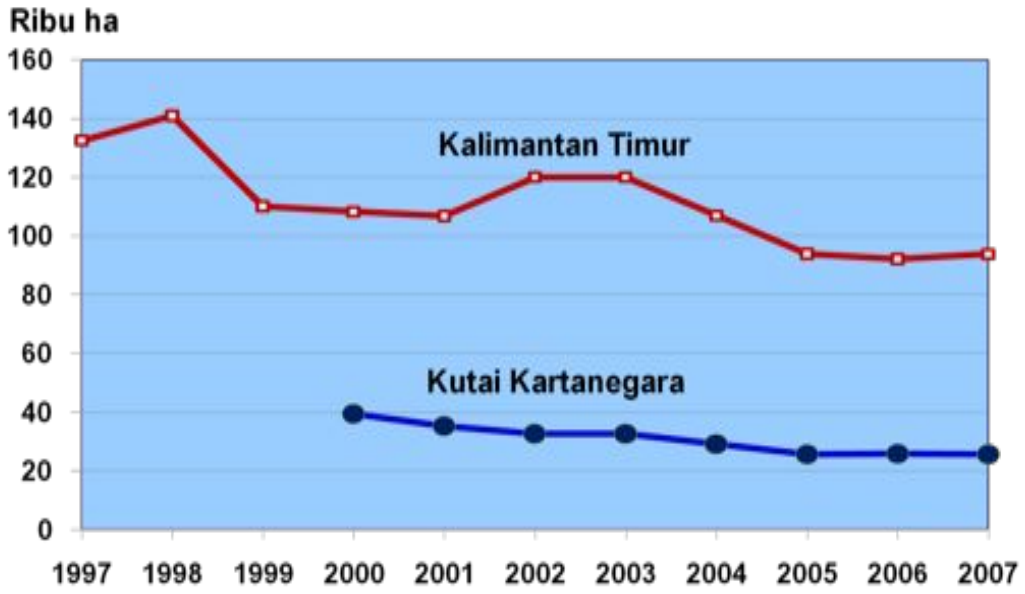


Figure 3.2 – Declining Sawah Areas on Kalimantan

The research framework associated with an Agrarian Reform program addresses prevalent land issues, policies, including land laws and the various aspects of land and capital access and control, such as use rights, tenure regime, title security and its implementation.

In Appendix E, the work schedule is provided. Research is being conducted at various institutions in Jakarta (primarily BPN), the US and field locations focusing on relevant cases and benefits of land distribution / agrarian reform initiatives. The primary field focus is on recent land distribution initiatives by the current BPN administration,

potentially including Lampung province, Sumatra, East Java, Sulawesi, and Central Kalimantan.

Indonesia's land policy context includes a number of critical issues, such as a high percentage (more than 85%) a small landholders, high poverty and unemployment rates, widening income disparities, a low percentage of formalized land ownership (estimated at around 42 % by BPN in 2009) -- indicating that the land is not mapped, certified, and ownership is not verified and legal rights are not registered, a high percentage of idle or underutilized land (estimated at more than 7.3 million hectares – although one source provides an estimate of as much as 11 million hectares – with a total opportunity cost estimated by BPN in excess of $600 billion/year[7]), forged land ownership certificates, a high number of land disputes/conflicts (almost 7500 cases involving almost 608,000 hectares in 2007), a challenging legal framework, a lack of comprehensive spatial planning and implementation, and a rapid land transformation, especially into plantations for the production of export commodities.

From a land management perspective, of special concern is the informal economy associated with the low percentage of certified property titles (out of about 85 million parcels) and associated title and use rights insecurity (Tables 3.1 and 3.2).

Table 3.1 - Progress of Issuance of Certificates in Indonesia (BPN, 2002. Academic paper)

No.	Fiscal Year	Total number of Certificates					Total
		Sporadic	Systematic				
			Adjudication	Prona	PP10/PP24	Transmigration	
1	Up to 1989	7,576,058		2,094,259		1,288,854	10,959,171
2	1990/1991	398,921		58,409		160,538	617,868
3	1991/1992	566,461		84,938	30,727	154,628	836,754
4	1992/1993	604,297		101,067	63,515	105,875	874,754
5	1993/1994	672,209		83,783	26,439	122,953	905,384
6	1994/1995	819,559	1,022	88,831	60,532	49,207	1,019,151
7	1995/1996	875,062	4,236	95,833	58,821	109,995	1,143,947

[7] Winoto, J. 2009. "Taking Land Policy and Administration in Indonesia to the next Stage and NLA's Strategic Plan". Presentation Washington. D.C. 2009

8	1996/1997	1,004,476	211,777	92,158	53,302	106,722	1,468,435
9	1997/1998	995,291	411,231	97,374	35,989	108,393	1,648,278
10	1998/1999	791,067	619,296	97,828	16,120	78,325	1,602,636
11	1999/2000	103,624	519,528	90,920	64,992	105,803	884,867
12	2000	136,180	98,352	12,630	0	87,152	334,314
	TOTAL	14,543,205	1,965,442	2,998,030	410,437	2,478,445	22,295,559

This phenomenon results in high real estate transaction cost (both in terms of the number of required transactions, lack of procedural transparency, time and real costs), loss of potential tax revenues, and a poor investment climate – specifically low credit mobilization using real estate collateral and high interest rates associated with land and real estate investments, and the short-term financing of material inputs, especially in small land holdings. In concert, this constitutes a major opportunity cost and dramatically reduces potential economic growth and societal prosperity.

The unfortunate reality is that few smallholders can afford the time and the lump sum payments necessary to obtain land titling and registration services. Current large-scale titling and registration projects are unlikely to reach the majority of smallholders in the 30-50 years. Moreover, the majority of certification projects focus only on land titling and registering, without providing the information or means to use certificates as collateral for (formal) farm loans. This greatly limits their potential effectiveness in agrarian reform programs.

As a result, the vast majority of Indonesia's small farmers obtain necessary production credit and inputs through informal arrangements at unfavorable terms. Credit and inputs are obtained from local traders or neighbors, often in exchange for product sales agreements. Informal arrangements carry much higher interest rates (e.g. 10% per month) than commercial bank loans and limit the farmers' options for inputs and choices of suppliers and purchasers, limiting effective bargaining power. Informal lenders also do not provide the range of financial services available from banks, nor have the interest in providing loans for long-term, capital investments. These credit restrictions limit the farmers' ability to respond to technical advice to increase crop production and expand or diversity operations. The inability to obtain formal credit greatly undermines the

production capacity of Indonesia's farmers and the vitality and growth of the agricultural sector.

BPN target and achieved realization in 2000 is listed below (Table 2) and varies notably and understandably for various regions[8].

Table 3.2 - Target and Realization of Land Certification in Major Regions (BPN, 2002). The 2009 target is estimated at 85 million parcels with about 1 million added per year.

No	Region	Estimated Total of Land Requiring Certification	Total of Land Already Having Certificates	%
1	SUMATRA	13,331,602	3,673,923	27.56
2	JAVA AND BALI	38,590,894	14,624,694	37.90
3	KALIMANTAN	2,004,817	1,588,577	79.20
4	SULAWESI	4,410,219	1,509,981	34.20
5	NUSATENGGARA	2,160,770	730,335	38.80
6	MALUKU	200,154	168,049	84.00
	TOTAL	60,698,455	22,295,559	36.70

In 2007, agrarian reform was carried out in 30 provinces, involving 54,524 parcels. Principles areas include[9]:

1. East Java:
    a. Blitar Regency: 1,919.46 hectares, 12,001 beneficiaries
2. West Java:
    a. Bogor Regency: 1,168.43 hectares, 7,000 beneficiaries
    b. Ciamis Regency: 62,93 hectares, 556 beneficiaries

[8] Table 2 shows that the estimated total number of land parcels (2002) to be certified, as about 61 million, with about a 37 % success rate. The greatest percentage of land parcels already certified is found in Maluku (84%) and Kalimantan (79.2%). The difference in regional success rate reflects the smaller number of parcels in need of certification and is more or less directly proportional to population density and level of development.

[9] Data for 2007-08 provided by BPN.

3. Lampung:
    a. Central Lampung and South Lampung Regency: 3,905.76 hectares, 6,300 beneficiaries

The year 2008, involved the following major initiatives:

1. Land redistribution of about 300,000 parcels
2. An inventarization of land holdings, ownership status and land use for about 1,000,000 parcels in 2,000 villages
3. Establishment of Management Board of National Land Reform (Public Service Agency)

The following land registration schemes and funding sources were involved in 2007 (Table 3.3)

Table 3.3 – Land Registration Schemes and Funding Source in 2007

Nr	**SCHEME**	**SEGMENT**	**TARGET 2007 (PARCELS)**
1	Public Fund (National/Regional Budget)	Low-income community	1.073.400
2	Private Fund (SMS/Self-funded Mass Registration)	Self-sufficient community	2.116.365
3	Special Programs	Government programs: small-scale business, transmigration, state- assets registration etc.	38.030
Total			3.227.795

In 2007, about 37 million people (about 17 % of the population) lived below the poverty line. (BPS), 66 percent of which lived in rural areas, with 56 percent employed in the agricultural sector. The unemployment rate was estimated at 9.75 % and underemployment at around 28% or involved about 30 million people. New job creation clearly failed to keep up with population growth and population densities continue to increase, especially in urban areas.

Income disparity, as measured by the Gini coefficient, has steadily increased from 0.31 in 1999 to 0.33 in 2002 and 0.36 in 2005, indicating a widening income gap between the

poor and the non-poor. In terms of agricultural land ownership distribution, the disparity is much worse on Java with around 0.6. (Internal Communication BPN, 2009). Unequal wealth distribution is further exacerbated by the continued fragmentation of household agricultural land and issuance of land use rights to large companies already owning ten or even hundred thousand hectares of land. Farm households with less than 0.5 ha of land are approximately 56.5 percent of the total, or around 25 million households.

Access to available land has been reduced by land speculation that manifests itself by absentee land ownership, under-utilization and non-productive land use. Abandoned land is estimated at 7.3 million hectares (some BPN sources indicate it may be as high as 11 million hectares), resulting in very significant opportunity costs, posing an unacceptable burden on the poor with no access to or adequate land to cultivate.

Another problem is the growing number of land disputes and conflicts. In 2007, the number of significant land disputes and conflicts reached 7491 cases covering almost 608 thousand hectares of land.

High poverty and unemployment rates are persistent and growing. While the Indonesian economy has shown strong and consistent growth and expanded by 4-5 % in the last few years, and is recognized as the fastest expanding economy in the last 3 month in South-East Asia (Bloomberg, 2009), this growth failed to trickle down to the poor and unemployed, especially in rural areas. Here, the fundamental problems include lacking infrastructure and access to land by small farmers and the landless, lack of sufficient land for effective material and capital inputs, including access to extension and other public services. The land access issue is further complicated by uncertainty of landownership. Lack of title security or (long-term) certified use rights prevents use of the land as collateral for loans, resulting in no- or limited access to badly needed (micro)capital. To survive, many small land owners or tenants are required to pay exorbitant interest rates – as high as in the 30-40% range per year or 5-10%, on a monthly basis, further reducing family income potential and the opportunity for the rural poor to generate a reasonable quality of life.

All these issues combined require a long-term, well-defined, well-resourced and well-executed Agrarian Reform Strategy. This will require that the National Land Agency of the Republic of Indonesia (NLA-RI) provides effective leadership in the implementation of this strategy, in coordination with other relevant public agencies, such as the National Development Planning Agency (BAPPENAS). Execution should be based on up-to-date information, combined with the effective institutional capacity to deliver relevant land tenure and administration services, such as efficient ownership title transfers and registration, certification of well-defined land rights, improved access to land, increased land productivity, and assistance in rural economic development programs supplemented by rural extension services.

3.1 Land Policy and BPN's Mandate

BPN with its head office in Jakarta and has about 25,000 employees distributed over 33 Provincial Offices and 420 Municipality/Regency Land Offices. There are five deputies with almost 1000 employees in the head office and their primary functions include (see also figure 3.3, below):

1. Formulation of national and technical land policy;
2. Coordination of land planning, policy and programs;
3. Organization of the land administration services;
4. Conduct land surveys, mapping and land registration;
5. Issuing land tenure titles and certification;
6. Conduct land use and spatial planning, agrarian reform and special region arrangements;
7. Administration of state/council-owned real estate in cooperation with the Ministry of Finance;

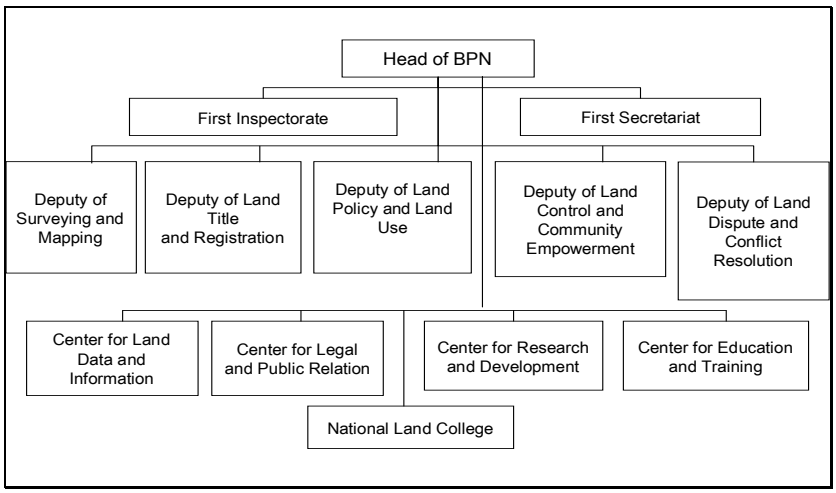


Figure 3.3 – Basic Structure of BPN

8. Land ownership administration
9. Interagency cooperation;
10. Land use and spatial planning, policy and program development;
11. Community empowerment in land policy matters;
12. Researching and settling land conflicts and disputes;
13. Research and develop of land laws;
14. Human resources development in land administration
15. Manage land data and information;
16. Institutional capacity development;
17. Termination of land ownership as mandated by law;
18. Other functions as mandated by public policy.

According to the BPN Regulation No 3 Yr. 2006, BPN is entitled to provide services in various land transactions and land valuation. This includes:

1. Contribute to a more transparent land market (individuals, investors, developers) as a reference for the citizens in land transactions;
2. Control stated prices (PPAT, Notaries) in comparison to market value;
3. Land expropriation (local government, property owners);
4. Land taxation and provision of incentives or disincentives;
5. Resolve land conflicts (BPN, property owners);

6. Land use planning (local government);
7. Facilitate valuation for mortgages (banks, property owners);
8. Management of information on land values to monitor the land market;
9. Provide a reference for government tariffs and non-tax fees on lands;
10. Management of state-owned property;
11. Assess opportunity loss (loss of land economic values) caused by abandoned lands, dispute and conflict lands, and misused lands;
12. Management of land economic values and other land potencies;
13. Provide a reference for spatial decision making, i.e.:
    a. city planning
    b. any development program that changes the use or the function of an area
    c. urban resettlement and land consolidation
    d. formulation of spatial economic policy of an area
    e. determination of economic potential
    f. analysis on economic, ecosystem or environmental impacts;
14. Other uses that need data and information on land and area values and potential i.e. cost and benefit analysis for Agrarian Reform, development of land or area-based programs, development of land assets as production factors, etc.

With respect to Presidential Regulation No. 10/2006 concerning the National Land Agency, it stipulates that BPN shall implement "agrarian affairs reformation" and execute and implement "policy, planning and a program in the land sector". In November, 2006, the President announced the intention to allocate 8.15 million hectares of land to the poor. Subsequently, this amount was expanded to 9.25 million hectares in May, 2007. It is not clear to which extent this Decree constitutes a potential controversy with respect to the mandate provided to Kabupatens (regions or regencies) (Law No. 32/2004 and Presidential Decree No. 34/2003) granting authority over "land matters" and the identification of the regional authority in land administration as "designation of land redistribution subject and object, and compensation of maximum for maximum excess and absentee lands. As of May 2009, no large scale land distribution had taken place, although some smaller successful schemes were implemented over the last few years.

Although the Indonesian land reform made some progress during 1960 - 1965, the activity did not result in the redistribution of much agricultural land and did not affect many agricultural families, either on Java or off-Java. In summary, since 1965, agrarian reform activity has been rather limited.

As identified by Prosterman and Mitchell (2002)[10] BPN data show that, during the period 1960-2000, the Government of Indonesia redistributed 850,128 ha under the land reform program.[11] Of that amount, 339,227 hectares was on Java.[12] As Table 3.4 (below) shows, this represents only 3% of cropland in Indonesia and only 6% of cropland in Java as of

Table 3.4 Cropland distributed in Indonesian land reform (Source Prosterman and Mitchell, 2002)

	Cropland redistributed	Total cropland in use	Redistributed land as % of total cropland in use
Indonesia	850,128 ha	26,000,000[13]	3%
Java	339,227 ha	5,800,000	6%

Source: BPN Directorate of Land Reform and Land Tenure, March 2000; and FAOSTAT.

the 1960's. They conclude that by any standard, the land reform program in Indonesia has affected a very small percentage of cropland.[14]

The Indonesian land reform program has redistributed land to 1,292,851 families, including 816,849 families on Java. The average recipient received 0.66 ha throughout Indonesia and 0.42 ha on Java. Based on 1963 population data, "farming" households (which does not include agricultural laborer households), primarily benefitted from the

[10] Footnotes 10-16 adapted from Prosterman and Mitchell, 2002. Concept for Land Reform on Java. RDI.
[11] As cited by Prosterman and Mitchell, 2002, the total amount acquired was 1,470,690 ha, which means that only 58% of the land acquired was ever distributed.

[12] BPN Directorate of Land Reform and Land Tenure, March 2000.

[13] Based on FAO data, this total included 18,000,000 ha of arable land and 8,000,000 ha of permanent cropland. The comparable FAO figures for 1998 are 17,000,000 ha of arable land and 13,000,000 ha of permanent cropland.

[14] Presently no data are available to differentiate between the percentage of cropland that was sawah (rice paddies) and the percentage of cropland that was tegalan (dry-land cultivation)

land reform program. It affected approximately 11% of farming families in Indonesia and approximately 10% of farming families on Java[15] (Table 3.5).

Table 3.5. Families receiving Land in Indonesian Land Reform (from Prosterman and Mitchell)

	Families receiving land	Total farming families in 1963 (excluding laborer families)	Families receiving land as % of farming families	Estimated total agricultural families (including laborer families)	Families receiving land as % of estimated total agricultural families
Indonesia	1,292,851	12,236,000	11%	17,864,000	7%
Java	816,849	7,935,000	10%	13,013,000	6%

Source: Based on BPN Directorate of Land Reform and Land Tenure, March 2000.

Assuming the same ratio of 46 laborer households to 100 farming households in Indonesia in the 1960s (46:100 on Java), the percentage of "agricultural households" (farmer plus agricultural laborer households) that received land in Indonesia was 7% and on Java 6%, respectively. These percentages represent a very small proportion of the rural families that were landless or land-poor in the 1960's.

The results of the land reform substantially, did not reach the most vulnerable group, namely seasonal agricultural laborer families. Such families were the lowest priority of the eight priority categories of recipients described in Article 8 of Government Regulation No. 224 of 1961 "On Implementation of Redistribution of Land and Compensation." Therefore, it is reasonable to assume that they constitute only a very small percentage of the agricultural laborers household's estimate to have received land in the Indonesian land reform program.[16]

BPN's clients and partners are found in central and local government; in the private sector (notaries, land valuation specialists, real estate brokers, banks, farmer's

[15] Almost all land reform in Indonesia occurred prior to 1965. According to data of the National Statistics Bureau [BPS], in 1963 there were roughly 12,236,000 farming households in Indonesia (excluding East Timor, Maluku and Irian Jaya), of which approximately 7,935,000 farming households were on Java ("farming" households are those that control some cropland). BPS 1993 Agricultural Statistics (as of March 18, 2002 as quoted by Prosterman and Mitchell).

[16] Estimate reflects 2002 ratios of agricultural laborer households to farming households, both for Indonesia and for Java alone. The estimate includes about 5 million of these households on Java.

organizations and other commercial interests) and amongst the general public, including NGOs. Major partners at the central level are Ministry of Finance, BAPPENAS (National Development Planning Agency), State Ministry for Environmental Affair, Taxation Office, Ministry of Public Works , etc. Local branch offices of BPN cooperate with Local Government Agencies such as the Regional Planning and Development Agency, and Public Works Office.

Land tenures and titles are managed by the National Land Agency (BPN), which reports directly to the President. BPN manages all grants, extensions, renewals of titles as well as the land registration system, and accepts the resource use titles controlled by other Ministries. BPN has land offices in all provinces and districts with approximately 25,000 relatively lowly compensated civil servant employees. Many land offices are well equipped; others need new buildings and facilities. It administrative revisions of staff and functions to local government reflect the Autonomy Law 22/1999.

About 80 million parcels are on the fiscal (tax) cadastre, whereas only 20 million are on the legal cadastre (public land register). In terms of land mass, about 1%-3% of the land is privately owned (hak milik).

3.2 Recent BPN Institutional Policy Initiatives

In 2006, the policy focus of BPN reflected the issuance of *Presidential Regulation No. 10/2006*, with a mandate for land policy formulation at the national, regional and sectoral levels. Furthermore, Law *No.17/2007* on Long Term Development Planning Mandates that the BPN implements efficient and effective land management; enforces land rights using democratic, transparant and justice principles; reforms land reform regulations to improve the occupation, rights, and land use; develops taxation (dis)insentives according to size of area, location, and landuse; improves land access and land rights for the poor; improves land law through inventarisation and enhanchement of land regulations with adat (customary) law taken into consideration; improve land conflict resolution through administration, justice, alternative dispute resolution; and human resource development.

Current land policy is reformulated by BPN on the basis of four main principles:

1. Improvement of welfare;
2. Distributive Justice;
3. Fostering a just and peaceful sustainable society; and
4. Creation of social harmony (resolved land conflicts and disputes).

With these principles, 11 policy objectives were formulated. They include:

a. Public Trust building;
b. Improvement of land services and land registration;
c. Improvement of people land rights;
d. Resolution of land problems in areas affected by natural disasters and ethnic conflicts;
e. Systematic handling and settlement of land lawsuits, disputes and conflicts;
f. Development of National Land Management Information System and land document security system;
g. Addressing corruption, collusion, nepotism and improvement of people participation and empowerment;
h. Establishment of large scale land use and ownership mapping;
i. Consistent implementation of all land laws and regulations;
j. Strengthening the BPN;
k. Development and reform land laws and policies (agrarian reform).

The cooperation between BPN and World Bank should therefore emphasize these policy objectives, with particular emphasis on:

a. Development and reform of land politics, laws and policies (agrarian reform)
b. Improvement of land rights;
c. Improvement of land services and land registration;
d. Systematic processing and settling of land law suits, disputes and conflicts;
e. Development of a National Land Information System capacity including a land mapping, spatial analysis, land information and management infrastructure, together with a secure land cadastral documentation and certification system;
f. Establishment of a large-scale land tenure and land ownership database;
g. Consistent, transparent and objective implementation of all land laws and regulations;
h. Strengthening the organizational capacity of the National Land Agency.

This reprt seeks to address some of the critical problem facing Indonesia's Agrarian Reform and focus the land policy mandate of BPN in cooperation with the World Bank.

4. FRAMING THE LAND POLICY AND AGRARIAN REFORM DEBATE

Land policy initiatives should be framed within the broader rubric of economic development planning and address the primary goal of improving societal prosperity, while using natural resource sustainably -- guarantee the long-term flow of benefits for future generations while maintaining or restoring the productive capacity of our natural resources, considering economic viability, environmental impacts and public risks. The primary goal of land policy formulation is the mobilization of land assets (natural resources) through the efficient use of human and capital inputs to create a sustainable and reliably prosperous society. This context may be framed as illustrated below (figure 4.1).

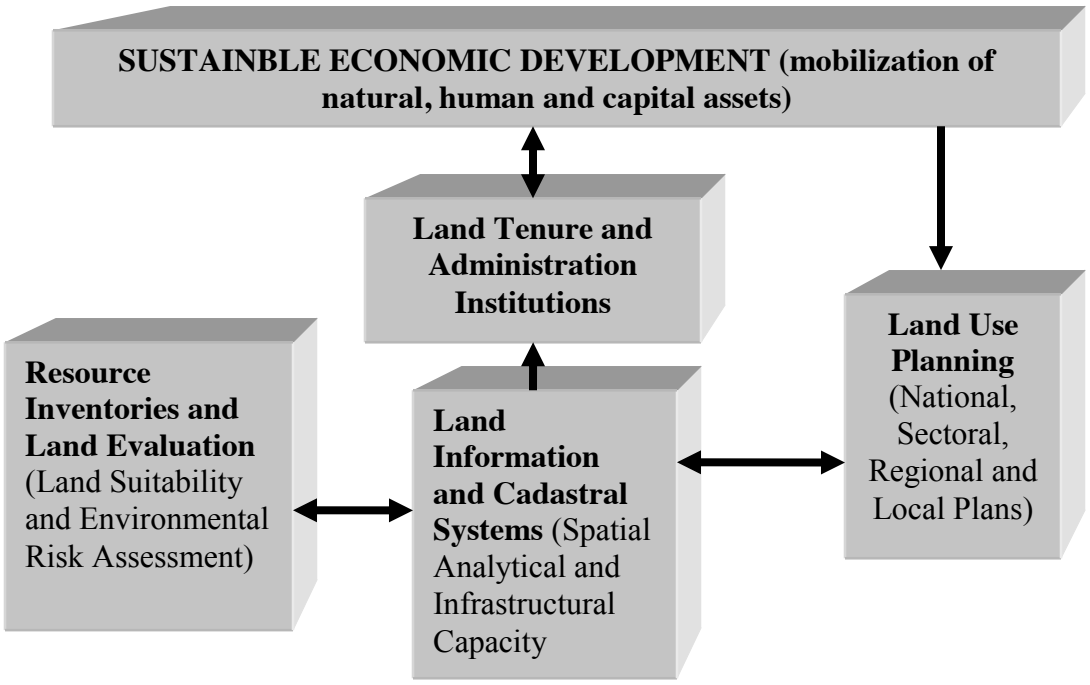


Figure 4.1 – Land Policy Analysis and Formulation through Land Laws, Regulations, Planning and Economic Incentives

Economic development and land tenure – property rights in land or real estate, defined legally or customary – are two interrelated concepts in land policy. Access to land resources, and secure property and use rights, is a precondition if not the foundation for successful economic development and the creation of prosperous societies. The United Nations, in its formulation of the Millennium Development Goals (Mugs), stresses the importance of land use issues in addressing development challenges and achieving sustainable development goals, emphasizing poverty alleviation, environmental protection, and social justice. The core challenge in land policy is to provide access to land and formalize an certify land ownership to develop more equitable land distribution, provide collateral to leverage capital investments and mobilize latent productivity for food and cash crops, and other sustainable land uses.

The formalization of property ownership or use rights through the provision of land certificates or titles has three primary effects[17]. They include:

- The *security effect* - removing disincentives for investment in land and capital equipment such as machinery
- The *collateral effect* – increased security provides for the use of real estate as collateral for short- and long-term credit as working capital or long-term investment, significantly lowering the interest rates and increasing potential net return per hectare
- The *transaction cost effect* – the formalization of property rights helps to improve a functioning land market and reduces the transformation costs of real estate, thereby promoting the most productive and economically viable use

In addition to these *direct* effects associated with land parcels, the *indirect* effects include the formalization of credit and land transactions and increase productivity that helps to generate potential tax revenues not realized in the underground economy.

[17] Feder and Feeny, 1991. Land Tenure and Property Rights: Theory and Implications for Development Policy. World Bank Research Observer. Vol. 5 No.1. pp 135-153

The formulation of land use rights is based on legal principles that seek to provide incentives and controls for land investments through laws and land use regulations, and informal principles of economics, land conservation or sustainable use. As such, it is a government's responsibility to articulate property rights -- determine the scope of these rights and associated obligations, and provide the regulatory framework to promote its successful implementation. Private property rights, although the fundamental element of prosperous societies, should be viewed in the broader context of public policies that stimulate economic growth and provide societal benefits. As such, private property rights must also be viewed as *exclusive* and not *absolute* rights, given the complexity of public and other private interests, such as environmental impacts and long-term, sustainable use.

In Indonesia, as in other developing countries, special land policy challenges are evident. They include:

- Real Estate Title Certification, Leveraging Investment, Equitable Taxation and Revenue Generation

  As in many developing countries, a large amount of "dead capital" exists -- assets in real estate (urban and rural land and buildings) that can not be used to the fullest extent because clear ownership title is not certified. In Indonesia, it is estimated that about 85 million land parcels exits (with an additional creation of about 1 million per year) and with less than 40% with certified ownership or use rights. This effectively prevents using certified ownership as loan collateral and makes long-term capital investments difficult due to the uncertainty about the time period to recover investment or profits. These conditions also make it difficult to trace and validate these assets, pose equitable taxation challenges, use multiple transactions to obtain surplus value, and pose high transactional cost due to misunderstandings, faulty recollections and conflicting interpretations of agreements. As pointed out by Hernando de Soto[18] these "dead assets" reflect high proportions of real estate assets in developing countries, almost 60% of city dwellers and 67% of rural residents in the Philippines, 53 – 81%, respectively in Peru, 68-97% in Haiti and 68-97 % in Egypt.

[18] Hernando de Soto. 2000. *The Mystery of Capital*.

Lack of legal property descriptions poses not only limitations on the provision of credit, but also on easements, accountability, tax revenue, enforcement, service delivery, infrastructural improvement and urban revitalization. Legal property descriptions and certification provides the tool to create surplus value over and above its physical assets by providing economic development opportunity and prosperity. Some surveys indicate that without such legal protection, the cost of working and conducting a business is expensive. De Soto's work in Peru (2000) cites an extra cost of 10-15% of annual income to be paid in the form of bribes and commissions to authorities. The lack of collateral to obtain loans for small farmers in Indonesia forces them to pay excessive interest rates (30-40% annual rates or 10% monthly rates are not uncommon)[19]. Without formal ownership and transaction records, equitable taxation is difficult and total tax revenues are reduced.

- Ownership and Use Rights Clarity, Security, and resulting Land Conflicts

Indonesian land use conditions, in urban and rural areas alike, are characterized by weak or not existing guarantees that clearly define ownership, tenure regimes or use rights. This in turn, increases the perceived and real conflicts and disputes associates with these rights. Sources of conflicts include disputes between the state, investors and local people. Of specific concern are: a) disputes between plantation interest based on Right of Exploitation (HGU) – still valid or expired - and occupation of the land by local people; b) between Adat Communities with Ulayat rights and Forest Concession Rights (HPH) given to those areas, c) mining interests and (de)forested areas, d) overlapping border of land rights – such as ownership ("eigendom") rights and ex Adat land rights (girik); e) disputes on compensation for land transactions; f) dispute on the status of land between village authorities and other government unit as result of implementation of Law No. 5 / 1979; g) private land designations by

[19] Personal Communication with BPN and BAPPENAS staff and consultants. May 2009.

Colonial Land Law and now controlled by government institutions; and h) disputes associated with the courts judgment that is difficult or impossible to enforce.[20]

- Conflicting Legal and Regulatory Framework and its Implementation

The overlapping and sometimes conflicting role of administrative jurisdictions associated with the development, articulation and implementation of land use rights, land use plans, and associated laws and regulations. This includes the associate mandates - real or perceived - by relevant government institutions, such as BPN, BAPPENAS, and the Ministries of Agriculture, Forestry, Mining and the Environment. Therefore a top priority should be to commission a thorough and systemic legal review to compile all pertinent land use laws and regulations (with clear definition and consistent use of terms, such as land, agrarian and natural resources) and consolidate these in a legal framework of internally consistent and mutual reinforcing laws and regulations pertinent at the national, regional and local levels, and across the various economic sectors, including agriculture, forestry and mining. Such review should also include the circumstances under which the state can exercise eminent domain and either takes property for the public good with just compensation or uses "right-of-way" to install utilities, such as water -, electric -, fiber optic - or sewer lines. This should be reinforced by clear institutional mandates on its implementation and legal enforcement. Such clarity, transparency and objective implementation will assist in reducing land conflicts and promote the more rapids resolution of conflicting claims.

- Social Justice and Inequity in Land Access and Benefit Distribution

The inability of poor people to benefit from access to land, its productive use and benefits creates a perpetual system of social injustice. A democratic and economically efficient society should encourage productive ownership and investments. This includes minimizing absentee landownership and speculative non- or underutilization,

[20] BAPPENAS. 2008. The National Land Policy Framework.

the equitable distribution of land access, use rights, and promotion of productive use and the realization of associated employment and income opportunities. In Indonesia, there is clear evidence of an increasing gap in ownership distribution – concentration of land ownership and use rights in the hands of a smaller percentage of the population - and income disparity that is inherently associated with historically-defined land access limitations that are socially unacceptable. One example includes Java with a high percentage of land-less people and extreme small landholdings. Here, almost 7 million families do not control land through ownership of lease. More than 7 million families control less than 0.5 hectares (BPS, 1993). In combination, this was about 83% of the 17.3 million households on Java, a figure that has likely significantly increased in 2009. BAPPENAS (2008) cites the 1993 census data, indicating that 69% of the agricultural land tenure in rural areas is controlled by 16% of the rural households, while 31% of agricultural land is controlled by small farmers or the landless (via use rights/hak garap). The landless that cultivate land as tenant are sometimes required to pay up to 50% of crop yield as "rent for the use of the land, reducing household income by the same amount. A fundamental policy challenge will be to decide if a further marginalization of the poor or underprivileged, as a result of these conditions, is acceptable.[21]

- Smallholder Land Certification and Access to Credit

It is well understood that lack of property certificates affects credit access, especially access to formal credit from lending institutions. This is as critic production constraint because farmers need capital at the beginning of the growing season, and most farmers rely on informal systems of credit for capital and inputs, which carry high interest rates and sometimes involve selling crops in advance and pledging land under unfavorable if not exploitative terms[22]. Farmers with certificates understand that the land provides with the means to lower the interest rates paid for capital needs and inputs. Farmers with little or no socialization on access to finance believe bank procedures are overly complicated and they do not have a good understanding of how

[21] BAPPANAS. 2008. The National Land Policy Framework
[22] Nielsen R and A. Safik. Smallholder Land Certification and Access to Credit in Indonesia. RDI, 2007

land certificates can be used as collateral. Farmers do not wish to put up their land as collateral, but farmers who are better informed about access to finance and government assistance to farmer groups believe that as a group to avoid loan defaults[23]. Certification programs are of interest to farmers if at low cost in within a certain time period (e.g. 5 years) especially if combined with improved access to credit.

- Concerns about Privatization

Privatization has often resulted in the poorest being excluded from primary rights such as land access and use rights, and secondary rights such as access to water, forest products or communal grazing rights. Privatization and land titling, unless very carefully handled in deliberately transparent and objectives ways without significant financial thresholds (title, registration costs and other administrative burden) has often benefited the local elites. Land registration and titling programs must be well-resourced and administered to provide easy access, accuracy, equity and reduce land disputes. Potential benefits of land titling can be offset by market failure for inputs and labor. Land titling, especially in rural areas, should ensure continued access to formal credit at competitive rates (potential government intervention to assure capital access). Over time, in areas with customary laws and communal rights and where land becomes increasingly scarce, tenure regimes have historically "modernized" and evolved into private property regimes.

[23] Ibid, 2007

5. AGRARIAN REFORM IN INDONESIA

As a nation of about 235 million people - culturally and geographically highly diverse, it also depicts a great variety in land use patterns, population densities and land ownership. In addition, various tenure regimes and legal systems dominate different parts of the country.

The principles of diversity are embraced in its Constitution of 1945 and emphasize the management and use of its natural resources for the common good. Law No.5/1960 on Basic Agrarian Law stipulates the rights of the people over its land, water, territory and all natural resources contained therein. It is the State's duty to realize public welfare for all people and protect their land rights. The realization of this charge is a great challenge in a rapidly developing nation with great land use diversity and intensity reflected in various land use pressures, formal and customary legal systems, conflicting sectoral interests, and environmental impacts. These conditions also translate into concerns about environmental quality, public risk associated with environmental pollution, sustainable land use, and the long-term productive capacity of the natural resource base.

In recognition of this challenge, the GOI ratified MPR Stipulation (Tap MPR) No. IX/2001 on Agrarian Reform and Natural Resources Management, articulating guiding principles for agrarian reform and sustainable resource utilization. It calls for land reform that is fair by giving attention to land ownership for the people and the collection of systematic data on land through inventory taking and registration of control, ownership and exploitation of land. The National Land Policy Framework 4-point action plans to implement MPR Stipulation No. IX/2001 to increase access to land:

- Empower poor people to use and own neglected land
- Provide opportunities for people to use and own land through redistribution, land consolidation, etc
- Increase control of neglected and not optimally used land
- Create information access to government land program

The promulgation of Law No. 22/1999 (as revise Law No.32/2004) directs that land policies support the realistic and responsible autonomy of regional governments. It outlines, in essence, the same 4 basic principles as identified by BPN (above):

1. Manage land to create of social welfare;
2. Promote social equity in land access, use, tenure and ownership
3. Promote of sustainability
4. Foster social harmony

5.1 Land Use and Ownership

Roughly 20 million hectares, or nearly 10 percent of Indonesia's total land area, were cultivated in the 1980s, with an additional 40 million hectares of potentially cultivatable land, primarily in Sumatra and Kalimantan. This percentage increased to about 11%, with about 7 % in permanent cultivation in 2005[24]. The GOI claims that Indonesia has about 120 million acres of rainforest (or about 60 percent of its land area)[25], making it the world's third largest forested country after Brazil and the D.R. Congo. Other sources, based on multiples studies, suggest that natural forest coverage may be around 50% (1997).[26]

In spite of the dwindling forest coverage the Forestry Ministry still exercises control over about 70 percent of the land.[27] Evidence suggests continued and rapid deforestation. Most of the changes are caused by logging (especially since the 70s), transmigration (especially in the 80s), spontaneous settlements, and the rapid expansion of estate crops. With an estimated loss of up to 20 million ha of forest over the past decade (or about 10% of the total land area or about 20% of the remaining forest), deforestation in Indonesia has come to the forefront of global environmental concerns. From a land policy perspective, Indonesia is not only one of the most important areas of tropical forests worldwide, but forests provide a multitude of benefits to traditional villages, including the provision of many products and services, including as food and energy sources. Logging benefits are only a limited public benefit. Forests are also critically important in

[24] CIA World Factbook (2005)
[25] Jakarta Post (May 23, 2009), quoting GOI sources
[26] Pagiola. S. 2000. Land Use Change in Indonesia. Environmental Department, World Bank
[27] Personal Discussion with BPN and BAPPENAS officials (May 2009).

watershed protection, reducing flood risk by regulating run-off and reducing sedimentation, thereby improving water quality and fisheries habitat. These forests are also of global importance because of their biodiversity – with it largely untapped potential for ecotourism - and their carbon sequestration. Despite the benefits they provide, Indonesia's forests have been under considerable threat in past decades, and the extent of forest cover has continued to decline considerably[28]. One of the most significant impacts on forest land has been conversion to large scale palm oil plantations, increasingly a source of public debate.

The 1999 forestry law stipulates that all forested land is controlled by the state. No private or community land ownership or land rights are granted in forest areas, only forest concessions. It is estimated that forty to sixty million people live in "forest areas. The law allows local communities and indigenous people to "manage the forest and gather forest products", but the state retains full "ownership". Government control of most "forest land" (estimated or about 70% of the land, which including degraded scrub and brush land that by current estimates is about 20% of the land) is exercised by the Ministry of Forestry, mostly irrespective of its current vegetation status. Therefore, 70% percent of Indonesian land is held under jurisdiction of the Ministry of Forestry and Estate Crops under the Forestry Law No. 41/1999. Resource tenures are managed by sectoral ministries rather than the BPN. . BPN only becomes involved in forest land areas when forest land is converted to "land tenure".

Smallholder cultivation of both food and estate crops dominates the remaining, non-urban, landscape, accounting for about 87 percent of total land under cultivation; large plantations account for the remaining 13 percent. The pattern of land use and landholding reflects the distinctive ecosystems of Java and the Outer Islands, and the profound impact of colonial cultivations. Java and Bali were the centers of intensive rice cultivation on *sawah* or flooded cropland. This cultivation demanded rich volcanic soils and a fairly low gradient to permit water control, and supported a dense sedentary population.

Increasingly, more farming activities are concentrated on smaller parcels (Table 5.1).

[28] Pagiola. S. 2000. Land Use Change in Indonesia. Environmental Department, World Bank.

Table 5.1. Distribution of farming Activities in Indonesia (1983-1993)

No.	Category of Farming Activities by extent of land holdings	Distribution of Farm Activities			
		1983		1993	
		% of farming activity	Average extent (Ha)	% of farming activity	Average extent (Ha)
1	< 0.5	40.8	0.26	48.5	0.17
2	0.5 – 1.99	44.9	0.94	39.6	0.90
3	2.0 – 4.99	11.9	2.72	10.6	3.23
4	> 5	2.4	8.11	1.3	11.9
	• Total of farming Activities (million)	15.9		17.9	
	• Total of area (million Ha)	16.7		15.4	
	• Average Extent of farming activity (ha)	1.05		0.74	

Source: Agricultural Census of Indonesia, 1993

The distribution of agricultural land holdings in 1993 is very inequitable. Around 70% of the rural households have land holdings of less than 0.5 Ha, wherein most (43% of the rural households) belong to the homeless and farmers with land holdings of less than 0.1 Ha. (Table 5.2). Here, 43% of rural households of the "land poor" (homeless and farmers with land holdings of less than 0.1 Ha) only hold 13% of agricultural land, while 16% of the rural households "land rich" (farmers with land holdings of greater than 1 Ha) hold almost 70% of the total of agricultural land. Within the same period (1973-1993) the inequity has also increased in agricultural land ownership/holdings among the regions. The 1993 Agricultural Census shows that land ownership/holdings per farm family in Java is around 0.41 Ha and outside Java is 1.2 Ha. This trend in increasing land inequity continues due to an increased concentration of population in Java. Such trend may be deemed soci0economically unacceptable but also has the potential to create political unrest and security problems.

Table 5.2. Distribution of Agricultural Land Holdings in Indonesia (1993)

No.	Groups of Extent of Holdings (Ha)	Rural Households		
		%	Cumulative %	% of land holdings
1	Homeless and farmers with less than 0.1	43	43	13
2	0.1 – 0.49	27	70	18
3	0.5 – 0.99	14	84	
4	> 1.0	16	100	69

Source: Agricultural Census of Indonesia, 1993

The Outer Islands ecosystem consists of swidden cultivation, a type of dryland agriculture known also as slash-and-burn agriculture, practiced on the less fertile forested land with a diverse range of crops such as cassava, corn, yams, dry rice, other vegetables, and fruits. In this process forest plots are cleared, harvested for a few seasons until natural nutrients are exhausted, and then return to the slow process of forest regeneration. The far lower productivity of this system than *sawah* can only support low population densities. Over time, swidden farmers have in some areas adapted to commercial tree crops such as rubber, coffee and especially palm oil. The recent expansion of palm oil plantations in this century has raised increasing concern about the rapid forest conversion and its associated impacts on traditional, low risk (agro-forestry) cropping systems in many villagers, now depending on mono-cultivations with a higher risk of crop failure.

The impact of colonial agricultural practices in the late nineteenth century has been characterized as agricultural "involution"--a reduction to former size--centered in areas of sugar cultivation, primarily in Central and East Java. Here, the dense population supplied seasonal labor for sugar production and was still able to grow sufficient rice. The village economy provided an equitable if marginal subsistence for all villagers through such labor-intensive techniques as double cropping, improved terracing, careful weeding, and harvesting. At the end of the 20th century, this rice-based economy was able to absorb the rapidly growing population in part, assisted by the *Green Revolution* with superior varieties, improved inputs and pest control. On the Outer Islands, the plantation economy was far less intrusive, coexisting as an enclave among small-scale, swidden cultivators.

There, large expanses of land still remain uncultivated, but increasing cultivation is limited by the natural characteristics of the tropical forest and soil fertility.

In the early 1960s, the need to increase agricultural output was tackled with highly visible yet ultimately ineffective land reform. The land reform was part of a larger and more successful effort to modernize the colonial legal system of landownership. Under the Dutch, a dual system of land laws permitted non- Indonesians to register and obtain title for lands on the basis of Western civil law principles, whereas Indonesian ownership was governed by *adat* (customary) law, based on unwritten village practices. The dual system was intended to protect farmers' land ownership and use rights. However, the more flexible, communal-based *adat* system also permitted the Dutch to rent communal village lands for sugar cultivation by contracting only with the village head (*penghula*). In 1960, the proportion of settled land still recognized only under the *adat* system, with no formal survey or title, was estimated at 95 percent.

The Basic Agrarian Law (BAL), enacted in 1960, constituted a comprehensive legal effort to modernize Indonesian landownership. The law sought to decertify land policies enacted by the Dutch Colonial Government, primarily replacing the *Agrarische Wet of 1870* . The Dutch law, sought to certify indigenous ownership rights over cultivated land with the option to enter into lease agreements with European investors promoting development of sugar, tobacco, rubber and coffee estates. Uncultivated land could be given in *erfpacht* (hereditary lease right) by the state – a 75-year land lease. The Basic Agrarian Law recognized previous ownership rights under both *adat* and Western systems, but provided a new certification process under which land was to be surveyed, mapped, and registered. All unclaimed land reverted to government ownership. Land certification, however, was not compulsory and registration progressed very slowly. The law also set limits on the size of landownership, depending on the population density of the region and the type of land. In areas with over 400 people per square kilometer, rice field ownership was limited to a maximum of five hectares and a minimum of two hectares. Absentee ownership was forbidden.

In practice, this maximum field size or absentee ownership limitation may be difficult to enforce. Field research conducted in 2002[29], indicated the practice by absentee owners to isolate themselves from these requirements. Illegal residency cards were being obtained to certify residency in the jurisdiction of the land parcels and land titles are transferred to direct family members or relatives. In this specific case, the BPN representative also believed that the legislature of the kabupaten (regency) has the authority to change village boundaries and that such would be endorsed by the *bupati*. (head of the Kabupatan). In this case, uncertainty existed about how such boundary change would be formally communicated and registered at the central BPN office.

Also, by the standards of *sawah* cultivation, a wealthy landholder possessed three to five hectares. The maximum of five hectares left very little surplus land available for distribution and only a small amount of land was redistributed before Suharto's *New Order* shifted the emphasis of agricultural policy away from land reform towards increased productivity per hectare. The agricultural census of 1983 showed that about 44 percent of all farm households were either landless or operated holdings too small to meet more than subsistence requirements. At that time, the average landholding on Java was 0.66 hectares, and ranged from about 1.5 to 3 hectares in other parts of the country.

By the 1980s, the New Order, undoubtedly aided by the *Green Revolution*, had achieved undisputed success in expanding rice production. In fact, for a period of time in the late 20th century, it changed Indonesia from a rice importer to a rice exporting nation. However, the distribution of benefits did not equally benefit the poor. Observers suggested that only already prosperous farmers benefited from the new technology. By the late 1980s, sufficient evidence had been gathered to show that the benefits from increased rice production, together with growing employment opportunities outside agriculture, had reached even the landless or near landless population, although a widening income gap became evident in subsequent years.

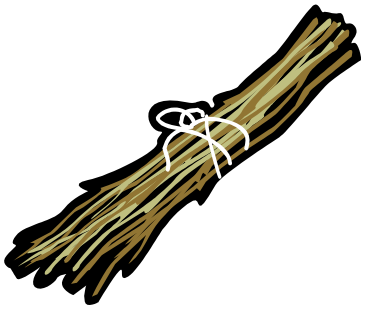
As a provisional legal framework for a modern state, the 1945 constitution also addressed the use of natural resources for the public good. It expresses the revolutionary

[29] Mitchell, R. 2002. Rural Development International. Field Notes from Karawang Kabupaten

expectations about social and economic justice. Article 33 states that the economy shall be organized cooperatively, that important branches of production affecting the lives of most people shall be controlled by the state, and that the "*state shall control natural resources for exploitation for the general welfare of the people*"

5.2 Land Rights

RI land rights associated with the pluralistic legal system and formally recognized and registrable interests are consequently rather diverse, inconsistent and constrain investment and planned development. However, the State controls virtually all land. While supporters of the BAL claim that such control is less invasive than eminent domain or complete state ownership, it can be argues that it is overly restrictive. Compared to other nations, private land law is undeveloped and private land rights are severely limited. By comparison, in the US a large number of (separable) rights are associated with private property rights (Fig 5.1)



- USE (subject to public regulatory restrictions such as police powers, eminent domain – public taking and just compensation clause, condemnation)
- LEASE
- MORTGAGE
- SUBDIVIDE (zoning regulations)
- DEED RESTRICTION (e.g. conservation and other easements, covenant, development rights)
- SALE OR BEQUEST
- WATER (riparian, prior appropriation or other)
- MINERAL (includes oil and gas)
- DEVELOPMENT (restrictive covenants and police powers: zoning and other ordinances, environmental nuisance, building codes, and development guidelines)
- LIENS (taxes and other)

Figure 5.1 – The (US) "Bundle of Private Property Rights Principle" - Exclusive but not Absolute.

The most significant public right here is the Right of Eminent Domain or the right to expropriate private for the public, at fair compensation as man dated by the US constitution. The constitutional hurdle remains high for property owners. First, owners are not automatically entitled to the most profitable use of their land. Local zoning, nuisance or wetland ordinances restricting the type and nature of development are examples of use limitations. Second, diminutions of value caused by government regulations are uniformly tolerated. Third, virtually all public interests to be served by environmental laws are legitimate in the eyes of the constitution. Last, such laws are usually found to substantially advance the public interest.

A listing of land rights is included below (Table 5.2). It should be noted that, in addition, the Basic Agrarian Law also creates rights to use airspace and water, and the cultivation and harvesting of fishery resources. Excluded are oil, gas and mineral rights. As currently formulated, the system of land rights is predominantly time-limited and incompatible with the modern investment climate and dynamic land markets that require long-term title security to recoup long-term investments in agriculture, commerce and industry. Feared land speculation, associated with unlimited land use rights, can be avoided by simply limiting developing rights through proactive, well-articulated and objectively-enforced land use plans.

Similarly, other restrictions can be enacted by zoning laws and still promote a sound investment climate, while preserving public and community interests. This bundle of (limited) land rights concept – permitting a clear definition of specific use rights and their limitations – is a widely and successfully employed legal principle in many industrialized nations to help regulate urban expansion and direct economic development and land use.

One fundamental challenge is to clearly define and administer land use rights associated with customary or *Adat* rights as defined in the Basic Agrarian Law. Although rights are conveyed to the *Adat* community (“rechtsgemeenschap”), it is unclear how these rights

Table 5.3 – Indonesian Private and Community Land Ownership and Use Rights

PERPETUAL RIGHTS • **Hak Milik**	**"Ownership" – the right to own the land. Hereditary right for Indonesians through conversion regulations, government grants or Adat (customary) law. Owner can convey building right, use right, right to rent, pledge the land (hak gadai), share cropping or right of lodging – originates from "landerijenbezitrecht "**
TIME-LIMITED RIGHTS • **Hak pakai (HP)** • **Hak guna bangunan (HGB)** • **Hak guna usaha (HGU)**	• **Right to use the land** • **Right to build on the land or use the building on the land** • **Right to operated a plantation (exploitation right)**
OTHER LAND RIGHTS • **Hak sewa** • **Hak membuka tanah** • **Hak memungut-hasil-hutan** • **Hak pengelolaan (HPL)**[30] • **Hak ulayat**	• **Right of lease** • **Right to clear and cultivate the land** • **Right to collect forest products** • **Land management by state authority** • **Conceptual community property rights. Under Agrarian Law community titles are subject to state interests and, therefore not considered "land rights". Consequently, "community land" is for the taking by administrative authority without compensation**
MODERN RIGHTS • **Hak atas satuan rumah susun** • **Hak tanggungan**	• **Ownership of strata (e.g. apartments)** • **Land as secure collateral for mortgages**

[30] This right is not formally recognized or written in the Basic Agrarian Law

specifically convey to its inhabitants. In practice, individual rights are neglected and many people are marginalized to the benefit of domestic or foreign investors[31].

This results in conflicts between the *Adat* community or some of its people and the investors in cash crop plantations, forest plantations or lumbering operations, and government if it involves clearcutting for transmigration projects. Of special note is Regulation of State Minister for Agrarian Affairs/Chairman of the National Land Agency No 5 / 1999 that provides guidelines for resolving these conflicts by delegating authority to local governments. This is largely an unfunded mandate because local authorities do not have the knowledge or the required capital of human resources to conduct the necessary research.

Criteria for the identification of Adat communities include: a) the *implicit recognition* and implementation of individual use rights by the community; b) the *geographic identification* of a location where the individual or community lives and provides for its daily needs; and c) an *informal understanding* of the guiding land tenure, management, use and principles by the community.[32] It is argued that overlapping administrative rules pertaining to the recognition of Adat communities and their rights should be addressed by means of clarification and harmonizing the vertical and sectoral integration (such as for forestry and mining) of pertinent laws and regulations. It is further recommended that Adat communities are spatially identified to permit the certification of land rights, provide title and tenure security as a means of improving prosperity, preserve cultural identify and promote social equity and justice.

It can be argued that the Basic Agrarian Law 5/1960 (BAL), needs fundamental reform. The BAL is "based on *adat* (customary) law", - principles that reflect a sedentary, traditional, immobile agrarian society. It does not provide the necessary flexibility to develop a coherent national land law that seeks to promote responsible investment and economic development. Under the BAL, land is controlled by the State to achieve "prosperity of the Indonesian people, Indonesian socialism, and adat philosophy". The

[31] BAPPENAS, 2008. *Adat Land Tenure*, Final Report. Land management and Policy Development Project.
[32] Ibid. 2008

presumptions are that State control is essential and provides for a better mechanism to control land rights and allocate capital inputs than well-functioning landmarkets, and that total private or corporate ownership (as it may be restricted by the proper land use plans, laws, regulations and enforcement) leads to exploitation and waste. The multi-institutional control of land rights as exercised directly or indirectly by various GOI agencies is currently viewed as discretionary, replete with confusing and contradictory mandates and regulations, with a high transaction cost and low, if any, accountability

5.3 The Judiciary and Land Disputes

The Indonesian legal system is extraordinarily complex, the newly-independent state having inherited three sources of law: customary or *adat* law, traditionally the basis for resolving interpersonal disputes in the traditional village environment; Islamic law (sharia, or, in Indonesian, *syariah*), often applied to disputes between Muslims; and Dutch colonial law. *Adat* courts were abolished in 1951, although customary means of dispute resolution are still used. The return to the 1945 constitution in 1959 meant that Dutch laws remained in force except as subsequently altered or found to be inconsistent with the constitution. In the 1990s the government continued to review its legacy of Dutch civil and commercial laws in an effort to codify them in Indonesian terms. The types of national law recognized include, in addition to the Constitution, various decrees, statutes and regulations promulgated by the president, and other implementing regulations such as ministerial regulations and instructions. The executive branch has considerable discretion in determining what is "law".

With respect to the administration of justice, Article 24 of the Constitution states that judicial power shall be vested in the Supreme Court and subordinate courts established by law, and that the organization and competence of courts shall be established by law[33]. While during the Sukarno administration, the justice system became a tool of the

[33] William H. Frederick and Robert L. Worden, editors. *Indonesia: A Country Study*. Washington: GPO for the Library of Congress, 1993.

revolution, and any pretense of an independent judiciary was abandoned, one of the goals of the New Order was to restore the rule of law. A major step in that direction was the enactment of the Basic Law on the Judiciary Number 14 of 1970, which defined the independent status of the Supreme Court and emphasized noninterference in judicial matters by persons outside the judiciary. Theoretically, the Supreme Court stands coequal with the executive and legislative branches. The president, vice president, and justices of the Supreme Court are nominated by the legislature and appointed by the president. The Supreme Court has exclusive jurisdiction in disputes between courts of the different court systems and between courts located in different regions. It can annul decisions of high courts on points of law, not fact. On request, it can give advisory opinions to the government and guidance to lower courts. It is not part of a system of checks and balances, however, since it does not have the power of judicial review of the constitutionality of laws passed by parliament. Its jurisdiction is limited to whether or not implementing administrative regulations conforms to law. Moreover, the Supreme Court has no control over the integrity of the lower courts, which are under the supervision of the Department of Justice.

Below the Supreme Court four different court systems can be distinguished[34]: First, there are courts of general civil and criminal jurisdiction. District courts are the courts of first instance, whereas the High Courts are appellate courts. Despite protestations of independence, the lower courts have shown reluctance to challenge the government, particularly in political cases. In the view of some observers, these courts routinely allowed egregious breaches of fundamental civil rights. There are also regular allegations of corruption in the lower court system in both civil and criminal cases.

Second, are the State Administrative Courts (peridilan tat usaha Negara). The administration of the first two jurisdictions courts is under the Supreme Court and supervised by the Judicial Commission.

[34] Budiardjo et al., 1997. Law Reform in Indonesia – Diagnostic Assessment of Legal Development in Indonesia. Volume I.

Third, there are the military courts (peradilan militer), which have jurisdiction over members of armed forces or persons declared to be of a similar status. These courts are supervised by the Department of Defense and Security.

Fourth, there are religious (Islamic) courts (peradilan agama), under the Department of Religious Affairs, which exist to resolve specific kinds of disputes between Muslims in matters of marriage, divorce, inheritance, and gifts. These courts base their decision on Islamic law. To be legally enforceable, however, the religious court's decisions must be approved by a corresponding secular district court. The Directorate of Religious Justice within the Department of Religious Affairs has ultimate appellate jurisdiction. One of the persistent tensions between Islam and the state arises from Muslim efforts to expand the jurisdiction and autonomy of the Sharia courts.

5.4 Local Government

Government administration is carried out through a hierarchical level of administrative subunits. Indonesia is made up of 33 provincial-level units (*propinsi*), including five special regions (*daerah istimewa*) such as Aceh, Papua, andYogyakarta--and a special capital city region (*daerah khusus ibukota*), Jakarta. The provinces are subdivided into districts or regencies and city (*kabupaten/kota*), and below that into subdistricts (*kecamatan*). Some forty municipalities or city governments (*kotamadya*) have equal administrative status as a *kabupaten*. At the lowest tier of the administrative hierarchy is the village (*desa and kelurahan*). In this evolving structure, Indonesia had currently about 349 districts, 3,625 sub-districts (kecamatan), 91 cities, and 66,979 villages/kelurahan.

Since independence, the nation has been centrally governed from Jakarta in a system in which the lines of authority, budget, and personnel appointments. In these matters, regional and local governments enjoy little autonomy. Their role is largely administrative: implementing policies, rules, and regulations. The political goal is to maintain the command framework of the unitary state, even at compromising developmental efficiency. Governments below the national level, therefore, serve

essentially as subordinate administrative units through which the functional activities of Jakarta-based departments and agencies are delegated.

In the early 1990s, there was neither real power sharing nor upward political communication through representative feedback. Real feedback occurred through bureaucratic channels or informal lines of communication. Elected people's regional representative councils (DPRD) at the provincial and district levels had been restored in 1966, after operating as appointive bodies during the period of Guided Democracy.[35] However, the DPRDs' participation in the early 1990s governing was extremely circumscribed because the councils lacked control over the use of resources and official appointments. Even though 1974 legislation gave provincial DPRDs some voice in selecting their governors--DPRDs could recommend appointments from a list of potential candidates submitted by the minister of home affairs--provincial governors were still appointed by the president. District heads were designated by the Department of Home Affairs.

The structure of provincial-level and local government in Indonesia is best understood in terms of the overriding goals of national political integration and political stability. At the governmental level, integration means control by the central government, a policy that was in part conditioned by historical experience. At independence, Indonesia consisted of the short-lived federal Republic of United States of Indonesia (RUSI, 1949-50). According to some, the RUSI was viewed as a Dutch plot to deny authority over the entire country to the triumphant Indonesian nationalists. Regional rebellions in the late 1950s confirmed the government's view that Indonesia's cultural and ethnic diversity required tight central control to maintain the national integrity. Political stability was equated with centralization and instability with decentralization. Civil control was maintained through a hierarchy of the army's territorial commands, each level of which paralleled a political subdivision--from the highest regional command levels down to noncommissioned officers stationed in the *desa* for "village guidance." Lateral coordination of civilian administration, police, justice, and military affairs was provided at each provincial, district, and sub-district level by a Regional Security Council

[35] Ibid. A Country Study

(Muspida). The local Muspida was chaired by the regional army commander and did not include the speaker of the local DPRD.

Added to the political requirement for centralization in the early 1990s was the economic reality of the unequal distribution of natural resources endowment and the mismatch of population density to resources. The least populated parts of the country, such as Papua, were the richest in primary resources. This brought the issue of social equity in the main stream of the policy debate – ensuring that wealth produced by resource exploitation be fairly shared by all Indonesians. This goal meant that, in addition to Jakarta's political control of the national administrative system, the central government also exercised control over local revenues and finances. The absence of an independent funding base limited autonomy for provincial and local governments.

About 80 percent of total public expenditures in the provinces was disbursed from the national budget controlled by departments and agencies headquartered in Jakarta. Of the 20 percent administered by the provinces, about half came from Inpres (Presidential Instruction) grants for infrastructure and other developmental purposes. Beginning in 1969, the Inpres grant programs at provincial, district, and village levels channeled about 20 percent of the development budget to small-scale projects for local development, with an emphasis on roads, irrigation, schools, and public health. Only about 10 percent of regional government revenue was derived from local taxes and fees.

Whereas once the central government's transfer of wealth from resource-rich provinces to people-rich provinces had been a source of political irritation for the better-endowed regions, in the 5-year economic development plan (Repelita V - FY 1989-93), the lag in development investment beyond the Java-Sumatra western core was perceived as troubling. Suharto's 1992 New Year's message to the nation explicitly addressed this problem: "We are also aware," he said, "of the fact that there is a wide gap in the progress achieved by each region in our country, especially between the western and eastern part of the country." In looking to future policy, he added that there would be stepped-up efforts to provide autonomy and decentralization. Such steps, however, would require strengthening the capacity of sub-national units financially and administratively, as well

as strengthening local participation in the setting of national goals and policies. To some government leaders in the early 1990s, making concessions to economic and cultural claims for autonomy would endanger national unity. Conflicting interests of politics and administration presented special problems in the Special Regions such as Aceh, Irian Jaya and Timor.

Of special note is the allocation of land parcels at the Desa (village) level to provide local revenues for public administration. The so-called "village inventory" land (tanah kas desa) is allocated to provide for operating cost, while the "Tanah Bengkok" land is designed to provide funds for village administrative staff salaries. A profile of various villages located in an administrative district is provided, below (Table 5.3). It is estimated that Bengkok land constitutes about 10% of the cropland in Central and East Java

Table 5.4 - Profile if Villages in Kecematan Sumbang, Banyumas Regency, Central Java (source Safik, 2009[36])

No	Village	Total Area of Villa-ge (Km2 2005)	Number Heads of HH (2005)	Number of Poor House-holds (2006)	Total Area of Bengkok Land (Ha, 2005)	Total Area of Village Inventory Land (Ha, 2005)	Number of Individual Land Parcels (Hak Milik) Registered (July, 2007)	Total Area of Land Registered (m2, July 2007)
A	B	C	D	E	G	H	I	J
1	Karanggintung	1.43	963	409	28	3.375	335	166500
2	Tambaksogra	2.6	1782	682	35.98	4.2	78	179308.81
3	Karangcegak	1.2	674	242	20.65	0.84	347	246965
4	Karangturi	1.77	659	212	20.677	6.174	172	186903.75
5	Silado	1.71	605	265	23.55	8.13	1490	1335465.8
6	Susukan	2.08	1019	540	21.86	8.5	122	214574.35
7	Sumbang	2.35	1411	675	26.025	5.3	50	6148344
8	Kebanggan	1.81	859	527	25.765	2.15	2575	2046552
9	Kawungcarang	0.47	309	148	7.595	1.25	34	29022
10	Datar	0.87	633	345	9.955	1.29	197	310646.79
11	Banjarsari Kulon	2.12	908	444	25.335	2.315	253	355369

[36] Safik, 2009. Field Survey Notes

12	Banjarsari Wetan	1.92	752	366	20.853	1.225	1530	1884013.4
13	Banteran	3.64	1878	1041	38.255	3.745	395	536334.47
14	Ciberem	2.34	1129	641	16.32	1.43	52	112958.6
15	Sikapat	3.97	960	579	13.84	0.114	380	377180
16	Gandatapa	5.42	1907	1209	23.05	2.799	2823	3808991
17	Kotayasa	5.05	2253	1208	28.595	1.88	182	275329.85
18	Limpakuwus	11.7	1259	669	15.305	2.014	480	787143.84
19	Kedungmalang	0.95	636	258	Na	na	207	20066605

6. LAND POLICY GUIDELINES FOR INDONESIAN AGRARIAN REFORM AND RURAL ECONOMIC DEVELOPMENT

Fundamentally, agrarian reform means a deliberate strategy to reduce rural poverty and provide equitable access to common property resources, and clearly recognize these rights and associated economic opportunities, thereby further contributing to sustainable development and improve rural well-being. *This requires a multi-disciplinary and multi-sectoral approach to land policy formulation, including facilitating legislation, effective land administration, equitable distribution of land rights and comprehensive rural development planning*.

Strategic development planning is implemented by effective policies that are based on a well-defined regulatory framework and supporting incentives. *In the context of agrarian reform, land policies should develop strategies to improve land productivity while, at the same time, preserve the long-term productive capacity of land*. A number of key strategies and incentives should be considered:

- *Provide secure access to and rights to use land productively*. Ownership and control enhance the productive capacity of land and develops a stewardship and conservation ethic. In contrast, sharecroppers, tenants and squatters pursue short-term gains that lead to exploitation. Tools in this process are property boundary verification and land registration, creation of an effective land market, and effective dispute prevention and resolution by impartial Review and Arbitration Boards.
- *Develop local land use planning and agricultural zoning*. Encourage preservation of highly productive agricultural land and concentrate labor intensive production on the most productive soils, and close to communities and existing infrastructure. Encourage land consolidation and concentration of small-scale production to create economies of scale and value chain opportunities. Create biodiversity reserves and avoid encroachment of critical habitat by creating exclusion zones that can be enforced. Concentrate large scale production that is less labor intensive away from community centers.

- *Provide economic incentives that help lower input cost and improve commodity prices*. Tools include cooperative procurement of material and capital inputs, processing and market development, and import substitution. For critical food commodities, temporary price supports should be considered, and preferred over input supports (such as fertilizer subsidies) that create production inefficiency and environmental pollution.
- *Provide access to inputs and services*. Tools include credit and extension services, establishment of farmers organizations, mechanization, developing infrastructure (roads, irrigation, markets, storage, community services), and creating sustainable community services.
- *Improve farming techniques*. Tools include farming techniques that encourage cultivation practices that conserve soil, water, nutrients, energy, and pesticide inputs by strip- or contour cropping, intercropping, minimum tillage, integrated pest management, grassed waterways to direct runoff, etc.
- *Encourage community and land owner participation*. Tools include the participation of land owners in conservation practices, demonstration sites, community gardens and extension services.
- *Eliminate long-term incentives and price supports that discourage conservation and efficient production and cause environmental contamination*. Tools include the removal of subsidies for fertilizers and pesticides that increase pollution and increase the resistance of pests. This is a real concern in Indonesia. Instead, encourage integrated pest management and biological controls.

6.1 Challenges in Indonesian Land Reform

Historically, increasing rural prosperity through land redistribution in accordance with Government Regulation (PP) No.224 Year 1961 regarding the *Implementation of Land Redistribution and Compensation* has been difficult. Major challenges include the gap in land use controls, land availability and conflicts, ineffective or irrelevant regulations, lack

of comprehensive field data on land-reform, and rejection of compensation by land owners whose lands are subject to the land-reform provision.

Gap in Land Use Controls

As pointed out by internal BPN research (Background Paper ARP), field experience indicates gaps in the control of agricultural land ownership. This gap has widened due to macro economic policies that stressed growth and increased productivity. Data indicate that 43% of "land poor" rural households (landless and farmers with the control less than 0.1 ha) only control 13% of the total agricultural land, while 16% of the "land rich" rural households (farmers with the control more than 1 ha) control almost 70% of the total agricultural land[37]. Agrarian policies have not focused on the restructuring of small-scale rural production assets but rather on increasing large-scale agricultural output. As a result, small-scale production was marginalized and weak tenant farmers or farm workers, and poor farmers became poorer. This situation was exacerbated by the transformation of productive farmland to residential and industrial use, urban infrastructure and other non-agricultural land uses, increasing peri-urban land prices

To address this issue, a systematic farmland preservation program is needed that protects the most productive farmland - in most cases sawah, and develops effective land use plans and controls that are consistent with and reinforce existing laws and regulations.

Limited Land Availability and Conflicts

PBN staff indicates that since 1970, one a limited number parcels has been directly acquired pursuant to PP 224 of 1961. The main land sources available for redistribution by the State pursuant to article 1 sub-article d of PP 224 of 1961 includes land with expired, terminated or cancelled Right of Cultivation (HGU), and forest lands for which control had been transferred to the state and others. The availability and acquisition mechanism of this land must be clarified. This ambiguity has also resulted in an increased number of land conflicts between "small" farmers that need *essential land*, the non-

[37] Central Statistics Bureau, 1993 Agricultural Census.

agricultural sector, and plantations with HGU rights, intruded by community members that start cultivations, whether or not abandoned or which HGUs rights expired.

Unrealistic Legal Provisions

BPN staff indicates that some of these issues had been anticipated by the promulgation of direct and indirect laws and regulations on land-reform, namely Law No.1 Year 1958 regarding the Abolition of Private Lands, Law No.2 Year 1960 regarding Profit Sharing, Law No. 5 Year 1960 regarding Basic Agrarian Law (UUPA), Government Regulation in Lieu of Law No. 56 Year 1960 regarding the Determination of Agricultural Lands, Government Regulation Number 224 Year 1961 regarding the Implementation of Land Redistribution and Compensation, Government Regulation No. 41 Year 1964 regarding Amendments and Supplements to PP 224 Year 1961, Government Regulation No.4 Year 1977 regarding Ownership of Absentee Agricultural Lands for former Civil Servants, and other laws and regulations. The implementation of such laws and regulations was compromised for various reasons. The land-reform program during the period of 1961 - 1965 may be considered as a "failure" because its provisions were not realistic, while the administrative and financial conditions at the time were not conducive to successful implementation, In part, this was the result of an increasing rivalry between communist and anticommunist political forces, where the communists used the land reform program to obtain political goals.[38]

Unavailability of Comprehensive Land-reform Data

During the *New Order Administration*, the constraint was the Government's lack of political will and commitment (KPA, 2002) to implement land reform and lack of data and information on land reform either related to objects (land) or subjects (people) of land reform. Based on BPN data (source Central Statistic Bureau), during the period of 1961-2002, 1,770,444 Ha became the objects of land reform. Out of that amount, 884,954

[38] Rajagukguk, Erman (1995) *Hukum Agraria, Pola Penguasaan Tanah dan Kebutuhan Hidup*. Jakarta: Chandra Pratama

Ha have been distributed to 1,374,214 households. Therefore, there are still 885,490 ha available for land-reform from that period. However, there is no definite information as to the location and boundaries of such remaining land, particularly on land acquired in the 1960s. In 2009, BPN estimated that about 7 million hectares are available for distribution from various sources.

Refusal of Compensation by Owners

One of the most significant problems encountered in the implementation of land redistribution is refusal by landowners, whose land is subject to land-reform provisions, to accept the amount of compensation offered. They demand compensation in accordance with prevailing land market prices. BPN staff cites absentee land case of 51,400 m2 in size in Kuta Bumi Village, Pasar Kemis District in Tangerang regency, and other similar cases. The principle of "fair compensation" should accompany "public takings" for land distribution and arbitration is suggested in the form of a Board of Review and Arbitration to minimize conflicts and court challenges. Care should be taken that such boards are staffed (appointed membership, representing all stakeholders) in such a manor that its actions are objective, transparent, avoid conflicts of interest and potential corruption. It is also critical that land acquisition programs are adequately funded to offer fair compensation.

In Indonesia, it is clear that a transparent, restructured and complementary legal framework must be combined with an effective institutional framework to ensure effective implementation of agrarian reform. A successful effort will need strong political support and "ownership" by stakeholders.

6.2 General Guidelines for Indonesian Land Reform

It is suggested that a participatory approach is used to seek "buy in" from the major stakeholders and to build social and political momentum in favor of reform to overcome

potential opposition. Suggested operational principles, strategies and actions for such agrarian reform program are to:

- *Create a national land use planning and agrarian reform task force*. The primary task is to consolidate RI expertise and articulate clear goals associated with food production, rural development, the forestry sector, wildlife and ecosystem preservation, tourism, public works – all within the aim of developing a comprehensive, 10-year national plan that provides the framework for regional, provincial and local land use plans.
- *Raise public awareness* of the issues and potential solutions. A targeted public outreach campaign that addresses the issues of idle and underutilized land, potential for increased productivity, marginalized rural populations, social equity and the government's commitment to regional economic development and community planning. The *Central Theme* in this public message it *the need to increase productivity and welfare, while conserving natural resources, combating environmental degradation and restoring environmental quality*. Local communities, industry and mining are not only part of the problem, they are part of the solution and an active partnership should evolve.
- *Develop strong political and social support,* if not consensus. A systematic effort to work with other government agencies, under the umbrella of the outreach effort, above, to work with national, provincial and local authorities to seek support for the well-articulated goals and objectives of the program and, specifically, seek multi-institutional participation in its implementation
- *Create a sustained commitment from the President's office and the legislature* with funding based on a well-defined implementation process with clear timelines and goals. This should include the monitoring and evaluation criteria, such as discussed in Chapter 2.
- *Formulate and enact enabling legislation to provide institutional and political-administrative district mandates associated with agrarian reform that are well-defined, transparent and strongly endorsed*. This should include enforcement through social and legal sanctions.

- *Structure a dialogue with stakeholders*. After a regional agro-ecological assessment and land evaluation process – including evaluation of farming systems alternatives (see Chapter 2), the pilot areas for innovative land distribution schemes should be identified, together with the preferred characteristics of the Land Utilization Types (LUTs) (such as plot size, household parameters, cropping or agro-forestry system, etc). This permits the identifications of target group and broader stakeholders to invite for a dialogue that can be used to define the broader parameters of the agrarian reform program and the community develop components
- *Focus and strengthen the capacity of BPN*. A systematic effort should be undertaking to take stock of all internal capabilities and capacities, structure an internal task force to lead the agrarian reform initiative. Oversight can be provided by the *Management Board of National Agrarian Reform*.
- *Indentify essential program needs* and conduct a GAP analysis (steps to reach desired state) to prioritize investments by BPN to meet human and capacity needs and structure a institutional capacity development program to lead this effort
- *Develop pilot schemes to test land use alternative and land distribution program options*. Programs should reflect agro-ecological potential, community needs and preferences.

Experience suggests that successful land reform has some indirect effects by improving the governance system. That is, creating better arbitration mechanisms, guarantying the ability by the poor to exercise their rights, creating institutional accountability and installing checks and balances. The implied goal is to systematically address social equity concerns. As part of process, it is the obligation of the State and donor organizations in agrarian reform programs to follow the international human rights standards, beyond the "right to food" pledge. This includes the basic rights by people affected, including the obligations to *Respect, Protect and Fulfill*.

The obligation to *Respect* indicates that *"support to land reform should in no case result in further deprivation for women and poor people from access to and control over land,*

nor in the dispossession or eviction of ethnic minorities or tribal an indigenous people from the territory they traditionally occupy"[39]

The obligation to *Protect* refers to the notion that economic and social trends tend to weaken the security of vulnerable groups and thereby emphasizing the requirement to protect their customary rights against encroachment of the elite who tend to use formal legal arguments to make and rationalize their land claims.

The obligation to *Fulfill* encompasses the notion of meeting human welfare needs – the provision of food and basic needs - to those unable to provide for themselves as a result of a marginalized existence or from natural disasters or other causes. As such, policies should be adopted to assure that these needs are met. This issue has of course a more fundamental origin, namely the UN's Universal Declaration of Human Rights Article 25 par 1, to which the RI is a signatory, which states that:

…Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control..

[the Bahasa Indonesia version of the Declaration: … " Setiap orang berhak atas taraf hidup yang menjamin kesehatan dan kesejahteraan untuk dirinya dan keluarganya, termasuk pangan, pakaian, perumahan dan perawatan kesehatannya serta pelayanan sosial yang diperlukan, dan berhak atas jaminan pada saat menganggur, menderita sakit, cacat, menjadi janda, mencapai usia lanjut atau mengalami kekurangan mata pencarian yang lain karena keadaan yang berada di luar kekuasaannya" …]

A number of basic premises are offered to address the needs and realities of private land use in rural areas for agrarian reform. First, *small* land holdings provide the opportunity to a large number of households to have access to income opportunities, thereby addressing a major policy objective – social equity. Second, small and medium sized farms tend to be much more *efficient* in using (abundant) labor as input, thereby increasing the productive capacity of land as a scarce resource – increasing resource production efficiency. Third, as a development strategy, the strengthening of the small-

[39] European Union. 2004. EU Land Policy Guidelines: Guidelines for the support to land policy design and land policy reform in developing countries.

farm sector reduces per unit input cost, *increases outputs* and the associated opportunities along the value chain – increasing associated employment and income opportunities. Forth, left to its own, the current process of liberalization of imports and the increasing expansion and dominance of export commodities will result in the land concentration at the exclusion and deprivation of vulnerable households. Therefore agrarian reform is effective in *preserving the viability of small farming systems*.

As pointed out in the introduction, am agrarian reform program is a deliberate, long-term strategic initiative that seeks to restructure and revitalize the agricultural sector, with well-defined objectives, priorities, and constraints. It should involve the folloing major phases:

- *Phase I - Natural resources assessment to define the sustainable production capacity* of the land resource base. This involves a systematic assessment of the agro-ecological conditions in the potential target (object) area -- the complex of resources assets available for the production of food and cash crops and the provision of other goods and services, based on the *long-term agro-ecological capacity to sustain production opportunities*. This process involved the identification and evaluation of potential farming / agro-forestry systems options that represent potential land utilization types (LUTs) that could be *evaluated as small scale farm holdings an tested as prototypes in a pilot scheme* (including land tenure and land use rights options). This land evaluation process, as identified in Chapter 2, involves the careful matching of land use requirements with land capabilities and develops an *economic suitability map using prevailing cropping mix, input costs and product prices*. This process will result in the selection of the best land use options for an agrarian reform program and estimate the socio-economic benefits on a household and aggregate basis. The land use types can be spatially allocated based on agro-ecological zones variable and community development needs and opportunities, and translated in a comprehensive (local or regional) land use plan, in the following phase.

- *Phase II - Land use planning and zoning to promote economic development* -- the development of guidelines and regulations to *allocate land resources to sustainable land uses that are socio-economically viable and environmentally acceptable (and in harmony with the long-term agro-ecological production capacity)* This is the actual refinement of Phase I implementation, including the clarification of institutional planning and implementation mandates at the local, regency and provincial level.

- *Phase III - Land policy reform by restructuring land policies and laws to optimize tenure regimes and land rights to promote sustainable use*, *social equity and prosperity* -- the utilization of the land resource base to promote the optimum allocation of human, capital and land resources to promote household and societal welfare. The process of restructuring and consolidation of relevant laws and regulations is currently taking place under auspices of ADB funding in cooperation with BPN. Recommendations associated with this effort should clarify and facilitate operational agrarian and access reform, optimizing production opportunities for smallholders and landless agricultural workers.

- *Phase IV - Access reform to improve the conditions of land resource allocation* in combination with fixed and variable capital inputs, transportation, processing and marketing infrastructure to maximize profitability. Access reform should be based on improving the input availability (while lowering unit cost) of a parcel basis, and the associated commodity value chain and unit product prices, to increase net returns in a household basis.

This process is consistent with the summary as identified by BPN below (Fig. 6.1). Care should be taken that inventory phase includes both up-to-date land cover/use maps and the identification agro-ecological zones to permit land evaluation and the optimal land allocation for a given planning horizon. It is strongly suggested to evaluate land use alternatives in pilot project before larger land redistribution schemes are enacted. The process should be well-articulated, based on sound and transparent legal principles, reflect regional needs and production opportunities (using principles of environmental

sustainability and economic viability), involve careful land policy formulation and land use planning, and adequate public funding support as part of an agrarian reform program that is viewed as a national priority

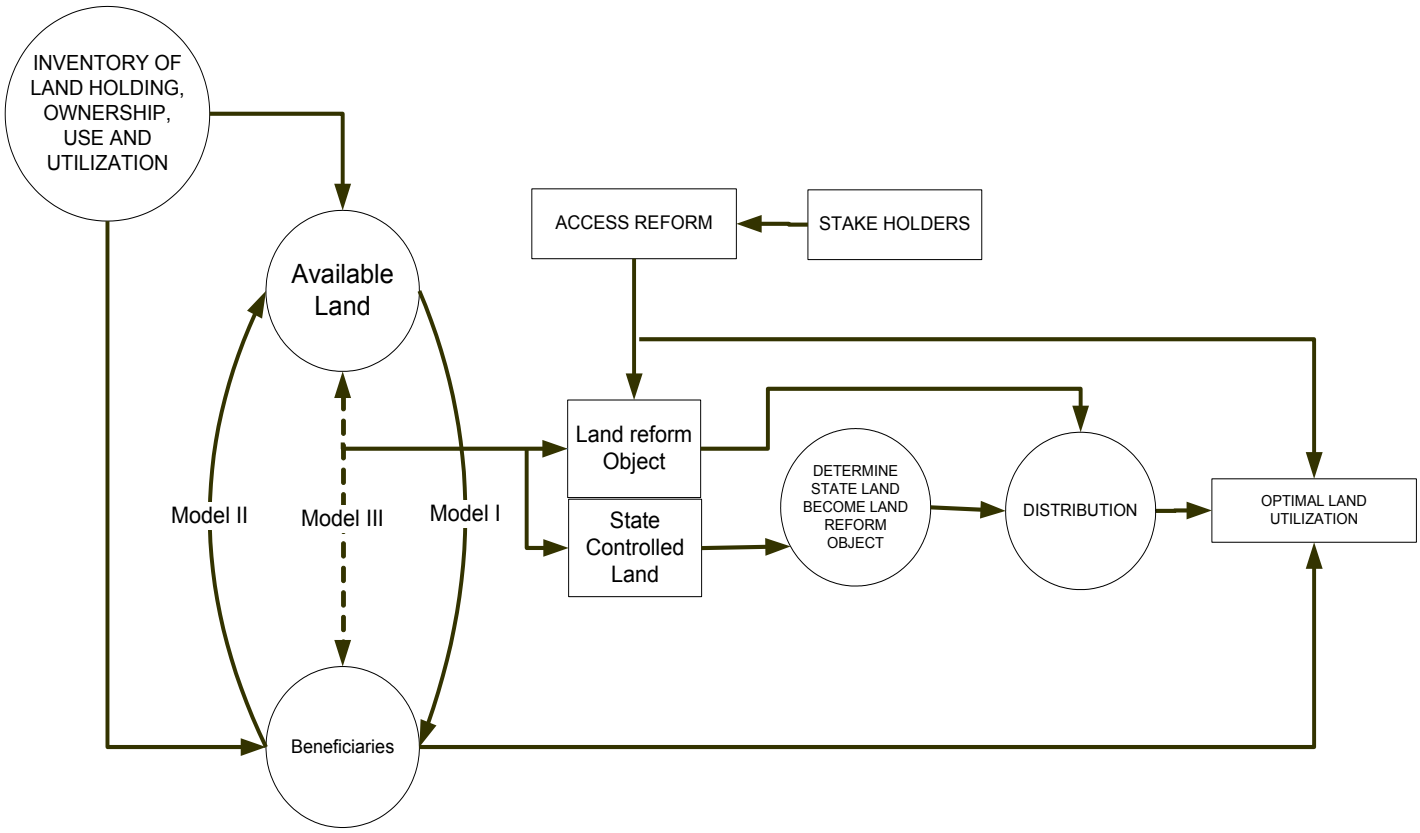


Figure 6.1 – General outline of Proposed Agrarian Reform Process as defined by BPN (2009).

6.3 Structuring Agrarian Reform

Three basic models are considered by BPN linking the land (Object) with the recipients (Subjects) (figure 6.2):

Model I – moves "land to the people" by making most land available in target areas by the purchase or expropriation of the land or use rights.

In all 3 models, land sources include “idle or underutilized” land, “excess” land, the maximum parcel size of depending upon the area under consideration, state-owned land (administered by various Ministries, including Forestry, Agriculture or Defense), and land acquired by purchase on a voluntary basis.

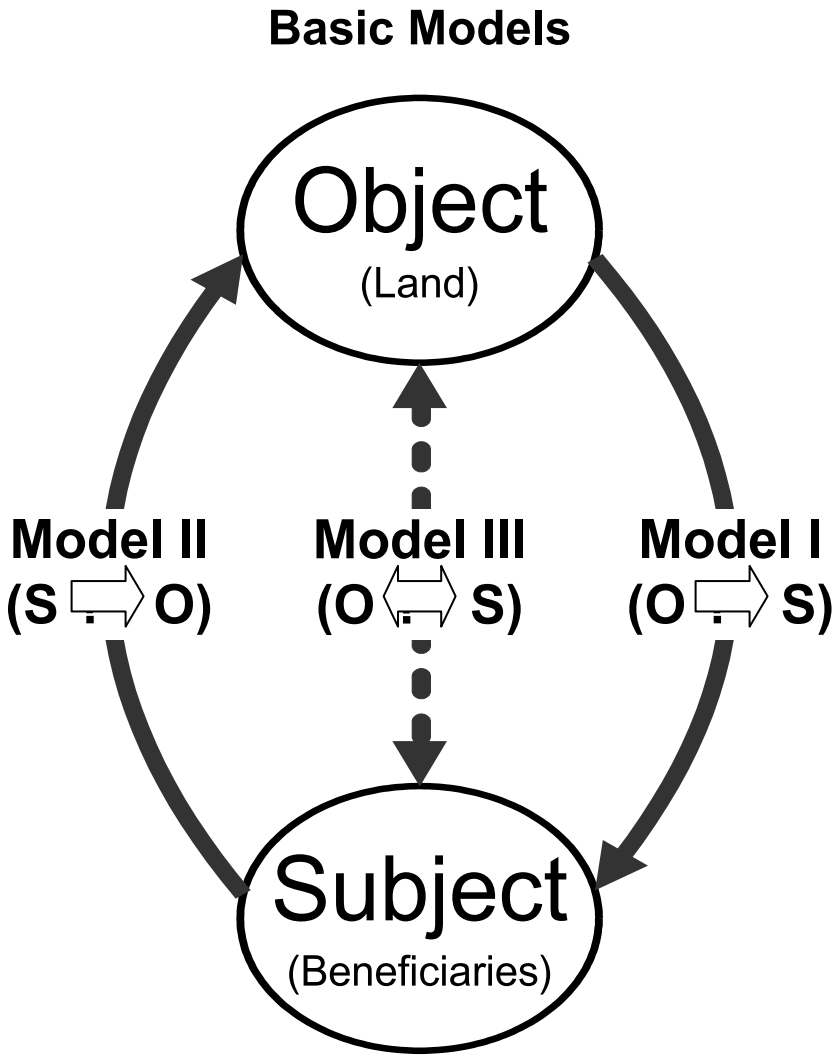


Figure 6.2 – Structural Models for Agrarian Reform

Model II - moves most people to land in target areas, like the transmigration programs in the past.

This option is fraught with potential problems. First of all, the relative cost is high on a per person/hectare basis in resettlement schemes. Second, many transmigration programs

failed because the quality of land was not suitable for the type of land use envisioned. Third, unless people are moved over a relatively short distance, many socio-cultural communal issues may arise, not at least the ethnic and language differences that hamper adaption. A significant factor in the failure of past transmigration projects was also the lack of comprehensive government support, specifically the availability of an adequate physical and service infrastructure - a prerequisite for successful community development.

Model III - is a hybrid, making more land available to the landless and small farmers in the target areas and communities where they live, and moving some people from outside the area to the existing target communities involved in agrarian reform.

This appears an attractive option in some cases because it builds on the existing community infrastructure and socio-cultural setting, while still permitting the expansion and allows for the adaptation of new citizens. In combination, it is likely to be the most flexible in adapting to local needs and preferences, while at the same time, permitting for a cost-efficient expansion of the physical and service infrastructure of existing communities. Such model could be crafted to provide communal ownership to newly allocated land while accommodating expansion opportunities for existing marginal farmers and land use right on newly available parcels to the new inhabitant. A careful community and extension support system should be designed and implemented (with adequate funding) to facilitate this adaption process by new arrivals and help ensure success.

6.4 Selecting Beneficiaries

The various criteria for selecting are identified in the schematic, below (Fig. 6.3). These criteria are already defined by law, but care should be taken to ensure that these criteria are clearly communicated to all stakeholders, are understood and (mostly) accepted to increase to likelihood of establishing successful programs, as measured by significant socio-economic benefits and minimal land disputes.

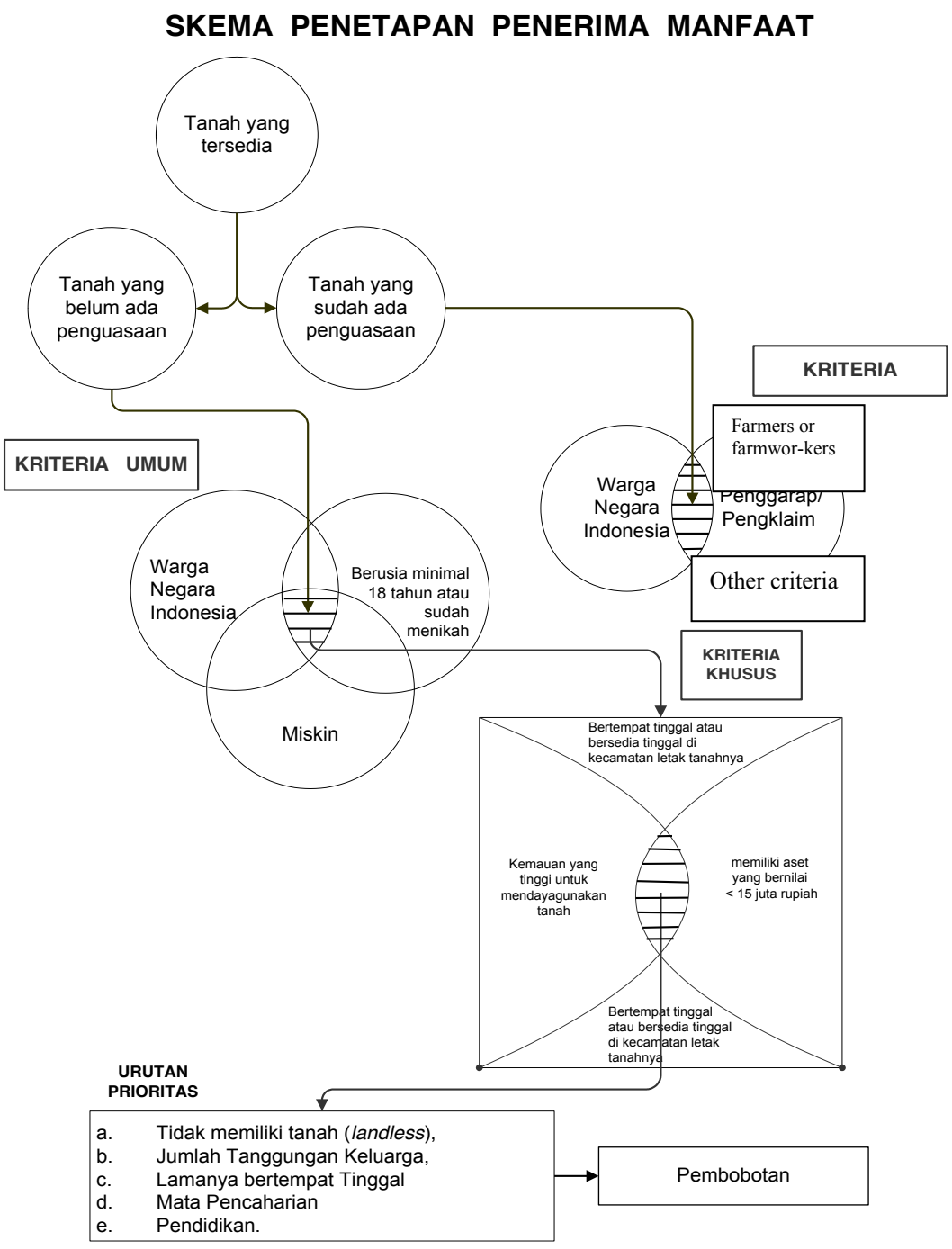


Figure 6.3 – Eligibility Criteria for Land Distribution (Source: BPN)

6.5 Procuring Land for Distribution

Below, (Figure 6.4) various means are identified for land reform acquisition for subsequent distribution to smallholders and the land less (mechanism to integrate Object [land] to subjects [beneficiaries]). Some land will come from private sources, other from public land currently under control by various ministries.

The various means (M1-M6) include:

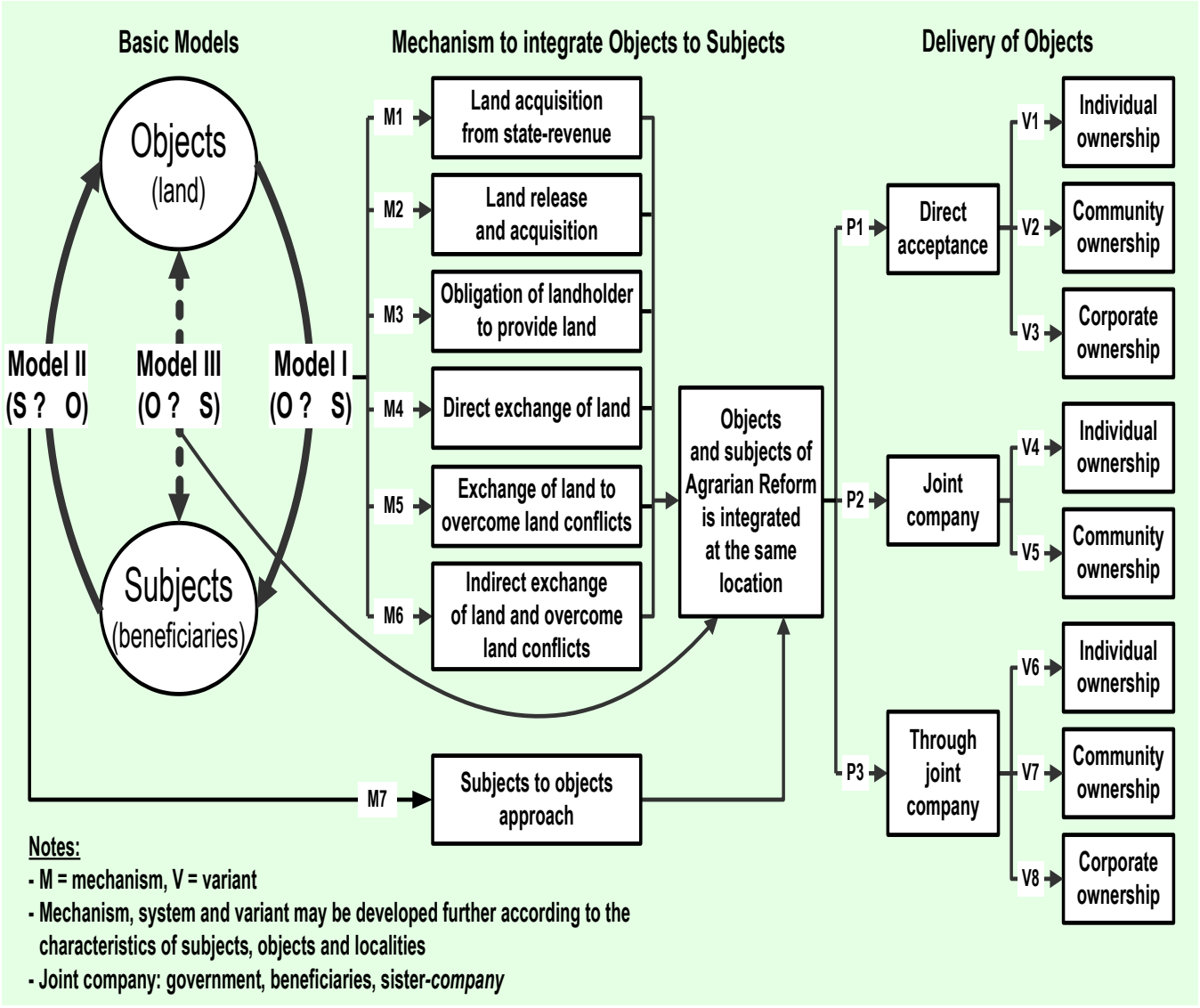


Figure 6.4 – Land Acquisition and Tenure Arrangements for Agrarian Reform and Distribution (BPN).

- *M1 - Acquisition of land by public purchase*. Presumably, this refer predominantly to the acquisition of ownership rights and the remainder to "use rights", where time-limited rights are involved. It should be clarified if these intended acquisitions are based on a voluntary exchange or on the basis of eminent domain, such as in the form of a legally enforceable government purchase order, with fair compensation to be paid using prevailing land market prices. This needs further clarification and may require the role of a local Board of Review and Arbitration to minimize land conflicts and potential court cases
- *M2 - Land release and acquisition*. Presumably this refers to land currently administered and released by the various ministries, such as Forestry and Agriculture. If this is the case, it should be clarified if a public exchange of funds also takes place or if this simply involves a public transaction where land is provided to BPN (and a local land bank) and for subsequent distribution.
- *M3 - Obligation of landholder to provide land*. Presumably this refers to absentee ownership, idle, underutilized or excess land using applicable legal ownership standards that make this land available for agrarian reform as part of exercising eminent domain. It should be clarified is fair compensation would be involved or a public "taking" without compensation. Here it would be important to clarify the specific laws and regulations associated with this "obligation" and communicate these widely to the local jurisdictions affected. This should also be combined with legal notices communicated by certified mail or signed hand-delivery to the property owners affected
- *M4 - Direct exchange of Land*. In many cases, differences in either the size of or the quality of land exchanged would call for arbitration if the exchange is not based on mutually accepted reciprocity. This may call for some arbitration mechanism and the role by an impartial Board of Review

and Arbitration with the authority to define enforceable terms of exchange, including financial compensation.

- *M5 - Exchange of Land to Overcome Land Conflicts*. In these cases a specific conflict exists based on different interpretations of property boundaries or use rights and associated benefits. Again, here the role of an impartial Board of Review and Arbitration should be established, with the authority to define enforceable terms of exchange, and to reduce the number of court challenges.
- *M6 - Indirect Exchange of Land to Overcome Land Conflicts*. Presumably this refers to exchange of other land (or parcels) not directly associated with the land dispute. The same role of an impartial Board of Review and Arbitration is called for.

6.5 Land Tenure and Administration Alternatives

As identified above (Fig. 6.4), BPN envisions a number of alternative tenure arrangements that will govern ownership and use rights. The alternatives listed as V1 – V8, reflect primarily the mechanism of the transfer of the land title (P1-P3 – direct transfer or via an intermediary step), and the final titles recipients (individual, community or private corporation). Based on BPN documentation, three beneficiary land tenure/right categories are envisioned:

- *Individual land rights* - land right controlled by individual ownership with unrestricted land use. Beneficiaries manage the land supported by farmers training to enhance production capacity, input (seed) assistance and access to capital and markets. Farmers may form a cooperative to jointly manage land, cooperate with state-owned enterprises or regional government-owned enterprises in the form of shareholders. Beneficiaries – individually or through a cooperative— may make land management contracts with any business or government entity.
- *Collective land rights* - collective control of land rights or joint ownership is intended to prevent fragmentation of land into separate individual ownership parcels. The land may be managed by a cooperative or business entity while

beneficiaries may work there. Businesses have the obligation to develop a plantation company and manage it and beneficiaries may work at the plantation company either in off-farm activities of on-farm activities. Beneficiaries – collectively or through a cooperative - may make management contracts with any business entity or government to manage the land. Beneficiaries may work at the business entity in on-farm activities, off-farm activities or management.

- *Business entity or cooperative control of land right***.** Control of land right is managed in the name of cooperative or business entity. Beneficiaries are shareholders and may still be employed at the cooperative or business. Beneficiaries basically manage land by themselves with assistance to enhance production capacity, providing seeds and access to capital and market facilities. Beneficiaries –collectively or through cooperative—may enter into management contracts with any business entity or government to manage land.

Generally, community land ownership is an option when combined with long-term individual use rights (households) for clearly demarcated parcels. The advantage is that it prevents land sale and speculation. The disadvantage of this option is that it tends to discourage long-term capital investments and is also more likely to discourage soil and water conservation practices with the potential for land degradation. Cooperatives, if not managed properly, can be a mix blessing, providing opportunities for collusion and corruption. *In general terms, complete certified private ownership combined with full rights has the highest likelihood to leverage inputs, conserve resources and increase productivity. In addition, land "ownership" is viewed as an important element is attaining social status in the community*.

To prevent land speculation associated with this land tenure option, clear title restrictions should be placed on the property, such as preventing the sale within a certain (e.g. 30 year) period, and only permit use for the same land use type unless a specific variance is provide by a planning authority and clearly reflected in the long-term development plan. It is essential to have this guarantee in place in the form of local land use plan to preserve agricultural land, promote the "compact community model" – associated with the efficient delivery of services as successfully practiced in towns and

villages in some European countries, and improve the community infrastructure while reducing per capita cost of service delivery.

6.6 Land Available for Distribution

Land to be distributed or redistributed shall primarily be agricultural land. It includes land in excess of the regional maximum limit, absentee lands, but also "other state lands" (as intended in Article 1 sub-article d of PP 224/1961). *It is essential to provide updated land inventories of these potentially available land categories for the target areas under consideration*.

The fundamental justice principle in agrarian reform that land be cultivated by the owners and benefits are more evenly distributed (Article 10 of UUPA) has, according to BPN research[40], increased the number of new absentee owners. The *notion of absentee land,* has become increasingly controversial in light of advancement in communication and transportation technologies. Consideration should be given *to replace the in-district residential qualification with a distance qualification*. In other words, it lack rationale to disqualify land owners that live, for instance 5 km from their land but in a different regency, while not disqualifying those who live for instance, 50 km away, but in the same regency. This distance criterion should also be adapted to various parts of the country because of the significant differences in regency size between Java and other provinces. *It would advisable to revise the national law to reflect this change, and indicate that absentee land ownership is determined, in part on a distance function as defined by regency land use plans, rather than use a standard criterion, country-wide*. (Note: RI Law excludes this distance requirement for land owners living "very close" or with "the ability to cultivate efficiently". This requirement is open to arbitrary interpretation and will be a source of land disputes).

The definition of "absentee" shall also be revised with respect to the "proof of residency" requirement. It should no longer be based merely on the identity card (KTP) issued by the Ministry of Home Affairs, easily obtained or falsified, but it should be based on the

[40] Parlindungan, 1982; Sumardjono, 1990, 2001; BPN Research and Development, 1991

primary residency location and time (.e.g. more than 50% of the 365 days per year) of the certificate holder. For example, if someone spends 185 days in a year in a certain place, this should be considered their residence. *Also, no household should be able to claim more then one principal residence for their agricultural land holdings*.

As example, the State of West Bengal, India, has the following provisions concerning absentee landownership:

a. The relevant person spends most of his time living in the area concerned,
b. The main income must be earned from the agricultural land concerned,
c. The distance between the relevant person's residence and land may not be more than 8 km.
d. The land has not been abandoned for more than 3 years,

The first 3 provisions reinforce the principles of justice and self-cultivation. The last requirement could be complied with by contracting cultivation with another party and may, therefore, not be relevant.

Based on existing laws, the maximum land amount to be distributed to increase farm sizes to 1 or 0.5 hectare is based on the population density. Land that can be used for land reform includes the following:

a. Excess land (private ownership over the maximum limit that varies from 5-20 hectares, depending upon population density and cultivation type – for sawah 5-15 hectares or for unirrigated or dryland cultivations 6-20 hectares) (note: *private corporate land ownership is not permitted in Indonesia, but corporations may receive use concessions (cultivation – "erfpact" for agricultural use) or permits (for logging and mining)*.
b. Absentee Land (see discussion, above)
c. Former sovereign ("Princedom") land
d. Land with Rights of Cultivation (HGU or "Erfpacht"), which have expired and are not extended (typically plantation land)
e. Lands under the Rights of Cultivation which are not cultivated in accordance with the allotment and purpose of rights granted

f. Lands under the Rights of Cultivation which are not cultivated and which have used by the people for more than 10 (ten)
g. Land with total area larger than the area recorded in the relevant Rights of Cultivation. (e.g recorded total may 100 hectares, whereas the actual parcel may be 150 hectares. Consequently, 50 hectares would be potentially available land distribution)
h. Lands under the Rights of Cultivation, voluntarily handed over by their right holders.
i. Former village salary lands and other lands of the like set forth in the conversion provisions of article VI of the UUPA
j. Former *gogolan* lands, particularly temporary *gogolan*, *pekulen*, *sanggan* (these categories reflect use rights or "erfpacht" provided to local citizens under the Dutch administration) and the like mentioned in the Conversion provisions of article VII paragraph (3) of the UUPA
k. Communal lands, the rights of which have been waived by the customary law communities.
l. Forest lands released by the forestry parties in accordance with the applicable laws and regulations.
k. Communal lands, the rights of which have been released by the customary law communities.
m. Naturally emerging lands
n. Lands other than the lands mentioned above, which will be further confirmed by the Head of the National Land Agency

The lands complying with the provisions in item d through n shall also become subject to land reform following the stipulation or confirmation under the provisions of the applicable laws and regulations. This implies that land defined under d through n will potentially be subject to land reform with further stipulation or confirmation by BPN under the provisions of the applicable laws and regulations.

The village salary (tanah bengkok) identified under i), above can be considered a local revenue source (from rent or products sold) and is used to pay compensation to local officials. This land can also be a significant source for land reform.[41] Such land may constitute 10% or more of the cropland in Central and East Java, (or about 300,000 ha). Here, *tanah bengkok* probably exists in a very large majority of villages, and such land is usually of good quality and located near the village. *A complete inventory of tanah bengkok, cross-reference by administrative district and agro-ecological zone would greatly assist in developing agrarian reform opportunities and priorities*.

Compensation for the acquisition of this local land could be in the form of additional national government support equal to the amount of local revenue lost and designated as salaries for local officials. Payment could be in the form of annual government compensation or in a lump sum deposited in a trust account and in the amount adequate to generate equivalent annual income based on the average interest rate over the last 10 years. Existing lease holders should receive special consideration in terms of land distribution or compensation for discontinuation of the lease arrangement.

Former village salary land can be used for land reform if the status of the village has changed from village to sub-district as part of land transformation or redistricting

Gogolan land, particularly the temporary ones, *pekulen*, *sanggan* and the like (land for which use rights – or "erfpacht" was provided to local officials under the Dutch administration), can be uses if landowners transfer their rights to the state. This land can then be redistributed to former holders of *gogol*, *pekulen* and *sanggan*.

One land category identified is "naturally emerging land". This presumably, refers to land formed by sedimentation in flood plains and coastal wetlands and becomes become state land. While unsuitable for rural residential use, this land may be made productive using reclamation techniques, including dikes and flood gates. Sources indicate that this flood plain land is quite extensive and becomes subject to land disputes. It would very

[41] See E. Rajagukguk, supra note, at pp. 271-72.

important to inventory land and evaluate its potential best land use, especially because coastal wetlands are critical habitat for fish spawning and other ecosystem functions. If it is decided which areas are suitable for cultivation, this lands can be subject to distribution using the standard criteria.

Another land category is "lands which can be further confirmed by the Head of the National Land Agency". This is a vague category and that makes land subject to acquisition by the Government or the Regional Government through the following processes:

a. Acquisition of Lands for public purposes,
b. Regular trading,
c. Barter, and
d. Revocation of rights

To avoid controversy and potential land disputes, it would be advisable to clarify under which circumstanced a "public taking", as described under a) or d) would be justified and permitted, and what compensatory arrangement should be made (e.g. land exchange, financial compensation, etc.)

BPN documentation suggests the following on the parcel size of land to be redistributed, depending upon the size of the land available and the number of qualified beneficiaries, a minimum parcel size for dry lands as 200 m^2, whereas for farms is 0.1 (1000 m^2) Ha. The argument is: …"*The 200 m^2 minimum limit for dry lands is based on the thought that the received lands can be used as residence and yard for agriculture business purposes in the context of increasing household revenues. The 1000 m^2 or 0.1 Ha minimum limit is based on the thought that the width of majority farmland possessions in Java has been below 2500 m^2 (0.25 Ha), while there are a large number of communities having no land (43% rural households)…*"

And …." *If a landreform object is a plantation land with still productive plants, it shall not be divided in its redistribution, instead, it shall be distributed for collective possession: on behalf of joint ownership or in the name of a cooperative, where the*

beneficiaries of land redistributions can form a cooperative to organize such plantation (DAR, 1988). Similar is the condition for fish farm.."

6.7 Prototyping Land Utilization for Agrarian Reform

To reach as many poor households as possible (about 5 million households on Java) and by taking into account the limited availability of lands for landreform, particularly on Java. Prosterman and Mitchell[42] suggest the land parcel size to be redistributed, as 300m^2 for use as a residence (small house) and yard ("small plot" or *pekarangan* – homestead garden plot – see also Chapter 2.6). The yard can be cultivated with plants that may significantly contribute to nutrition, income, and social status of poor households in rural areas. Yards that are intensively cultivated may contribute as much as 25% of the total household income (Mitchell, Prosterman and Safik, 2004). As discussed in Chapter 2.6, an integration of fruit trees, vegetables, livestock and fish farming has tremendous potential to maximize household benefits on very small plots. *It is suggested to set up pilot schemes whereby innovative agro-forestry options, together with livestock and fish farming are introduced at various parcel sizes, to systematically evaluate potential household benefits. These pilot schemes should reflect the diverse agro-ecological settings and opportunities, and local societal needs and preferences.*

Potential of Pekarangan as Land Utilization Concept

Prosterman and Michell elaborated on the concept of land reform on Java and specifically the potential role of *pekarangan*. They analyzed cropland figures and pekarangan (home-and-garden land),[43] referencing 5,132,000 ha of pekarangan in Indonesia, of which 1,736,000 ha are on Java.[44]

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[42] Prosterman, Roy and Mitchell, Robert (2002) *Konsep Land reform di Jawa*. Paper of Seminar "Rethinking Land Reform in Indonesia," Jakarta, May 2002.

[43] As indicated, the figures in sub-section (a) do not include land of agricultural estates, which occupy 16,543,000 ha in Indonesia, including only 620,000 ha on Java.

[44] Statistical Yearbook of Indonesia 2000, Table 5.1.1.

The relative distribution of pekarangan is identified below (Table 6.1) Thus, for Indonesia as a whole, 40.28% of households have less than 100 m^2 of pekarangan, 25.24% have 100 - 200 m^2, 11.72% have 200 - 300 m^2 and 22.76% have 300 m^2 or more.[45] It shows the distribution for the four provinces of Java.

Table 6.1 Size distribution of *pekarangan* land in agricultural provinces of Java (percentages of households that have *pekarangan* in the size groups shown) (from Prosterman and Mitchell, 2002)

	< 100 m^2	100 < 200 m^2	200 < 300 m^2	≥ 300 m^2
West Java	52.29%	25.00%	8.77%	8.95%
Central Java	27.50%	27.57%	13.20%	31.73%
East Java	34.52%	25.83%	13.33%	26.31%
D.I. Yogyakarta	33.51%	17.48%	14.61%	34,40%

Source: Hadi Susilo Arifin, "Study on the Vegetation Structure of Pekarangan and its Changes in West Java, Indonesia," doctoral dissertation for the Graduate School of Natural Science and Technology, Okayama University, Japan, March 1998, at Appendix Table 2 (citing 1995 Housing and Settlement Statistics, Indonesian Statistics Center Bureau, 1996).

They suggest that a poverty alleviation program for landless agricultural laborers as part of an agrarian reform scheme could:

...(1) purchase small amounts of sawah or tegalan located adjacent to the existing pekarangan land in each Javanese village; (2) rezone the purchased sawah (tegalan) as pekarangan; (3) divide the sawah (tegalan) into small plots; and (4) distribute the new pekarangan plots to the poorest families in the village…

and distribute it in 200m^2 parcels.

Using existing cropland, Prosterman and Michell also suggest that it would be practically impossible to distribute an average of 0.25 ha to just 50% of the 14,340,000 to farmer households who hold less than 0.5 ha of cropland or agricultural laborer households who hold no cropland. This would require 1,792,000 ha (0.25 ha x 7,170,000 families).

[45] Hadi Susilo Arifin, "Study on the Vegetation Structure of Pekarangan and Its Changes in West Java, Indonesia," doctoral dissertation for the Graduate School of Natural Science and Technology, Okayama University, Japan, March 1998, at Appendix Table 2 (citing 1995 Housing and Settlement Statistics, Indonesian Statistics Center Bureau, 1996).

However, with only 5,135,000 ha of cropland on all of Java, such redistribution would require the government to redistribute 35% of all cropland on Java.

They propose that a program of poverty alleviation, targeting the most vulnerable part of the population, could provide basic pekarangan to the poorest agricultural households on Java using sawah (or tegalan) converted land to pekarangan and redistributes 0.03 ha (300 m^2) of pekarangan to the poorest 5 million households in rural Java. They cite that research has shown that pekarangan produces 44% of total food calories, 32% of total proteins and 65% of fuel consumed by rural households.[46] If the land is instead used for intensive production of grain, research has found that irrigated plots as large as 400 m^2 can yield enough paddy rice to provide 40 - 60% of the basic yearly nutritional requirements for a family of four persons.[47]

As such, they expect that the distribution of pekarangan plots to the landless could produce enormous economic and social benefits, with modest land requirements. If 0.03 ha would be provided to 5 million households, it would only require 150,000 ha of land, or only 3% of Java's cropland. As example, they list the conversion of sawah to pekarangan with the Government paying an average of Rp. 100 million (US $ 10,000) per ha for sawah.[48] The acquisition of 150,000 ha would cost approximately Rp. 15 trillion (US $ 1.5 billion). If the Government implemented such a program over 5 years, the annual cost for the land would be Rp. 3 trillion (US $ 300 million).

Under this plan, the cost of land per family benefited would be approximately Rp. 3 million (US $ 300), which is about 1/10th of per family, and lower than the cost of the transmigration program. In addition, this scheme would require conversion of only 3% of the total cropland (exclusive of agricultural estates) on Java.

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[46] Soemarwoto, supra note; Leslie Brownrigg, "Home Gardening in International Development: What the Literature Shows, Including an Annotated Bibliography and Inventories of International Organizations Involved in Home Gardening Projects" (League for International Food Education, 1985)

[47] William Thiesenhusen, Tim Hanstad, Robert Mitchell and Erman Rajagukguk, "Land Tenure Issues in Indonesia" (report for USAID, 1997) at 38 n. 66.

[48] Based on BPN estimates and results of RDI April 2000 fieldwork in East and Central Java, the equivalent of $10,000 per ha is a reasonable price for sawah.

The following implementation principles (and reference notes in section 6.6) are provided by Prosterman and Mitchell[49]:

First, the land reform should give top priority to the poorest households, which are likely to be the seasonal agricultural laborer households that work for various farmers and have no permanent employment. In the earlier land reform, Article 8 of PP 224 of 1961 placed this class of agricultural family at the bottom of the priority list.

Second, the land should be distributed in small plots in order to benefit the maximum number of agricultural families. If the land reform described here were conducted on Java, it would potentially affect 75% of agricultural laborer families on Java.

Third, the Government should pay market value for the sawah (or tegalan) acquired for conversion into pekarangan. The land reform program to date has attempted to acquire land by paying less than market value, which has generated vigorous opposition to the reform.

Fourth, the Government must ensure that there is adequate financing for the land reform. To date, the State has not provided adequate financing for land reform, and the Government has paid for only a portion of the land acquired for redistribution.[50]

Fifth, as part of program monitoring and administration, the Government must ensure that it redistributes all land that it acquires.[51]

Sixth, the Government should not focus on excess land and absentee land, but should instead purchase land near the village. If necessary, the law can be amended to define the land reform as a "public purpose" so that the Government can acquire the sawah (or tegalan) by compulsion under the laws related to acquisition of land for public purposes. Because the new pekarangan should be located close to the existing village, the Government should acquire the sawah (tegalan) near the village. For this reason, it is not necessary to acquire such land only from excess owners or absentee owners. The Government should acquire the land located near the village, regardless of the identity of the owner or the size of the owner's total landholding. (The authors if this report, however, suggest keeping a locally-adapted and maximum size limitations in effect to avoid the risk of land fragmentation and loss of associated economies-of-scale. It would be advisable to define a maximum holding size (excess land threshold) per household to meet the unique needs of targets communities and reflect the variety in land use

[49] Excerpts and subsequent notes in this section from Prosterman, Mitchell and Safik, 2004, Land Policy Challenges in Indonesia: Final Project Report on the Land Law Initiative. RDI.

[50] Although the 134,558 ha for which the Government paid is only 9% of the 1,470,690 ha acquired for redistribution in Indonesia (according to data of BPN Directorate of Land Arrangement and Land Tenure, March 2000), it is not clear how much of the total was acquired from landowners (as opposed to state land, former land of princes, etc.).

[51] Of the 1,470,690 ha the Government acquired in the 1960's, it apparently distributed only 850,000 ha, which is 58% of the total acquired. It is not clear how that undistributed land is being used today. Perhaps the Government has granted it to plantation companies under HGU, or perhaps state enterprises use the land.

population densities among provinces and regencies. The currently maxima defining "excess land" may be too broad to reflect this differences)

Seventh, the land reform program should be focused on Java because that is where the poorest agricultural households are most heavily concentrated. As noted above, if the land reform program distributed pekarangan plots to 5 million agricultural families in Java, it could benefit three-quarters of Javanese agricultural laborer families.[52] *Five million families would represent approximately six times the 816,000 households on Java that benefited from the previous land reform*. (underlining by the authors of this report)

Eighth, the land reform program must be streamlined to avoid unnecessary processes and approvals. In the earlier land reform program, there were at least 15 institutions that had to approve applications to receive land, which indicates an enormously wasteful process.[53]

Ninth, the land reform program must be carefully monitored through independent sample surveys and Rapid Rural Appraisal interviews[54] *to ensure that it meets the program's specific goals. In this kind of program, and to the extent that any donor agency provides financing, it is entirely possible to use the funding only as the program actually achieves results. According to this approach, the financing should be released on a "progress payments" basis as monitoring confirms that the program has achieved each increment of progress in distributing land to families who are in the intended beneficiary group.*[55]

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[52] This assumes that all, or almost all, of the beneficiaries are agricultural laborer families.

[53] E. Rajagukguk, *supra* note, at page 94.

[54] In Rapid Rural Appraisal (RRA) interviews, rural interviewees are not responding to a questionnaire, but actively participate in a semi-structured interview. The researchers use a checklist of issues as a basis for questions, not necessarily addressing all questions in each interview and sometimes departing from the basic questions to pursue interesting, unexpected, or new information.

[55] The Government could perhaps consider a second approach for distributing new pekarangan land, which would be a "universal" distribution of additional pekarangan land to rural families. Under this approach, the Government would distribute new pekarangan plots averaging perhaps 200 m^2 to all, or nearly all, rural households on Java. Such an approach would take into account several additional factors that might make it a viable alternative to the program just described:

(1) This approach would eliminate the necessity of ensuring that an approach targeted to a smaller number of families -- for example, the "5 million" suggested above -- actually reached the poorest households and that the benefits were not diverted or "intercepted" by families who were wealthier or more powerful.

(2) This approach would take into account the fact that pekarangan can provide unique nutritional and ecological functions even for households that are somewhat better off, but that most of the essential open area of even medium-sized pekarangan plots has been lost in recent years due to widespread fragmentation through inheritance. Such fragmentation leads to building multiple houses on what had been a single parcel of pekarangan. See Hadi Susilo Arifin, supra note 45, at p. 85.

(3)Virtually by definition, such a program would reach all of the rural poor on Java.

If the Government were to distribute pekarangan to all 17.3 million agricultural households on Java, the program would require 346,000 ha (200 m^2 x 17,300,000 families). This would represent about 6.7% of the cropland on Java. While this would require more land and would be more expensive than the

6.8 Procedures for Land Acquisition

It is essential to identify the type of land (land qualities and potential) in the context of regional and local (population) needs and program goals and objectives. This requires:
(a) an inventory and evaluation of land available, including the agro-ecological zone properties, a general assessment of land capability, followed by a (socio-economic) suitability assessment using the land utilization types under consideration;
(b) potential obligatory public reporting (distribution of public notices and public meetings defining the land eligibility criteria as locally relevant, with compensation schemes and timelines); and
(c) engaging landowners to seek voluntary cooperation and compliance of all parties involved, including individuals, corporation, customary law communities, regional governments, and relevant agencies and ministries in the forestry, agricultural sector and mining sector.

Inventories should be conducted for broad target areas (selected based on socio-economic and cultural/political considerations) and include, topography, soils (agro-ecology), hydrology, current land cover/use and cadastral and land registration data converted to digital form, as relevant for the program to be conducted, and may be referenced by Village/Sub-district Committee-level. If such map sources are unavailable, detailed parcel sketch should be made to show the relative position of each land parcel. A land evaluation framework with objective analytical protocols (including exclusionary and suitability criteria) should be developed and implemented, resulting in a decision-support system for program implementation. These activities are not covered under existing government regulations (e.g. No. 224/1961) and will require dedicated BPN and cooperating agency funding and staff training.

Draft Government Regulations include the provision of obligatory reporting by landowners, and should be finalized into law. Failure to comply can be verified by the

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alternative described in sub-section (a), it is possible that such increased costs would be outweighed by the popular support for a universal distribution. Such a program would require approximately Rp. 34.6 trillion (US $ 3.46 billion) for purchase of land, or about Rp. 7 trillion a year if the Government carried out the program over 5 years. Cost of land per family benefited would be about Rp. 2 million (US $200).

spatial information collected and should be enforced at the risk of significant penalty. The provision for data collecting and its associated need and protocols should be included in the law and reflected into institutional mandates and funding. The Draft Government Regulation that includes provisions concerning "voluntary landreform"; the opportunity for farmland owners (individual or corporate), customary law communities, regional governments, and relevant agencies such as in the Forestry sector make land available for agrarian reform to BPN or the Regency/Municipal Committee, should also be included in Government Regulation No. 224/1961 or other laws an regulations.

6.9 Some Final Issues

A successful agrarian reform project requires a solid political and financial commitment. First of all it will require that the needs and potential socio-economic benefits are clearly articulated and conveyed to the legislature, media and the public, at large. Final agreement and decisions needs to be reached on program goal and objectives, priority targets (populations and geographic regions), timelines, institutional mandates and resource allocations.

Key program elements that need additional and specific articulation, a well-structured legal framework and implementation steps and timelines include:

- Formulation of overall mandates, financing and program budget allocation at the National agency, Regional and Local levels
- Identification of goals and priorities associated with agrarian reform initiatives an beneficiaries by province and regency
- Monitoring and evaluation procedures
- Prioritization and identification of potential land types and qualities to be acquired for agrarian reform
- Identification of the process, funding sources (potential cost-sharing with recipient and administrative districts) and allocations, and mechanisms for acquiring land for distribution
- Objective and transparent land distribution, registration and certification protocols, including specific tenure and land rights (and sales restriction) associated with individual land parcels
- Objective and transparent oversight (Agrarian Reform Committee and Review and Arbitration Board, and administrative protocols and appeals)
- Mobilization of cost efficient inputs, including micro credit, and value-added linkages (role of farmers cooperation, community and marketing organizations)

- Addressing implied land use planning and economic development
- Defining geographic priorities over time – and incremental funding scenarios
- Restructured, focused and transparent legal framework of applicable laws and regulations Identification of relevant socioeconomic, cultural and political constraints
- Identification of relevant socioeconomic, cultural and political constraints

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APPENDICES

APPENDIX A

BPN CORE COUNTERPARTGROUP – AGRARIAN REFORM/LAND POLICY

Firmansyah	Director of Directorate for Spatial, Parcel, and Boundary Determination
Budi Mulyanto	Director of the Thematic Mapping Directorate
Hermani Noor	Head of Bureau of Finance and Budget
Gunanegara	Head of Legal Center and Human Relations

APPENDIX B

Asian Development Bank Meeting - 18 May 2009

Name	Institution	Phone number	email
Naning Mardiniah	ADB	081584006015	nmardiniah@adb.org
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Gerhardus Schultink	MSU	(1)517-353-1903	schultin@msu.edu
Akhmad Safik	LMPDP/BPN	0818759452	safik@rdiland.org

APPENDIX C

List of Attendees BPN Needs Assessment Meeting, 19 May 2009

Name	Title and Institution
Bambang Eko HN	Land Registration and Land Rights Deputy
Firmansyah	Director of the Determination of Spatial and Land Border Directorate
Budi Mulyanto	Director of the Thematic map Directorate
Hermani Noor	Head of Bureau of Finance and Budget
Gunanegara	Head of Legal Center and Human Relation
Ruslan	Director of Policy and Program Stipulation Control
Sukesi S. Widosari	Head of Training and Education Center
Rukhyat Noor	Head of Data and Information Center
Sri Maharani	Head of Land Consolidation Directorate
Pelopor	Head of International Relation and Affairs
Gunawan Muhammad	Head of Organization and Procedures
Herman Hidayat	Head of Protocol Division
Sudjarno	Head of Sub-Directorate of Ownership Rights, HGB and HGU
Djoned Yulianto	Head of Sub-Directorate of Land Rights Boundaries
Rolly Akis	Head of Sub-Directorate of Land Parcel Information System
Ronny Kusuma Yudistiro	Head of Sub-Directorate of Spatial Use Rights and Water Resources
Rudi Rubijaya	Head of Sub-Directorate of Land Availability and Management
Trias Wiriahadi	Head of Sub-Directorate of Land Inventory and Land Reform Data
Made Ngurah Priatna	Head of Sub-Directorate of Land Policy Control Program
Husaini	Head of Sub-Directorate People Group Dispute
Suyus Windiyana	Head of Data System and Land Information Division

Nurhidayat	Head of Laws and Regulations
Hotman Saragih	Head of Plan, Evaluation, and Reporting Division
Gerhardus Schultink	Advisor BPN
Akhmad Safik	Project Assistant

APPENDIX D

List of Attendees meeting with the Directorate of Spatial Planning and Land Affairs, National Development and Planning Agency (BAPPENAS), 19 May 2009

Name	Title and Institution	Phone number	email
Deddy Koespramudya	Director of Spatial Planning, Management and Land Affairs, BAPPENAS		deddyk@BAPPENAS.go.id
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Edward Pasaribu	Staff of BAPPENAS	08129044220	epanangian@yahoo.com
Idham Khalik	Staff of BAPPENAS	081367787166	alik_bkl@yahoo.co.id
Sudarjanto	Advisory Consultant of the LMPDP	08128659716	jsudar@indo.net.id
Rolly Akis	BPN		
Firman Darmawan	BPN		soil_terran@yahoo.com
Gerhardus Schultink	LMPDP-BPN	(1)517-353-1903	
Akhmad Safik	LMPDP-BPN		

APPENDIX E

Work Schedule

No	Item	Due Date	Obligation
1	Draft Inception Report	End of May	Proposed Research Framework; proposed Schedule of Assignment; proposed location of research; brief initial study of current policy and key issues/problem related to land policy;
2	Initiative Meeting (Discussion of Draft Inception Report) 2x	First Week June	Minute of Meeting consists of inputs from BPN and other stakeholders
3	Inception Report	Mid-July	Agreed research framework, schedule of assignment, and location of research; and detail key issues/problems related to land policy
4	Draft Interim Report	August Week 2	a) Analysis of existing RI policies affecting agrarian reform issues based on literature study, field research, and personal discussion, in particular national policies, sector policies, and required cross-institutional cooperation that related to land. The analysis should result in the drafting of a concise and comprehensive review of current status and policies directions for the future; b) Comparative study of land policy from other countries; c) Proposed steps to solve key issues/problems related to land policy;
5	Discussion of Draft Interim Report 2x	August Week 3	Minute of Meeting consists of inputs from BPN and other stakeholders
6	Interim Report	Mid September	Agreed draft interim report
7	Draft Final Report	Early November	a) formulation of coherent and comprehensive guidelines and strategies for implementing the agrarian reform policy b) Operational proposal for a related NLA-RI Strategic Plan and Land Information System (LIS) in particular on agrarian reform c). Plan and implementation capacity building programs to strengthen technical capacity in related area.
8	Focus Group Discussion of Draft Final Report 3x	Mid-End November	Minute of Meeting consists of inputs from BPN and other stakeholders
9	Workshop of draft final report (if any)	Early December	Expose of Draft Final Report to related stakeholders
10	Final Report	Mid December	Agreed final report

APPENDIX F

List of Attendees of the Draft Inception Review Meeting, 4th Floor of Central BPN building, 25 June 2009

No	Name	Directorate
1	Budi Mulyanto	Thematic Mapping Directorate
2	Gunanegara	BPN Legal Center
3	Firmansyah	Director of LMPDP
4	Brahmana Adhi	Basic Mapping Directorate
5	Agus Wiyana	Land Use Directorate
6	I Ketut Suyartha	Land Conflict Directorate
7	Made Ngurah Priatna	Program and Policy Implementation Control Directorate
8	Retna Kustiya	Land Right Granting and Acquirement Directorate
9	Shinta Purwitasari	Land Right Granting and Acquirement Directorate
10	Agha SP Ekasaptadi	Legal Affairs Sub Directorate
11	Suyus Windiyana	Land Data and Information center
12	Sumarjito	Spatial, Parcel and Measurement Directorate
13	Normansyah	Land Registration Directorate
14	Firman D.	Spatial, Parcel and Measurement Directorate
15	Gunawan Sasmita	Land Reform Directorate
16	Akhmad Safik	LMPDP-BPN

APPENDIX G

Prioritization of Land Policy Administrative Issues as Identified in Qualitative BPN Staff Survey and Informal Feedback

Strategic issues identified by BPN staff for consideration in an Agrarian Reform program include:

- The still relatively low number of land parcels registered (while registration number increase, so do the number of parcels)
- Continued inequality among Indonesian peoples on land access, land ownership, including issues associated with land utilization and land use planning
- Many large scale areas with long-term land rights are neglected by the right holders
- A continued high number of land disputes
- Very limited regions for which detailed maps, including topographic base map, thematic maps (such as up-to-date land cover/use maps) , land value maps, and suitability maps exist
- Disharmony among laws and regulations related to land affairs and policy
- Limited access by people in remote areas to affordable land services
- The need for additional BPN staff training, staff recruitment and improvement of information infrastructure to upgrade the institutional capacity to meet public demand
- The role and need of regional economic development linked to land suitability and the regional comparative advantage (based on natural assets) and needs (based on population densities) to be addressed by regional economic development plans
- The continued transformation of highly productive agricultural land such as rice paddy to non-agricultural uses (estimated as 3 million hectares as a result of the implementation of current regional plans)
- The need to move from a basic regulatory framework to an action-oriented framework that included pro-active land use planning and land managment that harmonizes socio-economic and ecological sustainability
- The need for dedicated specialists on land rights issues to assist in effective dispute resolution
- The installation of electronic archival capacity to record, centralize and preserve land records
- Further studies on the impact of land certification on family prosperity

APPENDIX H

Recent BPN Agrarian Reform Projects

No	**Kabupaten/ Province**	**Number of Land Distribu-ted (parcels)**	**Total Area of Land Distri-buted (Ha)**	**Number of Beneficia-ries (households**	**Types of Access Reform**	**Types of Land Distribu-ted**	**Notes**
01	Purbalingga / Central Java Surakarta/Central Java	300 -	45.7432 2,300	300 -	- Slum area improvement	Former Land reform object (1960es) of former perdikan village -	Rural agrarian reform Urban agrarian reform
02	Blitar/East Java	12,001	1,919.46	7261	Community Development - road impr. - cooperative -animal husbandry	Former land reform object	Rural agrarian reform (in cooperation with regional govt and regional develop. Bank
03	Central and South Lampung /Lampung	6,300	3,905.76	5,708	-cooperative farming, farm management -private sector partnership -financing	-	In cooperation with Univ. of Lampung, Bank, State Plantation company, etc.
04	Asahan/North Sumatra	-	568	355	-	-	Deliberation between corp. and farmer mediated by BPN
05	Karangasem/Bali	-	444.121	322	Irrigation development (embung – water reservoir) -farming cooperative, financing	-	-
06	Kolaka/South East Sulawesi South Konawe/South East Sulawesi	2088 799	3,759.61 1,979.1	- -	Partnership between people and private sector -	- -	- -

07	Polewali Mandar, Mamuju, Majene/West Sulawesi	1700	-	-	-Irrigation -Cocoa plantation	-	In cooperation with Agriculture Office
08	Kutai Kertanegara /East Kalimantan	3150	-	-	Road infrastructure	-	In cooperation with office of agriculture, fisheries and livestock
09	Manokwari/West Papua	131	-	-	Road infrastructure	-	Cooperation with office of agriculture

APPENDIX I

Case Study Survey on Recent Land Reform Initiatives, including Land Sources, Recipients and Aspects of Implementation on Java, South Sumatra, Sulawesi (Celebes), and Kalimantan (Borneo).

The components below were identified to guide informal interviews with BPN staff, local officials and beneficiaries of land titling programs in the limited time available. These interviews and major observations are summarized in **Appendix K**

COMPONENT 1

Evaluate the sources and types of land in actual and potential agrarian reform projects (the objects) and its direct beneficiaries (agrarian land reform recipients)

Objective:	Collect information regarding a) the types of land used for agrarian reform, b) the issue of acquiring new land for agrarian reform, and c) the process used to identify and select agrarian reform beneficiaries
Interviewees:	Central, Provincial and Regency Land Office

- identification of categories of agrarian reform beneficiaries to receive land,
- identification of potential sources of land to be acquired for agrarian reform,
- description of the process of acquiring and distributing land.

  - Who should receive land in agrarian land reform (all farmers, very small farmers, agricultural workers, other poor families)?
  - What size plots should families receive (commercial size farms, small pekarangan plots, other)?
  - What type of land should the Government distribute in agrarian reform program (expired HGU, abandoned land, excess land, absentee land, privately owned land near village), and what compensation should the Government pay for such land (market value, standard value based on national average value of type of land, other)?
  - How much in total should the Government spend to acquire land and administer an agrarian reform program (in other words, how many families should benefit and at what cost per family)?
  - What are the typical crops grown and which other crops (include fruits and vegetables) would be considered

- What is the minimum number of families that should be part of an agrarian land reform program to allow for cooperative input purchase, sharing farm machinery, processing and marketing
- Should the recipient families pay for the land they receive?
- Should the recipient families be forbidden to transfer the land for some period?
- Is feasible to provide communal land title distribute land use rights to households or individuals?
- Who should hold the land title or use rights? The head of household, the man and wife?
- How should the title be transferred to the next generation? (father to oldest son, mother to oldest daughter, shared among children (resulting in shared ownership and cultivation rights on smaller parcels)

COMPONENT 2

Evaluation of BPN capacity to organize and implement agrarian land reform

Objective:	Collect information regarding capacity of BPN and any other related government agencies to conduct agrarian reform program
Interviewees:	Central, Provincial and Kabupaten land office and other land related agency officials.

- Jurisdiction/area of authority of office
- Number of office staff,
- Expertise/areas of focus for office staff (e.g., legal staff, land valuation experts, surveyors, etc.)
- Prioritization among activities/duties
- Budget/resources for various duties/activities of office
- Budget for agrarian reform program

Agrarian Reform Project

- BPN attitude toward the current agrarian reform program to this area
    - Is project of interest to BPN?
    - Does BPN office have sufficient staff and equipment?
    - Which resources are lacking?
- Who will participate in the agrarian reform committee (or other structure) that decides which families receive land in each province/kabupaten/village?
- Which level of Government should administer the agrarian reform program, and how can the agrarian reform program be streamlined to minimize delay and cost of administration?
- Who will monitor the agrarian reform program to ensure that goals are met?
- Which criteria will be used in this process?
- What is the expected impact of agrarian reform program on rural economic development?

COMPONENT 3

Evaluate implementation of access to capital for agrarian reform program (access reform)

Objective:	Collect information regarding actual and potential sources for financing the agrarian reform program to cultivate the distributed land
Interviewees:	Kabupaten Land Office, NGO and farmers

- Where does farmer obtain credit (formal or informal sources)?
- What are the prevailing interest rates for both sources and terms?
- Is collateral being used – if so, what type?
- If farmer has a land certificate, has he or she mortgaged that land?
- Is access to credit available? Source: Individual/Bank/Public or all
- Are alternative income sources available or typical?
- If credit is available, are there investment opportunities to diversify income sources?
- Are inputs readily accessible when financing is available? (seed, fertilizer, chemicals, etc.)
- Access to technical advice – effective extension service support?
- Is there market access for cash crops? (means of transportation, etc)
- Has farmer had experience dealing with the local banks? If so, for what services?
- Would farmer seek credit using land certificate as collateral?
- If so, from which source(s)? individual / commercial bank / government sources
- What would be acceptable terms for a loan to pay for inputs (typical amount, interest rate, repayment schedule)?
- Would farmer be willing to risk foreclosure?
- Would farmer be willing to borrow money to pay for land certification
    - If so, how much would he or she be willing to pay for the certificate?
    - If not, why not?
- How many urban land certificates issued by the office in last year?
- How many rural land certificates issued in the last year?
- Are these numbers similar to prior years or increasing/decreasing?
- Has farmer had any dealings with BPN?
- If so, how was the experience?

APPENDIX J

List of Attendees of the Draft Inception Review Meeting, 3th Floor of Central BPN, September 4, 2009

No	Name	Directorate
1	Irawan Sumarto	Basic mapping directorate
2	Nurhidayat	BPN legal center
3	Firmansyah	Director of LMPDP
4	Gede Ariyuda	Land right determination and regulatory directorate
5	Anyawangan K Dj	State land, neglected land and marginal land management directorate
6	Djoned Julianto	Spatial, parcel and measurement directorate
7	Hersubeno	Land conflict directorate
8	Hermani Noor	Head of BPN finance bureau
9	Peter Laarakker	LMPDP consultant
10	Normansyah	Land registration directorate
11	Trias Wiriahadi	Land reform directorate
12	Akhmad Safik	LMPDP Consultant
13	Agustin Samosir	LMPDP-BPN
14	Denisanto	LMPDP-BPN
15	Firmansyah Darmawan	Spatial, Parcel and Measurement Directorate
16	Arif Suhattanto	Spatial, Parcel and Measurement Directorate
17	Isa Suryo Astanto	Spatial, Parcel and Measurement Directorate
18	Reza Widya Satria	Spatial, Parcel and Measurement Directorate

APPENDIX K

List of Attendees of the Draft Final Report Review Meeting, in 3th Floor of Central BPN, December 4th, 2009

No	Name	Directorate
1	Risnarto	Chairman of BPN Center for Research and Development
2	Eka Sukma	Staff Director of LMPDP
3	Firmansyah	Director of LMPDP
4	Rolly Akis	UPK LMPDP
5	Syafwan Salbi	Land reform directorate
6	Sumardjito	Spatial, parcel and measurement directorate
7	Fatimah	Land conflict directorate
8	Hermani Noor	Head of BPN finance bureau
9	Suyus Windiana	BPN Center for Data and Information
10	Normansyah	Land registration directorate
11	Tansri	PTIP Directorate
12	Embun Sari	PPHT Directorate
13	Akhmad Safik	LMPDP Consultant
14	Denisanto	LMPDP-BPN
15	Pelopor	BPN Planning Directorate
16	Suardi	Land reform directorate
17	Agus Susmiyanto	Spatial, Parcel and Measurement Directorate
18	Reza Widya Satria	Spatial, Parcel and Measurement Directorate

APPENDIX L

CASE STUDIES ON RECENT LAND DISTRIBUTION PROJECTS

During the summer of 2009, the team visited various project sites (see this appendix). The visits included interviews with BPN staff, local officials and beneficiaries of the land certification programs. The purpose of these visits was to identify the relative success of programs and identify potential improvements for future initiatives.

Major observations and recommendations include:

- A need to establish clear records and maps on existing and potential land available for distribution and certification
- Agrarian reform has largely been a certification of land distributed in the 1960s, occupied subsequently, and somewhat limited in scope and impact
- New and systematic agrarian reform initiatives are needed, combined with comprehensive access reform
- Consider designing a program based on systematic and transparent guidelines for the identification and prioritization of available land for distribution and clearly articulated selection criteria for beneficiaries
- Consider (temporary) sales restrictions on recently certified real estate properties to prevent or reduce land speculation
- Access reform should include formalized procedures and focused technical assistance related to micro-financing, input procurement, farm management, processing and marketing
- Technical assistance should be considered to help organize effective farmer's cooperatives with subsidies including start-up capital for micro loans, cultivation and value-chain development
- Niche markets for cottage industries should be explored and developed
- Homestead gardens (*Pekarangan*) should be explored as integrated and supplemental farming systems, including agro-forestry, livestock and fish ponds to provide additional income and nutritional benefits to marginal farmers

- Combine tax records and parcel descriptions (land survey) into one data base to facilitate property valuation, tax collection, land certification and land market transactions.

The Agrarian Reform Program in Bogor Regency

Bogor regency is one of the regencies within West Java Province. The total area of Bogor regency is 2.301,95 Sq Km, consisting of 40 sub districts (kecamatan), and 427 villages (desa/kelurahan). According to the Bogor Demography Office, in 2008 the population of the Bogor regency was 4,215,436 million people, consisting of 2,163,853 males and 2,051,583 females with a population density is 2,388.93/sq km. Main income sources are agriculture and fisheries (2,758,821 people), mining (197,059 people), industry (39,412), electricity, gas and water resources (3,941 people), building construction (236,470 people), trade (94,117 people), and services (114,294 people).

Figure K-1: Map of Bogor Regency

The land use distribution in the Bogor Regency is as follows:

1. Mixed garden (kebun campuran) : 84,766 Hectares
2. Rice field (sawah) : 55.348 Hectares

3. Dryland (tegalan) : 26,673 Hectares
4. Forest (hutan) : 45,355 Hectares
5. Housing/settlement : 20,843 Hectares
6. Plantation : 17,521 Hectares
7. Dry rice field (tadah hujan) : 10,547 Hectares
8. Similar types of forest land : 10,225 Hectares
9. Other : 1,000 Hectares

Implementation of Agrarian Reform Program

The Bogor Regency Land Office in cooperation with the Regional Government of Bogor Regency conducted an agrarian reform program in Jasinga Sub District (kecamatan) in 2007. The program distributed 2,426 Hectares of HGU land to local farmers, private companies, the Regional Government of Bogor Regency, village administration, research and development sites managed by BPN, and former plantation laborers. All land distributed has been registered and certified. The total land certificates issued for the distribution are 7,000 parcels - divided among 5,900 farmers or land user/cultivators - and 93 land parcels to others (see above).

The land distributed to the farmers of Jasinga was expired HGU land that was formerly owned by a private plantation company, PT. PP Jasinga. The total area of HGU land was 2,426.9279 Hectares, covering 10 villages of the Jasinga sub district. The 10 villages include: Jasinga, Pamagersari, Koleang, Pangradin, Curug, Setu, Tegalwangi, Jugalaya, Sipak and Kalong Sawah. The distance from the ex HGU land to the capital city of Bogor Regency is about 57 km or a 2-hour drive. Main use of HGU land was as a, still productive, rubber plantation. Other commodities include palm oil, mixed garden vegetables, dryland crops, dryland rice field (sawah tadah hujan). A small part is used for housing.

Jasinga Plantation was founded in 1923 with the cultivation of land as tanah partikelir (private land), in the same year converted to Erfpacht right (heriditary use right) and Eigendom No. 110-127 and Eigendom right verpanding No. 3092-3097 and 3214 in total

area of 3,326.05 Hectares that was initially managed by N.V. Cultuur Maatschappij Djasinga and finally managed by the company, Fa. Watie & Co, whose office was in Jakarta. Afterwhile, PT PP London Sumatera controlled the HGU land while the cultivation and utilization of land managed by the PT. PP Jasinga that was established under Notary deed of Mr. R. Kardiman No. 57 dated March 29, 1962, approved by Minister of Justice No. JA 5/114/2 dated September 27, 1962.

The HGU use right of the plantation expired in 1978. PT PP Jasinga changed its name into PT Jasinga Estate and proposed an extention of the HGU land rights and received extension approval under the the Stipulation Letter No. 57/HGU/DA/1978, terminating in in 1998, with the total area of land of 2,426.90 Hectares. This was at the same time when the Indonesian financial crisis affected the Indonesian economy, and followed by an abdication of the Soeharto Presidency on May 21, 1998. At that time, the situation was politically and economically unstable. Especially, as reflected in mass rioting in several cities throughout the country around May 15, 1998. Indonesia seemed to be in a power vaccum in the transition period between the fall of the Soeharto adminstration and the new Presidency of Habibie that had yet to settle in on a new administration.

In many provinces, the end of the Soeharto administartion was welcomed and followed by the occupation and "reclaiming" of many plantations by farmers who had been waiting for decades to take back what they considered "family land", illegally occupied by plantation companies, government or other legal entities. According to the former head of Setu village, the process of agrarian reform in Jasinga took several years. It was started by the heads and people from ten villages whose territory was part of the plantation area. It mobilized a people movement that sought to occupy and reclaim land taken many years ago.

The process started with group meetings and discussions. Letters with requests were send to the Regent of the Bogor Regency, indicating that an association of people and farmers from ten villages of the Jasinga sub district asked for the distribution of HGU land owned by PT. PP Jasinga to the people who had occupied the HGU land since it HGU right

expired in 1998. A response to the first letters to the Regent was not received. Subsequent requests finally were approved by the Regent, especially after the Bogor Land Office decided to implement an agrarian reform program. The former head of Setu Village indicated that the approval process was far from easy. While the petitioners were waiting a response from the regent, they organized a mass rally at the office of the Bogor regency to exert political pressure and seek public awareness and involvement.

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The group also met many times with the management of PT. PP Jasinga. Those meetings were very productive and resulted in the two parties reaching agreements, as follows:

1. Agreement between PT. PP Jasinga, represented by Mr. Boch R. Sersansi and the head of Koleang village (Mr. Sadeli represented the people of ten villages) to release 86 Hectares of HGU land to be redistributed to land users (penggarap) from Koleang village.
2. MOU between PT. PP Jasinga and representatives of ten villages in the Jasinga sub district about cooperation to utilize part of HGU land managed by PT. PP Jasinga.
3. Based of a land survey of state land of ex HGU land of PT. PP Jasinga by the West Java Land Office in 2001, 419.3185 Hectares of the HGU land was to be redistributed to people of ten villages of Jasinga sub district.
4. Written approval by the Director PT. PP Jasinga dated January 28, 2002, representated by Drs. HE Syukur Alwan, for the cultivation of ex HGU land of PT. PP Jasinga by people of the ten villages with a total area of 537.6777 Hectares.
5. Written approval on January 4, 2003 to release land rights by PT. PP Jasinga and provide 1.5 hectares of ex HGU land for a Setu village market.
6. Written approval by Mr. H. Tb. Adjenar Arifin, SE on behalf of PT. PP Jasinga dated January 29, 2003, indicating that the area of ex HGU land would be extended to 1,350.4147 Hectares, permitting people to cultivate 537.67777 Hectares, and agreeing in principle to transfer land ownership to the people.
7. Minutes of meetings dated May 12 and 18, 2005 stating that PT. PP Jasinga in principle did not object to the occupation and utilization by people of 419.3185 Hectares and 537.6777 hectares, respectively.

The agreements reached are summarized in the following table :

Table K-1. Location of ex HGU land distributed to users in the ten villages of Jasinga

Village[56]	Total area of released land (ex HGU land) /Hectares							
	Phase 1		Phase 2		Phase 3		Total	
	Area (Ha)	Number of land user	Area (Ha)	Number of land user	Area (Ha)	Number of land user	Area (Ha)	Number of land user
Koleang	63.2667	200	86	268	72.7367	132	222.0034	600
Curug	131.7129	374	-	-	125.000	382	256.7129	756
Tegalwangi	25.6122	294	-	-	120.00	219	145.6122	513
Jugalaya	102.7776	50	-	-	35.00	490	137.7776	640
Setu	7.1348	39	1.5	-	35.508	321	42.6428	460
Sipak	11.2048	91	-	-	44.00	309	55.2048	400
Pangradin	28.2888	170	-	-	42.00	430	70.2888	600
Jasinga	12.4587	102	-	-	37.433	149	49.8917	251
Pamagarsari	21.3550	90	-	-	16.000	160	37.355	250
Kalongsawah	15.5000	55	-	-	10.000	38	25.500	93
Total	419,3115	1,665	87.5	268	537.6777	2.630	1,044.4892	4,563

[56] The actual number of land users determined after field identification. Phase 1, 2 and 3 were the consensus phase on land transfer between PT. PP Jasinga and the people of then ten villages.

The Agrarian Reform Program in Pandeglang Regency

Pandeglang regency is within the Province of Banten. Previously Banten was part of West Java Province. Banten was officially separated to West Java Province in October 4, 2000 when the House of Representative approved the promulgation of Law No. 23/2000 Concerning the Forming of Banten Province.

The total area of Pandeglang regency is 274,690 Hectares or about 31.24 percent of Banten Province. It consists of 35 sub districts (kecamatan) and 335 villages (desa/kelurahan). The total population of Pandeglang regency is 1,139,000 people with 328,224 households consisting of 577,244 of males and 547,253 females. The population density of Pandeglang is 415 people per sq km.

In 2006, the 10 principal sources of income for people in Pandeglang were:

Agriculture sector	:	216,919 people (53.83%)
Trading, Hotel and Resturant	:	63,347 people (15.72%)
Transportation and Communication	:	34,857 people (8.65%)
Services	:	45,978 people (8,58%)
Industry	:	31,150 people (7.73%)
Building Construction	:	18,456 people (4.58%)
Mining	:	1,370 people (0.34%)
Bank and Financial Institute	:	1,128 people (0.28%)
Power, Gas and Water	:	363 people (0.09%)
Others	:	403 people (0.10%)

The distribution of land control / ownership by household in Pandeglang regency are ss follows:

< 1,000 sqm	:	26,756 HH (16.81%)
1,000-4,999 sqm	:	63,776 HH (40.08%)
5,000-9,999 sqm	:	36,347 HH (22.84%)
10,000-19,999 sqm	:	21,893 HH (13.76%)
20,000-29,999 sqm	:	6,219 HH (3.91%)
➢ 30,000 sqm	:	4,139 HH (2.60%)
Control no land	:	84,565 HH (34.70%)

Distribution of Land Use in Pandeglang Regency

1. Housing/Settlement : 10,049.40 Hectares (4%)

2. Corporation : 958.50 Hectares
3. Wetland agriculture (sawah) : 48,657.35 Hectares (18%)
4. Dryland agriculture : 95,192.45 Hectares (35%)
5. Forest : 110,719.80 Hectares (40%)
6. Grass/vacant land : 5,505.60 Hectares (2%)
7. Others : 3,606.90 Hectares (1%)

Below, a map of Pandeglang regency which many of its location in coastal area in the west side of Java island.

Figure K-2. Map of Pandeglang Regency

The Pandeglang Land Office has been actively registering land parcels.. The number of land parcels registered during the period of 1963 – 2008, is approximately 19.25 percent of the area. In the same period, about 104.710 Hectares or 38.12 percent of state land and

former adat land had not been registered. Table 2 below, describes the land registration accomplishment of Pandeglang Land Office in the last 45 years.

Table K-2. Total Registration of land rights in Pandeglang 1963-2008

No.	Type of Land Rights	Number of land parcel	Size (Sq m)
1	Ownership Right (Hak Milik)	64,755	357,139,233
2	Building Use Right (HGB)	3,053	32,533,967
3	Use right (Hak Pakai)	746	23,566,632
4	Management right (HPL)	1	50,000
5	Cultivation Use Right (HGU)	54	115,543,192
Total		68,609	528,833,024

Source: Pandeglang Land Office 2009

Pandeglang is one of the most active agrarian reform regencies (kabupaten) in Indonesia. The source of land is originally from the land reform program in 1960s. As such, most land that has been certified was already occupied by the beneficiaries and their families or had been transferred to others. This evidence can be found in the records of the Pandeglang Land Office that describes generally the size and location of existing or potential land. Existing maps are limited in their usefulness for the identification of land parcels. The table below lists the total area of existing and potential land for agrarian reform.

Table K-3. List of Size and Location of the Existing and Potential Agrarian Reform Land in Pandeglang 2008

No.	Site/Location		Total Area (Hectares)
	Sub District/Kecamatan	Village	
1.	Labuan	Ranca Teurup Labuan	1.8800 0.2175

		Sukanegara	14.8150
2.	Munjul	Kadumelati	22.7050
		Kota Dukuh	16.5296
		Angsana	862.0527
		Bojong Manik	32.7006
		Cikayas	122.9625
		Pasir tenjo	266.5126
3.	Menes	Tegal Wangi	8.0580
		Menes	0.4565
		Sukasari	24.0000
4.	Cigeulis	Ciseureuhun	2.192.5636
		Citeureup	2.132.8277
		Katumbiri	253.6700
		Telik Lada	114.1525
5.	Banjar	Citalahab	107.8339
		Cibogo	29.2000
		Medong	33.5503
		Banjar	0.5524
6.	Cimanuk	Gunung Datar	0.0680
		Sekong	3.6110
		Pala Anyar	1.6690
7.	Saketi	Sodong	9.2615
		Kadu Ronyok	10.1060
		Kadu Dampit	3.0825
		Majau	50.7423
		Langen Sari	150.4700
8.	Mandalawangi	Mandalawangi	4.9960
		Cikumbeun	5.7233
		Cikoneng	0.1125
		Kadu Pandak	2.5854
9.	Pandeglang	Kadomas	0.1955
		Pandeglang	0.3266
		Sukaratu	0.8210
10.	Cadasari	Kaung Cang	16.5000

		Sukajaya	1.0000
		Cadasari	1.4356
11.	Pagelaran	Surianeun	3.5000
		Pagelaran	55.6120
		Perdana	1.009.9650
		Cimoyan	267.6793
12.	Jiput	Pamarayan	7.0685
		Jiput	2.4950
13.	Cimanggu	Cimanggu	576.8325
		Cijalarang	258.9020
14.	Cikeusik	Cikeusik	8.950.370
		Parung Kokosan	217.0090
		Sumur Batu	616.6463
15.	Bojong	Cijakan	85.7749
16.	Cibaliung	Cibaliung	538.1502
		Cikadu	126.5495
		Citeluk	120.3000

Source: Pandeglang Land Office. 2008

Implementation Agrarian Reform in Pandeglang

The Pandeglang Land Office (Kantor Pertanahan Pandeglang) has been actively implementing agrarian reform (land redistribution and certification) since the program was initially announced by The National Land Agency (BPN) in the end of 2006. In 2007, the Land Office had completed several land redistribution programs in the Cibaliung Sub district. Total beneficiaries of the land redistribution program were 583 people. The land came from the land reform program in the 1960s, with parcels already occupied for more than 40 years and finally registered under the land redistribution program.

The Pandeglang Land Office has been continuing to implement the agrarian reform program in 2008 by increasing the number of parcels and beneficiaries of the program. The following table lists the location (village and sub district/kecamatan), total area, beneficiaries and total number of land parcels distributed.

Table K-4. Location, size of land distributed and number of beneficiaries of the agrarian reform program in Pandeglang 2008.

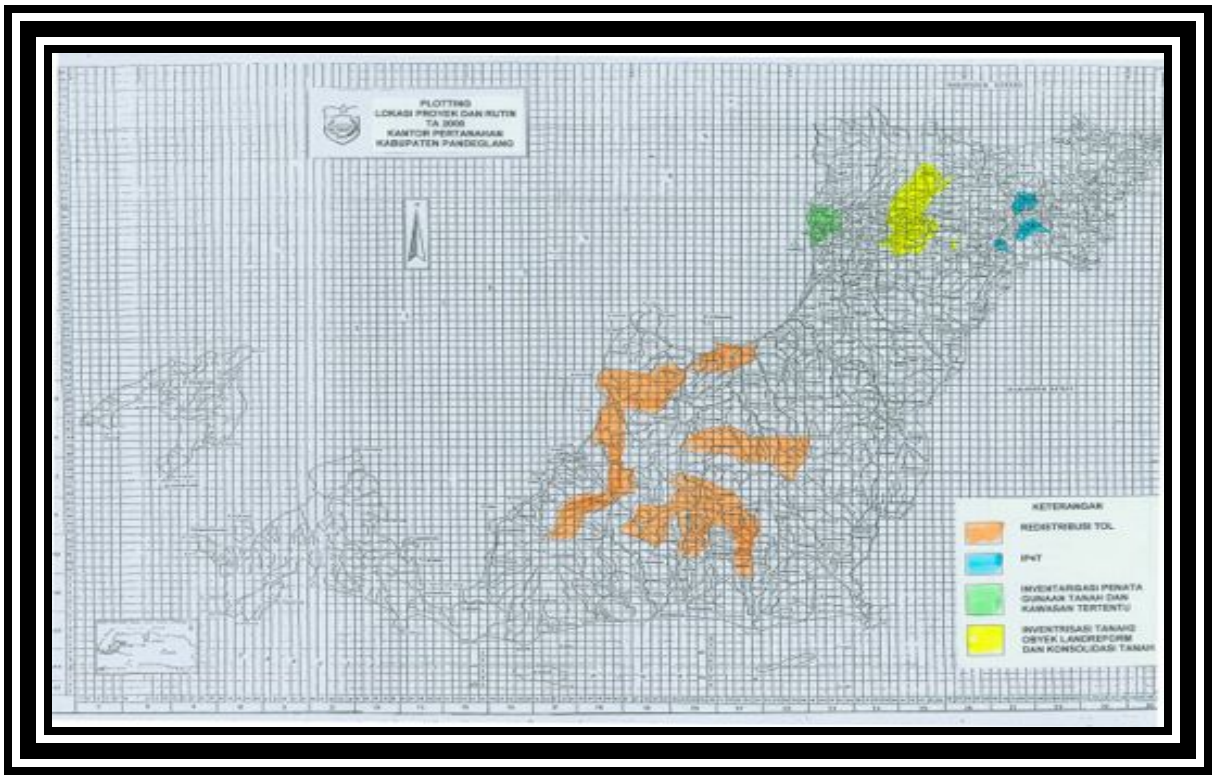
Village	Sub district/Kecamatan	Area of land distributed (Ha)	Number of land parcels	Number of Beneficiaries
Cibaliung	Cibaliung	180.0756	385	379
Mendung	Cibaliung	117.7202	451	451
Sorongan	Cibaliung	189.3813	300	300
Sukajadi	Cibaliung	79.0552	342	342
Mekarsari	Panimbang	47.7983	200	189
Cikadu	Cibitung	91.5951	201	201
Cimanggu	Cimanggu	398.7830	379	379
Ciburial	Cimanggu	111.3666	400	400
Sinarjaya	Cigeulis	317.6438	721	721
Banyuasih	Cigeulis	135.1854	501	501
Tarumajaya	Cigeulis	--	750	750
Total		1,668.6045	4,628	4,611

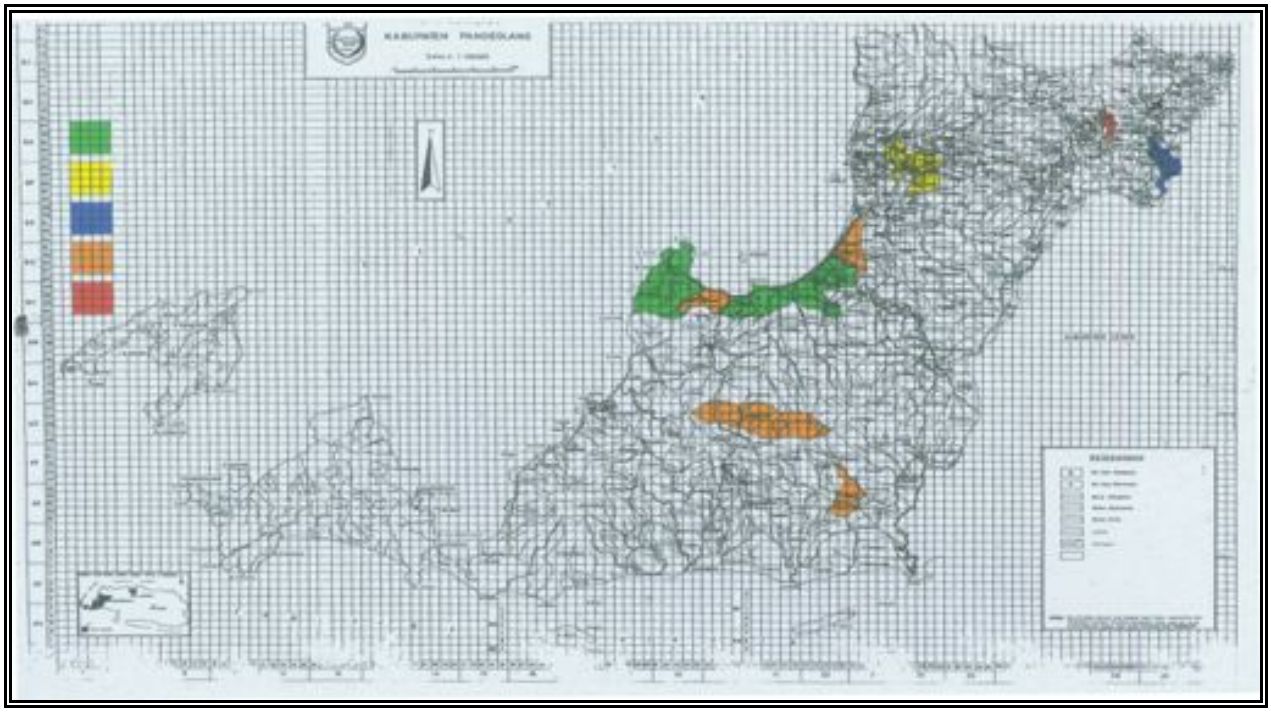
Source: Pandeglang Land Office, 2009.

Figures K-3 and K-4 (below) show maps with a general identification of locations.

After a successful land distribution program in 2008, the Pandeglang land office will conduct another land redistribution program for 2009. The program will involve five villages that can be seen in "orange color" the table below. The five villages where the site of agrarian reform program are as follows:

1. Cibungur : 240 land parcels
2. Sidamukti : 160 land parcels
3. Citeureup : 200 land parcels
4. Waringin Jaya : 200 land parcels
5. Suka Mulya : 50 land parcels





Source: Pandeglang Land Office, 2009

Figures K-3 and K-4. Location of Agrarian Reform Program in Pandeglang, 2008 (top) and 2009.

Types of Land in Agrarian Reform

The existing regulation on land reform, Government Regulation No. 226 Year 1961, determines several types of land for distribution. The five types of land are: absentee land, excess land, "partikelir" land (private land), ex princely land (tanah bekas swapraja), and other state's land.

Under this regulation, the Pandeglang land office has identified the land subject to land reform (certification) and distributed since the land reform program in 1960s, by examining any existing records in the Land office. After this, land surveys are conducted and parcels with measurements are recorded in the office. Further verification includes description of location, boundary, existing use, adjacent land, etc. At the same time, the office also verifies the legal status of the land title and the existence of previous title transfers and potential claims. After all necessary verification, the land is registered and a certificate of ownership is issued. This program, in fact, by its certification process, legalizes the land distribution (reform) and associated land ownership carried out in the 1960s.

Existing Use and Size of Distributed Land

One of the agrarian reform objectives is to increase the productivity of the agriculture sector. Currently, the production orientation of the agrarian reform program is still relevant and must be reemphasized further to attain its major goals. Furthermore, the agrarian reform program should define and implement the detail arrangements of a land reform program including the source of land and its beneficiaries. The National Land Agency has added important goals for the agrarian reform program, including the alleviation poverty and reducing unemployment in Indonesia. These additional objectives will change the design (land sources and qualifying beneficiaries) of the future programs.

The current implementation of agrarian reform in Pandeglang does not provide a clear definition of the qualifications of the recipients and the desired utilization of land. Findings also indicate that the primary type of land selected for distribution and certification varied in the absence of a clear definition by the Land Office. Many

beneficiaries are not really farmers. They may represent various professions and sectors and still can be certified as land owners. As example, the land certified includes various land uses in 2008:

1. Housing
2. Wetland (sawah/rice field)
3. Garden (kebun)
4. Pekarangan (Home garden)
5. Farming
6. Dry land.

Parcel sizes distributed are quite variable. The maximum size is about 2 hectares and the minimum size is between 100 sq m – 200 sq m. The number of land parcel distributed and registered for each family or person under the agrarian reform program various from 1-2. One is typical.

Access Reform

After land distribution and registration, access to financial and technical assistance needs to be provided. Without such assistance there is doubt that recipients can utilize the land to effectively improve their livelihood, long-term. In that case, they are likely sell the land to others and use the money for consumptive rather than productive purposes.

The National Land Agency anticipated the lack of financial and technical capacity and encouraged some ministries and private companies or banks to assist land reform recipients to utilize their land more productively. To address this need, the Pandeglang land office also coordinates with the Regional Government of Pandeglang Regency and related institutions, ministries such as the office of agriculture, office of cooperative and banking industries to help the beneficiaries of agrarian reform. This includes the facilitation of agreements and cooperation between the beneficiaries and any financial and technical assistance sources.

The Pandeglang land office in cooperation with the regional government of Pandeglang had been working on a national program on plantation, agriculture, forestry and fisheries,

since 2008. The program is financed by the central government and seeks to revitalize existing programs. related to plantations, agriculture, forestry and fisheries. Various decrees are passed for this purpose: a) Decree of the Regent of Pandeglang Regency No. 522/KEP.22-HUK/2008 Concerning the forming of an Advisory Team on Plantation Development, involving the head of the Pandeglang land office as member, b) Decree of the Regent of Pandeglang Regency No. 522/KEP.24-HUK/2008 Concerning Authority Delegation to the Head of Plantation and Forestry Office of Pandeglang to Determine Farmer recipients for Assistance of the Revitalization Program, and c) Decree of Head of Plantation and Forestry Office No. 525/246/HUTBUN/2008 Concerning the Forming of Technical Team on Plantation Development in Pandeglang, that includes the head of the Land Office as team member. This opportunity was used by the Head of Land Office to combine the revitalization program with the agrarian reform program.

The revitalization program provides financial assistance (soft loans) in an amount of IDR 20 Millions to participants who own about 1 Hectare of land and qualify for other requirements as determined by the revitalization team. Since one of the requirements includes a land certificate it gives the Pandeglang land office an opportunity to connect the revitalization program with agrarian reform. Two villages were selected to be part of the revitalization program and the agrarian reform program. Those villages are Tarumanegara and Sinarjaya village of the Cigeulis Sub District (kecamatan).

The Agrarian Reform Program in South Lampung Regency

South Lampung regency is located in southern part of Lampung province. The regency has total area of about 340,583 Hectares or 10.32 percent of total area of Lampung province. It consists of 24 sub districts (kecamatan) and 387 villages (desa/kelurahan). The largest kecamatan is Padang Cermin sub-district with a total area of 42,731 Hectares or 12.55 percent of total area of South Lampung Regency, while Way Sulan sub-district is the smallest kecamatan with 4,932 Hectares.

According to the Lampung Land Office (2006), the population in South Lampung was 1,230,784 people with 280,710 households that consist of 638,542 males and 592,242 females. The population density of Lampung in 2006 was 3.61 people/hectares. In 2008, the work force in South Lampung was 577,191 people with 54,859 unemployed, while in 2007, the number of people below the poverty line in South Lampung was 371,800 (26.94 %).

In 2007, the largest percentage of land in South Lampung was in agriculture, especially the use as mixed garden which covered 29.59 percent of total area of the regency. The second largest use of land was as dry land (tegalan) or 17.74 percent, followed by 16.38 percent of wet land (sawah/rice field) , 13.10 percent of settlement/housing, 10.49 percent of plantation, 8.67 percent of forest, 2.77 percent of other uses and 0.98 percent of fishpond or lake.

Generally, Lampung land and forest area are predominantly occupied by individual land owners with 70.97 percent of total area of the regency, followed by 5.14 of HGU land, 0.72 percent of Security and Defense Ministry's land (Hankam), and 0.51 percent of HGB. The rest is considered state land – with 11.73 percent of protection forest, 10.08 percent of permanent production forest, and 0.85 percent of natural protection forest.

In 2008, South Lampung was divided into 2 regencies: South Lampung Regency and Pesawaran Regency. Since the Pesawaran Regency Land Office has not been established

until the end of 2008, all activities of Pesawaran Land Office was still managed under South Lampung Land Office.

Implementation of Agrarian Reform Program

South Lampung Regency has many potential land sources for agrarian reform. According to data collected in 2007, there are 25,563 hectares of potential land originating from the conversion of forest land. The regency also includes land from the land reform program in 1960s. Currently, only 9,360 hectares are available for formal distribution although the land is currently occupied.

In 2007, South Lampung Regency Land Office redistributed (certified) 4,984 land parcels divided into 1761 land parcels to people in Pesawaran Indah village and 3223 land parcels in Wates Way Ratai village.The majority of these people are farmers who till the land and control on the average 0.3052 hectare in Pesawaran Indah and 0.5718 hectare in Wates Way Ratai. The main commodities are coconut, cocoa, and coffee.

In 2008, South Lampung continued the certification even though some villages that previously were located inside South Lampung became territory of new Pesawaran Regency. The following table summarizes this program (Table K-5):

Table K-5. List of Land Distribution in Pesawaran Regency, 2008

No.	Village	Beneficiaries	Number of Certificates	Number of Pekarangan	Number of Farm	Size (sq m)
1	BABAKAN LOA	605	1,000	217	536	3,166,091
2	BUNUT	481	650	181	469	2,962,507
3	BUNUT SEBERANG	508	700	219	481	2,979,871
4	GUNUNG REJO	1,022	1,300	840	460	3,190,882

5	HARAPAN JAYA	768	1,100	308	792	5,995,636
6	PAYA	246	347	112	235	1,490,137
7	PESAWARAN INDAH	676	737	132	605	3,840,053
8	SINAR HARAPAN	692	1,000	51	307	2,327,195
9	SUMBER JAYA	713	900	495	405	3,747,130
10	WAY URANG	257	353	116	237	1,531,690
11	WATES WAY RATAI	389	500	385	115	832,548

Source: Lampung Province Land Office, 2009.

The principal two land uses are cash cropping (commodities such as coffee, cocoa, coconut, etc.) and second, as *pekarangan* (home garden).

Access Reform

To follow up the land distribution (certification) program, the South Lampung Land Office helped organize and coordinate an access reform for beneficiaries by inviting stakeholders in land affairs in Lampung such as the Regional Government of South Lampung Regency and other institutions/agencies to assist in the following activities:

1. Institutional Access: The land office encouraged farmer in the area of agrarian reform program to form informal farmer groups and associations. This resulted in the establishment of 2 farmer group in South Lampung in 2007

2. Access to Farming Business: Farmers or group of farmer were assisted by the University of Lampung and PT Garuda Food Putra Putri Jaya to develop and improve their technical capacity in farming system manament.

3. Access to Technology: This was facilitated by inviting several stakeholders like the Agricultural Technology Assessment Agency (BPTP), University of Lampung and the Research Center for Cocoa from Jember, East Java.

4. Access to Capital: The Land office invited several banks, like the Bank of Indonesia, Niaga Bank, , Syariah BNI Bank and Syariah Mandiri Bank to meet farmers.

5. Access to Markets: The Land Office encourages land owners to cooperate with PT. Sinar Laju Abadi, PT GGLC and PT. Garuda Food Putra Putri Jaya.

Figure 5. Map of South Lampung Regency (Source: Lampung Province Land Office, 2009)

The Agrarian Reform Program in Central Lampung

Central Lampung is one of the regencies in Lampung Province with a strategic regional location and possibly the highest economic potential given its position between the inland region and the city in South Sumatra Island. Total area of Central Lampung is 4789.82 sq km that consist of 28 sub districts (kecamatan) and 293 villages (desa/kampong/kelurahan).

The people of Central Lampung can be divided into indigenous people (Kebuain Abung Siwo Migo and Pubian communities) and migrants from many areas of Indonesia. The

majority of Lampung's people came from Java Island. According to the Lampung Land Office (2008), the population in Central Lampung was 1,160,221 people, consisting of 593,746 males and 566,475 females. The population density of Central Lampung in 2008 was 242 people/sq km. In 2008, work force in Central Lampung was 540,678 people with 27,795 people unemployed with 263,000 people (22.06 %) below the poverty line.

Implementation of Agrarian Reform

Central Lampung Regency has also many potential land sources. According to BPN data collected in 2007, there were 15,347 potential hectares originating from forest conversion. The regency has also land from the land reform program in 1960s. Currently, only 1,384 hectares are available for distribution (certification) although the land is occupied.

In 2007, Central Lampung Regency Land Office redistributed 1316 land parcels divided into 800 land parcels for people in Sidorejo village and 516 land parcels in Sidodadi village.In 2008, the Central Lampung Regency distributed agrarian reform object in several villages as follows :

No.	Village	Beneficiaries	Number of Certificates	Number of Pekarangan	Number of Farm	Size (sq m)
1	SIDODADI	75	78	3	74	197,021
2	SIDOREJO	97	97	26	74	257,250

Source: Lampung Province Land Office, 2009.

The majority of people in Sidorejo cultivate corn on their dry land, together with cocoa, rubber, and palm oil, while Sidodadi villages produce commodities such as cocoa, coffee, palm oil, cocoa, etc.

Access Reform

The Central Lampung Land Office helped organize access by inviting stakeholders in land affairs in Lampung such as Regional Government of Central Lampung, the University of Lampung, the State-Owned Plantation Company (PTPN) VII, ASPINDO Lampung, PT Great Giant Pineapple Co (GGPC), PT Garuda Food Putra Putri Jaya, the

Agricultural Technology Assessment Agency (BPTP), Syariah BNI Bank, and Syariah Mandiri Bank.

Land Certification of Land Distributed in Jasinga Sub District (Kecamatan)

The land use associated with the land distributed and registered to people or institutions in the ten villages of Jasinga, are as follows:

1. Housing
2. Plan for housing
3. Mixed garden (kebun)
4. Bamboo garden
5. Rubber plantation
6. Cassava
7. Rice field (wet land/sawah)
8. Settlement
9. School
10. Public health service
11. Cooperative
12. Village administrative office
13. Sport field (foot ball)
14. Mosque
15. Official teacher housing facility
16. Agriculture
17. Cemetery
18. Public security station
19. Village land inventory
20. Badminton Sport field
21. Dryland agriculture (tegalan)

22. Religious center
23. Hamlet plan

Parcel size of land distributed

Parcel sizes distributed in Jasinga varied a lot. For individuals, the maximum of land size is around 1 Hectares or less. If the recipient is an institution or government entity, the parcel size is much bigger. According to former head of Setu village, the size of individual parcels received under the agrarian reform program depends on how much ex HGU land was occupied by each person. This typically means that someone with greater financial assets and ability to manage land receives a larger plot of land.

Resolution of land disputes

Consensus building on land distribution between PT PP Jasinga and people of the ten villages were not easy. Each party argued their position on controlling and utilizing the ex HGU land. PT PP Jasinga was in strong and documented position to legally control the land with the the opportunity to extend the HGU land rights. On the other hand, people of the ten villages had occupied and cultivated the HGU land for years while they argues that PT PP Jasinga actually managed only parts of the HGU land and did not cultivate all the land.

Under the agrarian reform program, the National Land Agency was a mediator between the two parties and sought to reach a "win-win solution" of this problem. Finally, and after a long, difficult deliberation between both parties, PT PP Jasinga and the people of the ten villages reached agreement as follows:

1. Consensus dated May 1, 1998 to manage part of ex HGU land by applying a polyculture (tumpang sari) planting system on 419 Hectares.
2. Consensus dated May 17, 2000 between PT PP Jasinga and Head of Koleang Village stated PT PP Jasinga releasing 86 Hectares of ex HGU land.
3. Statement letters dated January 28, 2002; January 4, 2003; and January 29, 2003 that allowed people of the ten villages to cultivate land and provide 1.5 Hectares of land for a village market in Setu village.

4. The three agreements above were improved and completed with statement letter of PT PP Jasinga dated January 15, 2007 releasing 1,038.2734 Hectares and providing for land cultivation in the ten villages of Jasinga sub district; 100 Hectares for the Regional Government of Bogor regency and 30.1565 hectares for an agrarian reform research site of the National Land Agency.

Access Reform

To address the problem of access reform, the Bogor Land Office coordinated help to beneficiaries for financial and technical assistance with the Regional Government of Bogor Regency. The nation was expressed that farmers and people who receive land must be proactive and actively looking for opportunities for financial assistance. In addition, farmers are also encouraged to establish farmers groups. After land distribution, small farmer groups have emerged in Jasinga, including the farmer group “Binangkit” of Village Curug, the farmer group “Poleng” in Jasinga village, and groups “lestari”; “harapan makmur” and “harapan maju” in Pangradin village and other villages.

The Agrarian Reform Program in Blitar Regency

Blitar Regency consist of a mountainous region including the Kelud and Butak mountains, and hilly terrain in the southern part of the regency. It also includes some flat and coastal land. According to the Statistic Office, the total area of the regency is 158,879 Hectares. Administratively, Blitar Regency is divided into 22 sub districts (kecamatan) and 248 villages (Desa/Kelurahan). 21 sub district had been established a long time ago but the Selopuro sub district was established in 1999, previously a part of Wlingi sub districts (7 villages) and Talun sub district (1 village). The 2000 population was 1,064,643 people, increasing in 2004 to 1,111,957 and in 2005 to 1,295,601, consisting of 657,012 males and 638,589 females. The population density in 2005 was 815 people/sq km.

Land Use in Blitar

Land use in Blitar Regency is dominated by agricultural with around 59 percent of total area of the regency or 97,340 Hectares. It consists of 35,442 Hectares of sawah (wet land/rice field), dry land (tegalan) 53,259 Hectares, and mixed gardens 8,659 Hectares. After President Suharto stepped down in 1998, many farmers and people of Blitar regency "reclaimed" and occupied plantation and forest land, converting it into new dry land agriculture.

Housing generally developed near the capital of sub district (kecamatan). Total area of housing in Blitar is 30,912 Hectares or 18,9 % percent. Plantation land is 12.74 percent or 20,747 Hectares. Because the land is fertile, many plantations developed in this regency. Currently there are 22 big plantation companies mostly located in the northern part of the Brantas river watershed. In 1999, 16 plantation companies faced land conflicts with local people. Among of them, only 5 plantation issues were totally resolved. .

The total area of forest is 12.74 percent or 20,747 Hectares. One of the main activities of Blitar's people is animal husbandry for beef or milk. The area is a main supplier of meat and milk for East Java Province.

According the BPN, 634,551 land parcels out of total area of 162,880 Hectares are subject to building and land tax (PBB). But only 183,393 land parcels (28.02 %) that have been registered and recorded in the Blitar land Office, with 471,198 land parcels or 71.98 % yet to be registered.

Implementation of Agrarian reform Program

The Blitar Regency Land Office has carried out the agrarian reform program for a long time. In 2007, land distribution was conducted in 5 sub-districts that covered 5 villages. The table below describes the distribution of land at that time.

Table K-6. Land Distribution of the Agrarian Reform Program in Blitar, 2007

No	Sub district (Kecamatan)	Village	Beneficiaries (Household)	Land Parcel	Size (Ha)
1	Gandusari	Ngaringan (1)	343	434	48.0836
		Ngaringan (2)	139	156	15.8726
		Gadungan	731	1,130	152.0474
		Sumberagung	391	655	89.4082
2	Selorejo	Sidomulyo (1)	266	311	57.4448
		Sidomulyo (2)	271	362	66.8262
	.	Sidomulyo (3)	181	222	29.5199
3	Doko	Resapombo (1)	266	454	78.8367
		Resamobo (2)	209	287	64.9473
		Resamobo (3)	225	320	57.7413
		Resamobo (4)	302	514	104.4860
		Resamobo (5)	205	309	68.1440
		Resamobo (6)	370	579	82.3870
		Kalimanis	437	713	114.7387
		Sumberurip (1)	579	1,019	202.0349
		Sumberurip (2)	488	798	178.2270
4	Panggungrejo	Balerejo	366	485	117.7971
5	Kesamben	Bumirejo (1)	178	284	40.1403
		Bumirejo (2)	132	188	33.1592
		Bumirejo (3)	474	751	99.7740
		Bumirejo (4)	739	1,222	176.9205
		Bumirejo (5)	36	36	4.9688

Source: Blitar Regency Land Office, 2009

Land distribution continued in 2008. The Land Office has distributed land to people in 5 sub districts and 7 villages. The table below details the location, size and number of parcel distributed.

Table K-7. Land Distribution of Agrarian Reform Program in Blitar 2008

No	Sub district (Kecamatan)	Village	Beneficiaries (Household)	Land Parcel	Size (Hectares)
1	Ponggok	Ponggok	85	97	14.8090
2	Ponggok	Gembongan	87	98	12.0535
3	Wlingi	Tegal Sari	325	380	53.3031
4	Nglegok	Kedawung	158	189	33.8501
5	Garum	Karangrejo	457	599	60.9863
6	Gandusari	Gadungan	62	74	7.8676
7	Gandusari	Ngaringan	16	16	1.1958

Source: Blitar Regency Land Office, 2009

The two common uses of land are agriculture and pekarangan.

Figure K-6. Map of Blitar Regency

The Agrarian Reform Program in Kolaka Regency of South East Sulawesi

The Kolaka regency is located in south-east Sulawesi and occupies and area from the north to the south of South East Sulawesi province. Kolaka regency has 6.918.38 sq km of total land area and 15.000 sq km of sea. It consists of 20 sub-districts (kecamatan) and 213 villages. In 1990, the population of Kolaka regency was 239.731 with a significantly increase over ten years to 323.329 people in 2000. In 2005. the Kolaka regency was divided into two regencies: Kolaka regency and North Kolaka regency. In 2008. The population of Kolaka regency was 281.450 people of 71.246 household with 0.9% of population growth rate, and consisting of 139.939 males and 141.511 females. Sector employment is 72.945 people in agriculture, 11.674 in manufacturing and 29.446 in the service sector.

Land use in Kolaka is summarized below:

Table K-8. Land Use in Kolaka Regency, 2008

oNo	Types of Land Use	Total area (Hectares)
1	Sawah (rice field)	18.163
2	Pekarangan (home garden)	23.158
3	Tegalan (dry land)	26.524
4	Ladang (dry field)	7.785
5	Grass	1.901
6	Temporary vacant land	9.880
7	People's forest	20.755
8	State's forest	419.382
9	Plantation	111.326
10	Others	41.338
11	Unplanted area	8.059
12	Other water resources	1.927
13	Fishpond	565
	Total	690,763

Source: Kolaka in Figure, 2009

The utilization of land resources in Kolaka can be considered less than optimum. The increasing in the area of sawah from 2007 to 2008 was very small, with in 2007, 17,613 Hectares and 18,161 Hectares in 2008.

Food crops produced in Kolaka regency are rice, corn, cassava, sweet potatoes, soybeans, etc, while plantation commodities include coconut, coffee, cashews, pepper, cocoa, cloves, ugarcane, tobacco, etc. Only six of these are commonly planted by private farmers, namely coconut, coffee, pepper, clove, cashew nut, cocoa and sago. Most of the land area is state forest consisting of five types of forest: regular production forest, limited production forest, protection forest, forest tourism, and production conversion forest. In 2007, the total area of forest was 517,775 Hectares, increased in 2008 to 621,027 Hectares.

The following figure is the map of Kolaka regency.

Figure K-7. Map of Kolaka Regency (Source: South East Sulawesi Land Office, 2009)

In the period of 2000-2008, the number of Stipulation Letter (SK) of land rights significantly increased. The SK is the evidence of formal ownership and required for people to register land. The SK is issued by the land office to grant new land rights for people or legal entities on original state land. In 2000, only 354 people or any legal entity

who owns Building Use Right (HGB) with total area 18,065 sq m. Ownership right is only owned by 2,608 people with a total area 8,259,161 sq m. In 2008 no person or institution received HGB and the number of SK issued were 5,155 or 38,662,500 sq m.

New Approach to Agrarian Reform Program in South East Sulawesi

Most land distributed originates from the land reform program in 1960s. Generally, the land was redistributed a long time ago but had not yet been yet registered. Land registration and title certification provides access to financial resources and technical assistance.

The South East Sulawesi Land Office primarily relies on the distribution of HGU land to people and provide businesses opportunities as a cooperative venture. The goal is to distribute land to people, provide financial and technical access to manage their land, and for businesses to assure a safe production environment with available of certified land that can safely be cultivated. The cooperation with business provide also access markets

The South East Sulawesi land office (Kantor Pertanahan Wilayah Provinsi Sulawesi Tenggara) began implementing agrarian reform program in 2007 when Mr. Doddy Imron Cholid was head of the office. He initiated cooperation between the office and PT. Damai Jaya Lestari (DJL) of Kendari by establishing agreement in the form of a memorandum of understanding (MOU) between BPN and PT. Damai Jaya Lestari. The agreement was signed by Mr. Doddy as representative of South East Sulawesi Land Office and Mr. Sudarjo Soemitro who represented PT. Damai Jaya Lestari. The agreement stated the both parties agreed to cooperate in a land certification program for the following ten villages in two sub-districts (kecamatan) of Kolaka regency :

1. Popalia Village of Tanggetada Sub district (kecamatan)
2. Tondowolio Village of Tanggetada Sub district
3. Oneha Village of Tanggetada Sub district
4. Lamoiko Village of Tanggetada Sub district

5. Puundaipa Village of Tanggetada Sub district
6. Polenga Village of Watubangga Sub district
7. Polinggona Village of Watubangga Sub district
8. Plasma Jaya Village of Watubangga Sub district
9. Kukutio Village of Watubangga Sub district
10. Langgosipi Village of Watubangga Sub district

There are program aspects included:

1. PT. Damai Jaya Lestari (DJL) as first party tasks BPN to arrange and conduct a land certification program to develop palm a oil plantation.
2. The number of land parcel to be certificated or registered is 2900 parcels.

The cost needed to register land parcel is IDR 534,000 for each land parcel, with a total cost of IDR 1,548,600,000.00 to be paid by PT. Damai Jaya Lestari. This is provided in the form of a farm loan.

The 2900 land parcels registered will be distributed to the people of ten villages The average size of land parcel is 1 Hectares. The agreement provides a direct cooperation between a private plantation company and farmers who need help in financial assistance in the productive management of their land. The cooperation is based on thousand of contracts between PT DJL and beneficiaries of agrarian reform program in Kolaka regency, while providing individual security and protection.

The following are operational aspects of the contract or partnership agreement between PT DJL and the people of Kolaka:

1. Mr. Soedarjo Sumitro, director of PT DJL represented PT DJL to sign any contract related to agrarian reform program in South East Sulawesi.
2. The contract period between PT DJL is twice the productive planting time or 50 years.

3. PT DJL will receive products from the land contracted.
4. PT DJL provides working capital working to start the cultivating palm oil.
5. Total amount of working capital working provided for each of 1 Hectares land parcel is IDR 24 Million, and considered a farm loan.
6. The cost of land certification is IDR 540 Thousands, provided as farm loan.
7. The administration cost and acquiring letter of ownership evidence cost are IDR 460 thousands and also considered a farm loan.
8. A sharecropping agreement that states that PT DJL will receive 60 percent of total production of land area contracted, while the land owner will receive 40 percent of total production of the contracted land.
9. The land owner pays the debt (working capital, cost of land certification and administration cost) in an amount of 30 percent of production of the 40 percent the contracted land areas monthly.
10. The land certificate will be kept by PT DJL during the period of loan contract.
11. PT DJL will return the land certificate after all debt is paid by the land owner.

Challenges

During the fieldwork, interesting facts emerged. In one case, the original owner already transferred land to other people. So the partnership contract to utilize land was made between PT DJL and the second land owners. Interestingly, the second owners were not local people, but people from other islands. Staff of PT DJL indicated that similar vents occurred and that many of the current land owners were not local people anymore. This issue needs to be investigated further. If a large number current land owners are not local, this means that the agrarian reform program may not achieve its main objective, namely to improve the long-term prosperity of local people and achieve social justice for marginalized people.

GROUP INTERVIEW ON ACCESS REFORM

TOPIC : LAND CERTIFICATION AND ACCESS REFORM
PLACE : WATES VILLAGE, KECAMATAN PADANG CERMIN, KABUPATEN PESAWARAN, PROVINSI LAMPUNG
DAY/DATE : MONDAY, AUGUST 3, 2009
TIME : 12:30 PM – CLOSING
(NOTES AND COMMENTS **(C)** BY SAIFUL HIKAM, Ph.D, DEPARTMENT OF CROP SCIENCES, UNIVERSITY OF LAMPUNG, BANDAR LAMPUNG, EDITED BY G.SCHULTINK AND BASED ON QUESTIONS TO THE FARMERS GROUP ASSEMBLED, CONSISTING OF ABOUT 30 PEOPLE)

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1. **Question**: How easy is it to get access to credits from formal or informal institutions after issuance of land certificates?

   Answer (given by Mr. Suprapto from Wates village): I have 1 hectare (ha) of rice field and 2 ha of cacao plantation certified. I borrowed money from the BRI bank of IDR50millions with an interest rate of 22.5% per annum. Yes, the certificates were accepted by the bank as the collateral for the credit.

   Comment: I think Mr. Suprapto took the bank credit of a multipurpose kind. Once given, the bank lets the borrower decide how the money is used. The multipurpose credit is commonly considered a consumptive one, the interest rate is (much) higher than the credit for investment. Usually, the interest for the multipurpose credit is 16 % per annum as compared to 6% for the investment credit. For agricultural activity, it becomes impossible for a single farmer to get the credit from the bank. The agriculture credit named KKP (*Kredit Ketahanan Pangan*, food resiliency credit), must be taken in group of 500 – 1,000 ha per unit. This KKP credit needs an *avalis* (guarantor) that is required to ensure that farmers cultivate the land profitably. Should farmer(s) be unable to pay back the loan, the *avalis* must take over the credit (s). For that, the *avalis* will charge the farmers as high as 40 % of the credit amount. Whether there is a legal regulation or contract concerning the *avalis* is not clear. The *avalis* is required by the bank since the fiscal year 1997/98.

2. **Q**: Comments on sales of crops?

   A: Sales are through middlemen. Price of cacao fluctuates from IDR 10,000 – 20,000 per kg and depends on the quality of the cacao seeds.

The middlemen are not fair in weighing and determining water content of the produce. Best price is obtained with a water content at 10 %.

C: The price of plantation products depends on international market prices. This is true for coffee, cacao, cassava, rubber, and palm oil. It is a common practice that the end traders are in Bandar Lampung, the capital city; and there are 2 – 3 middlemen involved. The trading between a farmer and a middleman is often tarnished by the practice of unfair weighing and measuring of water content. It is really hard, though, to achieved and maintain a 10 % water content at the farm level due to the lack of proper drying and storing facilities. This is worsened by the relative humidity in the tropics that is always higher than 86 %. In the U.S., for example, a water content of 15.5 % is considered sufficient in its climate of 49 % humidity. The University of Lampung (Unila) team tried hard (and continues to) to persuade varies parties (farmers, traders, and the local government) to use 13 % w.c. **or** process the cocoa seeds into cocoa-butter.

In addition, some farmers may have borrowed funds from the middlemen as part of a sales contract. While the commodity price follows the prevailing market price at time of the sale, high loan interests may become a burden for farmers.

3. **Q**: Is there community interest in other crops or livestock?

A: The main crops in the area are rice and cacao, but we grow coffee, coconut, and chili peppers but these of minor importance. Especially for chili-pepper, efforts to enlarge the acreage are hampered by limited land availability. We are interested in raising cattle.

C: In the 2007 – 08 project, the BPN and the Unila team invited Dr. Gunawan (a veterinary doctor and the supervisor for cattle raising of the Great Giant Livestock Company with about 20,000 units per year). The GGLC was the *avalis* for cattle raising in Kabupaten Lampung Tengah, another project site of the BPN), asking him if the GGLC could help farmers in Wates with the cattle raising. We were informed that it might be difficult for the farmers to raise cattle of Australian origin, as did the GGLC. It was also difficulty for the GGLC to supervise to provide advice given the 150 km distance. We were advised that the Wates farmers would be better off with raising local stock, but it was next to impossible to find *avalis* as responsible as the GGLC. Perhaps the BPN may support the farmers in raising goats instead after an intensive study on farmer competency and climate suitability.

4. **Q**: Any comment on the program from a 0.5 ha farmer present here?

A: My name is Muhartoyo from Wates. I was born here and inherited my land from my father. We still cannot make use of the pods of the cacao fruit. The pods are considered and treated as waste, though we are already taught by the Unila team to make animal feeds out of the pods. We understand quite well how to produce the feed but we do not have

the animals to be fed. Perhaps the BPN is willing to loan us some capital to make this a possibility?

C: To process feed out of cacao pods needs a tool to chop-off the pods which are tough. Since the farmers did not have the animals yet, I raised a question whether they could produce and market the feed. A big no was the answer. This is a good example how we, the Unila team, have failed to introduce opportunities to the farmer community. I think the 2007 – 08 program was mostly focusing on the idea of self-sufficiency.

5. **Q**: Could the farmers unify to obtain credit?

A: (No definite answers)

C: (see Comment on Q #1)

6. **Q**: Was there any farmer coop in the past? Do you have any interest in establishing a farmer coop?

A: There was no farmer coop in the past, but yes we like to have one. (Hikam tried to remind the farmers of the KUD (*Koperasi Unit Desa*; village-unit cooperation). We had had a KUD established in 1981 to help marketing cloves. Since the KUD did not involve the community, the response to the KUD was (very) low. The KUD management and marketing systems were not transparent.

Currently, some farmer's coops exist but the joint capital is very small, , less than IDR50millions (about $5000 per coop). The main activity of the coops is save-and-loan. If there is any possibility that the Government will support us with capital, we would be very happy. With that support, we would be able to help marketing the cacao directly, cutting out the middlemen. In addition, to buy the production of 2 ha of cacao the coop will need some IDR25millions per year ($2500).

C: Coops at the agriculture grass-root is a rather 'tricky' business because the bargaining power is never on the farmer side for exported produce such as cacao or coffee (they have Robusta rather than Arabica)[57]. The price is mostly stable until the word suffers severe frost in South America – and the price goes up quickly, but that is a rare occurrence and only for a short duration. Recently, Indonesia is criticized by international NGOs for 'destroying' forest areas for those crops. In 2008, a NGO claimed, on the internet, that 50 % of Lampung coffee is produced by converting forest areas. Such claim results in anxiety

[57] Schultink: Two basic coffees are grown: Arabica and Robusta. High quality blends consist of 100% Arabica beans. Lower quality, cheaper blends may have some proportion of Robusta beans, or they may consist entirely of Robusta. Arabica beans produce a superior taste, more flavorful and complex than Robusta. Robusta coffee trees produce their first crops within about two to three years after planting. Arabica trees require about four to five years to produce fruit (sometimes with a better quality under shade). Farmers sometimes grow the faster growing variety to take advantage of upswings in the price of coffee. Robusta coffee can grow under a wider variety of environmental conditions than Arabica. It is more tolerant to lower temperatures and, consequently grows well in a wider range of altitudes. Second, roasters buy the Robusta beans because they are generally cheaper than Arabica.

among exporters and affect pricing policy, resulting in lower prices. I have talked with a concerned coffee-exporting company head-quartered in Switzerland, and asked if the company is willing to comply with the Fair-trade and the Rain-Forest Alliances. Membership in these NGOs results in additional costs to the company and to teach their contracted coffee-farmers. During our dinner discussion last night, I learned that NESTLE is the long-time buyer for coffee produced in Way Kanan area, one of the areas with BPN certification programs in Lampung. Perhaps in the future the strategies of land certification (that means no more farming on forest land) together with complying with environmental issues under the supervision of buying companies will reduce such criticism and price will farm producers.

7. **Q**: Is it possible to have a loan coop run by the farmers?

A: It would face problems with available human resources due to low education level the farmers have and the government regulation on banking.

C: (no comment)

8. **Q**: On technical assistance by the Government, what is needed and provided?

A: We need assistances in (1) processing of cacao seeds to improve quality, (2) processing cacao pods for feed, and (3) low interest loans.

C: Especially in processing, it is a rather 'easy' task to do since what needed is only a simple fermentation process (I believe that the Unila team has taught it). However, the process is time consuming and requires cleanliness from the start: separating from the pulp, plenty of clean fresh-water to wash the pulp residue off the seed surface, a covered drying platform that is fly-free – all these aseptic conditions seem beyond the farmer's ability. In addition, cacao harvest is done every other day or once in every three days. This is a rather short harvest interval, *plus* the need for instant cash makes it impossible to ferment the seeds. The alternative is to provide the farmers as group (s) the skills and facilities to produce cacao butter (see C for Q#2).

9. **Q**: What other crops as options?

A: We have coconut, coffee (Robusta), banana, and chili-pepper but of minor importance. Actually we started with cultivating coffee and replaced it with cacao in 1990s. The reasons for the replacement are (1) better price, (2) harvest every week, not like coffee which harvest twice a year, and (3) lower management cost.

C: There is a potential danger in the way Wates' farmers plant cacao trees – too dense! Average density is 800 trees per ha (instead of 600 as recommended) some even have 1,200 trees/ha – no direct sunlight ever reaches the soil surface anymore. This makes soil fungi grow easily and uncontrollably and infect the trees and the fruits (this is happening now). When the trees grow older and bigger, they will

compete for soil nutrients. The Unila team has yet to learn how to tell the farmers about these risks because right now the short-term revenues outweighs the long-term risk. (We also figure that it will be more difficult to take out excess trees when they are much bigger than they are now).

10. **Q**: I would like to hear from someone else among you.
Mr. Teguh Warsito from Wates village responded to the invitation.

11. **Q**: How large is your land?
A: 0.25 ha. That is because I am a new comer. I moved to this village in 1995. I consider myself lucky to be able to buy that piece of land since even in that time land was becoming scarce here.

12. **Q**: What do you cultivate?
A: Corn.

13. **Q**: What is the purpose of cultivating corn?
A: To fulfill my family needs. It is not sufficient, though, but I have other businesses. My land produces 1.25 metric tons per ha at the selling price of max of IRD2,500 per kg.
C: I do believe that Mr. Warsito has opportunities to plant horticulture crops like chili-pepper, but he sees better opportunities outside agriculture.

14. **Q**: What do you think about receiving credit from a bank?
A: I farm with my own money, but in would like to ask for a loan from middleman on a *yarnen* (*bayar-panen*; paid with harvest) basis.
C: Mr. Warsito is an example of C for Q#2

15. **Q**: Are you still interested in getting the credit from the bank?
A: You bet!

16. **Q**: Why didn't you apply for the credit?
A: The procedure is too complicated and the interest rate is too high. I do not have any collateral for the credit.

17. **Q**: Do you think that you need assistance from the Government services?
A: Not really, since I was graduated from SPMA (*Sekolah Pertanian Menengah Atas*. Literally translated: High School in Ag. Sci – Vocational School in Agriculture)
C: Mr. Warsito's education level is the basic level required from a field extension service.

18. **Q**: So, you know all you need about agriculture?
A: In my opinion knowledge should come together with financial support.

19. **Q**: Anyone else would respond?
Mr. Kustama from Way Urang village volunteered.

20. **Q**: Do you have any experience to share from what we have discussed so far?
A: We have experiences on running a coop. The Kabupaten Government, Lampung Selatan, before it separated into a new kabupaten, Pesawaran, supported our coop in excess of IRD12millions. Nowadays,

we have increased our capital to IRD25millions ($2500). Our coop plans to buy cacao from farmers, but has difficulty because we do not have competent management.

C: Perhaps this case has to be considered carefully since in my opinion the coop would easily slip to become a middle-trader, for better or for worse. The Unila team advised such coop to help market the produce and for the farmer members to collect the cacao produce and trust the coop to market it. The coop would receive 25 % of the profit.

21. **Q**: In the case a coop member borrowsmoney from your coop, what is the interest rate?

A: Very low. A 2 % interest per month (others responded their disagreement since it means 24 % interest per annum, even higher than the BRI bank of 22.5 % interest per annum). Some of you may think that the interest rate is (too) high, however, all the interests receivable are reinvested to increase the coop capital.

C: It is a common practice that a coop would charge a 1 % interest per month for a payback duration of 10 months. Another 'weakness' of the coop, I would say, is the max amount one can borrow is IRD5millions – too small amount by today's standards, but hard to payback. The coop usually regulates the payback in term of equal monthly installments. This amount is prohibitively high.

22. **Q**: Any other remarks or suggestions?

A: (from Mr. Dwi Warsito from Gunung Rejo village). It is best for the Government to support poor households in terms of agriculture inputs, such as fertilizers, pesticides. In my village, there are 150 households altogether; among them are 100 households that have been classified as poor by the Government. And 50 households do not have land – they work as sharecroppers.

GROUP INTERVIEW ON ACCESS REFORM

TOPIC : LAND CERTIFICATION AND ACCESS REFORM
PLACE : SIDOREJO VILLAGE, KECAMATAN BANGUN REJO,
KABUPATEN LAMPUNG TENGAH, PROVINSI LAMPUNG
DAY/DATE : TUESDAY, AUGUST 4, 2009
TIME : 12:00 PM – CLOSING
(NOTES AND COMMENTS **(C)** BY SAIFUL HIKAM, Ph.D, DEPARTMENT OF CROP SCIENCES, UNIVERSITY OF LAMPUNG, BANDAR LAMPUNG, EDITED BY G.SCHULTINK AND BASED ON QUESTIONS TO THE FARMERS GROUP ASSEMBLED, CONSISTING OF ABOUT 25 PEOPLE)

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1. **Question**: After your lands were certifiied, how easy was it to obtain credit? What did you do to get the credit? Did you experience any difficulties to get the credit? What do you think about the interest rates?
   Answer (given by Mr. Suratno from Sidorejo, the head of Gapoktan (*Gabungan Kelompok Tani*; Farmer Group Unification): I would like to tell you my experience in tilling the land. We practiced a no-till in planting corn. We used herbicide and applied manure. The kernels we harvested were solely for feed that we sold to Japfa Comfeed (JC), a feed manufacturer. No-till was more profitable than tilled planting.
   My Gapoktan was loaned credits for the corn planting from BSM (Bank Syariah Mandiri; a bank regulated (supposedly) in accordance to Islamic laws (=*syariah*)). The JC introduced us to the BSM and was willing to be our *avalis* (guarantor) for the credits, for that we were grateful.
   No, the JC did not charge us any fee for being our *avalis*. We only had to sell the corn to the JC with the price at harvest time.
   Yes, the business between the bank and us was without a go-between. We received our money directly from the bank and paid back the credit also by ourselves.
2. **Q** (asked by Mr. Syarif, the head of BPN office in Kabupaten Tanggamus). In 2007 – 08 he was the head of BPN office in Kabupaten Lampung Tengah where this project was situated):
   Please tell us your experience with the other bank.
   A: In 2007, we were introduced to the certification and access programs. We met with a consolidated team of the BPN and the Unila (University of Lampung). We started a program of cattle fattening. We were introduced to a bank BNI-syariah and the GGLC (Great Giant Livestock Company). The GGLC was our *avalis* and took care of the bank credits. We received 4 stock-bulls of local Brahman, feed and feed-concentrates, vaccines and other medicines, and supervision for involved members; all for four months. Members involved had to build pens, plant grasses, and prepare in-family

laborers. Caring for the cattle required we obtained a 0.9 kg daily weight gain per bull.
The GGLC was the primary buyer. However, we could sell to other parties that offered a better price than the price we and the GGLC had agreed on. We paid our debt to the GGLC and kept the difference.
Total credit per member was IDR50millions. After 4 month, we profited about IDR4millions. (about $100/month).
But now we can go directly to the bank. We buy stock-bulls from the GGLC, prepare the feed ourselves, following practices taught by the GGLC and the Unila team. We already have grasses (green feed) but not the concentrate we buy from Santory (another cattle-feeding company, situated closer than the GGLC to the village, as discarded concentrate). Santory keeps the concentrate in pen-feeders only for 24 hours, then it is discarded. We sun-dry the concentrate before given to our cattle. (This practice is confirmed by Mr. Narsih, another Gapoktan leader)
We also have a new agreement with the BSM bank. The bank gives us credits for a 5-year duration, in which we are entitled to a 3-year grace period – in the first 3 year we pay only interest, at a rate of 0.9 % per month

C: For better or for worse, we witness changes. As background, from the start in 2007 the BPN (Mr. Sitanggang, former Head of Kanwil Lampung; and Mr. Syarif, former Head of Lampung Tengah Branch-Office) initiated a three-party work: the BPN, the Unila, and the private companies. In response, the Unila formed a team of 4 lecturers: Drs. Wan Abbas Zakaria (agric. socio-economist), Erwanto (animal-scientist), Saiful Hikam (agronomist), and Mrs. Yuni (agric. socio-economist; an M.S.). The Unila team worked in the 4 villages, pilots for the BPN project; Pesawaran Indah and Wates in Kabupaten Pesawaran, Sidorejo and Sidodadi in Kabupaten Lampung Tengah. The Unila team started the access reform (agric. and soc-econ. supervising) at the same time the BPN started the land registration and certification.
We initiated programs we call "empowering local knowledge". We made villagers realize what potentials and opportunities they have and they could make use of for these opportunities instead of asking support and subsidies from the government, like they used to in the past.
We started with reforming and reactivating the Gapoktan in each village. Within a Gapoktan, there are groups of farmers with the same crops; agriculture (rice, corn, peanut, cacao, coffee, rubber, and oil-palm), livestock (cattle-raising due to the fact that raising animal requires a lot less land than for cultivating crop, and (can be) more profitable, too. The ones we witness in Sidorejo are the first to start in all 4 villages, and fish-ponds (catfish; only in Pesawaran Indah and Wates having plenty of streams from their mountainous topography).
Through Gapoktan meetings, we tried, among others:

(1) To established working-links among farming groups to empower self-sufficiency and self-sustainability through recycling: wastes from crops → to animals → to fishponds → back to crops.

(2) To differentiate products to obtain better prices: cacao seeds sundried → fermented → making cocoa butter.

(3) To differentiate market-places especially for cacao: middlemen for small quantity → end trader for large amount from collective farmers → chocolate industries for cocoa butter. Or catfish: traditional market for live catfish → dressed catfish for super markets → fish fillets for export. (The BPN put a brand-new high-speed core2duo-Intel PC in each village and with an existing internet link in a cell-phone's modem, e-commerce (marketing) is a possibility. Two potential commodities, cacao and catfish exist, to go e-commerce. A young SPMA graduate lives in the village, who owned only a quarter ha of land, but as a SPMA-graduate, he can make use of the computer, including e-marketing

(4) To make cattle feed themselves utilizing crop waste. This works nicely in Sidorejo and Sidodadi. But in Wates, the villagers still want to know what to do with their cacao waste. Here we possibly stress too much self-sufficiency and self-sustainability, and forgot that that wastes was a potential commodity. Recent studies in the Unila proofed that coffee and cacao, as well as cassava wastes are good sources for feed-concentrate using only a simple fermentation with certain fungi. We may also start with making silage.

(5) Increase max credit of IRD50millions to IRD100millions per farmer for cattle-raising. This will double the profit since costs for in-family laborers and animal pens will remain the same. (The banks have not agreed on our proposal because the farmers have to fill-in and submit tax reports – that may be too much of a burden for simple farmers. We negotiated this with the bank, but the regulation is issued by the BI, Jakarta and needs to be implemented without exception).

The BPN was successful in finding private businesses willing to act as *bapak-angkat* (step-father) for the Gapoktan. The step-fathers would take care of the Gapoktan in financing, supervising, and marketing the produces. For example, the GGLC in cattle raising, the Japfa Comfeed in corn, Kacang Garuda in peanuts, and Mukhtar Sani in catfish (unfortunately this one was unsuccessful). The BPN was also successful in including the BSM and BNI-syariah banks.

To further support the program, the Unila teams placed two students working on their KKN program (*Kuliah Kerja Nyata*; an academic course accomplished by working together with the villagers in the field for a 2-month period) in each village. We also placed a doctorate student from the IPB (he was a Unila lecturer) in fishery to supervise catfish raising in Pesawaran Indah village. (In 2009, the Unila places eight KKN students in Pesawaran Indah and Wates, but unfortunately none in Sidorejo or Sidodadi).

The 2007 – 08 program worked well, as we reported the results in the LMPDD (Land Management and Policy Development Project) meeting, 22 – 23 May, 2008. In that meeting, I realized that it was only Lampung that already accomplished the first stage of access reform program.

From the discussion we had in Wates and Sidorejo villages, I witnessed several changes:
(1) The fish-pond program of no continuity,
(2) The cattle-raising activity has become independent. Caution should be noted on: (a) 0.9 kg daily gain per animal, can it be achieved?; (b) if it can, how does a farmer weigh his cattle prior to selling? During the project, the GGLC provided a digital scale with big-red-bright digits on its screen; (c) the practice of buying concentrate-waste from Suntory may not be acceptable since the farmers can not measure growth of pathogenic fungi in it, also diseases from previous pens can be easily introduced.
(3) We expect that the selling price of corn kernels should be higher than the farm-gate price at harvest for two reasons: (a) the JC as the step-father should be willing to provide a 'better' price; (b) direct selling by the farmers – the JC must have had reduced costs for the middlemen. It is only fair that the JC shares its profit with the farmers. But of course, the JC deserves two thumbs up for not charging the farmers *avalist* fee.
(4) The interest rate has increased from 6 % per annum to 0.9 % per month (= 10.8 % per annum). I think that's quite an increase (= 76 %). Is it because of the bank gives a 5-year period instead of the usual 6 month for cattle-raising? Are the farmers given a choice to pick the one suits them more? To me, extending the credit period raises risk more to the farmers than to the bank since we understand that it is difficult for the farmers to keep the pens clean and to feed the cattle with fresh-healthy concentrate.

3. **Q**: How about borrowing money from nonbank sectors?
   A: We do not have to and do not dare to do that. The nonbank loans mostly from middlemen on *yarnen* basis (*bayar panen*; paid for with harvest) and some from shark money-lenders. This *yarnen* creates more problems than it does benefit to us. Our agriculture is rain-fed, which is difficult to predict. Mr. Sunarsih, my colleaque Gapoktan head and I initiate a plan of collatering one certificate from each of us to get two IDR50million credits.

4. **Q**: Why do you want to take such risk dividing your credit money? What are criteria you apply for selecting the recipients?

   A: We do that since we realize that not all of my Gapoktan members owe certificates liable for bank credits since their parcels are too small. So I volunteered to put my certificate up for the credit. I selected the 9 members of the poorest members myself.

   The first credit will be paid for in full in the next three months, so I think the risk I take is worthwhile.

   Yes, those members pay the dues to me since I am who signs the credit contracts. But I do not charge extra profit from them. They know how much the interest should be paid for.

   C: This is another nice improvement. By using his certificate, Mr. Suratno and Mr. Sunarsih could possibly act as non-fee *avalis*. The risk on them is heavy, though, since the agriculture in Sidorejo is all rain-fed. I wonder if they keep the certificates of the other 18 members (8 of each Gapoktan) as collateral?

   Q: What are your criteria to decide whether a member is poor.

   A: (given by Mr. Riduan, the chief of Sidorejo village): the criteria for poor are: (1) one rice meal a day, (2) one new clothes a year, (3) go to a saman-healer instead of to a doctor when sick, (4) have hut (semi permanent) instead of permanent stone house, (5) have no definable job, (6) land ownership of 0.25 ha or own no land at all.

   C: I might add that according to the State's Treasurer poor is defined as having collective income of IDR600,000 ($60) per month. It is called collective since it is rather common that there are 3 generations in one households.

5. **Q**: What else you think may the BPN do to help?

   A: We need support for the poor to assist them in their farming, or maybe credits for them to raise cattle. We have an example here. One of our members cultivates wood mushrooms on saw dust, two kinds of them: the white one and the *tiram* (clam-like) one. He is so poor that he cannot expand his enterprise, although the demand for these mushrooms is high, and with good profit. (These are different mushrooms than ones sold along the road. Those are wild mushrooms that grown on stumps of oil-palm trees).

   C: We did visit the mushroom huts and met a farmer in clear need of financial assistance. An education center near Cianjur, West Java, exist known as VEDCA (Vocational Education and Development Center for Agriculture) established in 1985 with a World Bank's grant. I visited VEDCA in 1992, and scientists were doing experiments of culturing wood mushrooms on wood-cuts instead of on sawmill-dust. Replacing sawmill-dust with wood-cuts will enable farmers use their own tree-wood. Many sawmills, we suspect, get their tree illegally from the protected forest areas.

6. **Q**: Does any of you receive assistance from other Government agencies? Which one and in what occasion?

A : (from Mr. Sadi, the Gapoktan leader from Sidodadi village): Agrarian reform really helps us since the certificates can be used as collateral for bank credits. However, the problem remains. Let me give you example. My Gapoktan has 576 members of *polivalen* (polyagriculture). Out of 576, 150 have land less than one-fifth of a ha. which makes their certificates useless as collateral. We hope the BPN will make provisions to overcome this problem.

We received help in form of BiSi-2 corn hybrid seeds for 70 ha, gratis, from Dinas Pertanian (Government Agriculture Agency) at Kabupaten level, through a program called BLBU (*Bantuan Langsung Benih Unggul*; Direct Subsidy of Superior Seeds). This year is the second year.

7. Q: How was the seeds distributed?

A: The Gapoktan has 15 farmer groups, all groups applied for the seeds to Dinas Pertanian. The Dinas selected group (s) of total 70 ha to be given the seeds. In the following year, another group (s) was chosen – sort of a taking-turn fashion.

No, we are not happy to have to take turns. We have to wait for a long time before we get our turn. We want the BPN fight for us.

C: The BLBU may charge much for the seed subsidy. For 70 ha, the BLBU needs 70 ha X 20 kg of seeds per ha X IDR30,000 per kg seeds = IDR42millions, *plus* costs for administration, task-force personnel, transportation, food and lodging, etc., etc., I believe the BLBU, for that 70 ha needs no less than IDR250millions per year.

8. Q: Do you have any selling-contract?

A: We have corn-selling contract with the Japfa Comfeed

9. Q: Somebody else would share his experiences with us?

(Mr. Suwanto from Sidorejo volunteered and we visited his cattle and goats)

A: I got an IDR50million credit for my certificate of 2 ha. I bought 4 stock-bulls as to comply with the bank understanding, but I also bought 25 stock-goats with rest of the money.

I sold my cattle locally in Lampung, and my goats to traders from Palembang, South Sumatera. This way I got a better price and cut my transportation cost for the goats.

10. Q: How did you feed your animals, then, since you used the money for cattle feed to buy goat?

A: I made feed from pineapple peels I bought from the GGPC, bought concentrate rejected by Santory. But I need a chopper machine to chop the peels and grasses to make feed.

11. Q: Any other issues you deem important for us to known?

A (given by Mr. Riduan chief of Sidorejo): Our village is 560 ha wide. 185 ha have been certified with 900 deeds, yet still 375 ha are in waiting. What is the BPN plan on those 375 ha?
We are grateful that the certification increase our land value from IDR60millions to IDR100millions per ha. I know because there were already 10 deeds already banked as collateral and 20 deeds have been marketed.

C: In the beginning, the BPN (Mr. Sitanggang) and the Unila team planned to stamp the certificates with a "not to be sold within 10 year period after issuance". This was never done by the BPN. I strongly warned the reform-subject farmers in our first meeting here in 2007, that I would rather have them deedless and occupy the land and be poor, than the BPN issuing deeds and then they sell the land and be landless-poor. That way they are not only lost their land, but more importantly, they lose their dignity. Maybe, I am overprotective? Maybe those who sell the land will be better off by using the money to realize what they have hoped for in all those years?

Figure K 7 - Group meeting Lampung Province, August, 2009

Figure K 8 - Joint livestock venture, Lampung Province

Figure K 9 – Cottage Industry: Mushroom Cultivation on Sawdust, Lampung Province, 2009 (see also question 5, above)