

# **A Sequential Approach to Decentralized Area Development Planning**

## **The Case of a Peripheral Water Catchment Basin in Cameroon, West Africa**

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### **1. Abstract**

This paper considers local development administrations according to their general management functions, by which policies are made, resources are allocated, and area-wide sectoral interventions are coordinated, implemented, controlled, monitored and evaluated. In view of the changing context of local bureaucracies, caused among other things by decentralizing forces, a first series of propositions is launched on opposing schools of development thought, and on blueprint versus process planning. Here, resource planners are to reconcile principally two conflicting sets of policy options: those favoring political stability and free-market economic growth "from above", versus those accounting for socio-spatial equity, peoples participation, preservation of local cultural identities and natural resource conservation "from below". A second series of propositions deals with regional development planning "from above and below". Here, three sequential planning rounds are suggested: turning away from narrow project-shopping-list routines, towards strategic area planning, supported by problem- and action-oriented policy studies.

Added to this paper is a description of a reduced regional planning procedure including a data checklist for the Tikar water catchment area in Cameroon, West Africa, which consultants' study was funded by the EEC, Brussels.

### **2. Changing context of local development administration**

The urgent need for Third World countries to improve both material and social living conditions for a growing population makes the planned development of collectively available resources unavoidable. Therefore, adoption of an efficient and effective problem- and action-oriented approach to public development planning is of utmost importance, particularly at sub-national levels of regions, provinces, districts, urban and rural neighbourhoods. Here, local government administrations have been (over)burdened during the last decades by area-specific resource development tasks; this, in addition to the traditional routines of upholding law and order, raising public revenues on behalf of the central treasury, and operation and maintenance of physical and social infrastructures (roads, water and electricity supply, schools, hospitals, housing, agro-livestock services, etc.). It is to be particularly emphasized that recent drives towards decentralization in public resource management not only increase quantitatively the workloads of local bureaucracies, but also diversify qualitatively the statutory tasks, the authority structures and planning capabilities needed at lower government levels. As will be explained below according to common distinctions made between planning theories (McConnell, 1981, p. 14), this changing context is accentuated at the same time by:

- conflicting resource development views, shifting in substance from staged economic growth and distributive/basic-human-needs concepts towards local self-reliance and environmental protection.
- "bottom-up" community participation in public decision-making and planning procedures,- but simultaneously by a growing "top-down" squeeze on local government (expenditure and revenue) budgets: the central power of the purse pressing hard for local financial autonomy and self-sufficiency (Davey, 1983, pp. 163-179).

All in all, these opposing trends result in an increasing demand for urban and rural area development planning, its inter-sectoral coordination, budgeting, monitoring and evaluation between and within these local government machineries themselves. Obviously, "from inside shortcomings" result from limited administrative capabilities and hived-off legal competencies of sub-national bureaucracies for coping with external transformation processes currently taking place in Third World countries at large:

- population growth and rural-urban migration
- agricultural intensification, land degradation and encroachment by deprived peasants
- deforestation
- unequal access to public services, lending capital and natural resources.

The commonalities of these conflict-laden processes (threatening notably such transitional border-line zones such as rural-urban fringes, coastal deltas, wildlife-park buffer zones, seasonally contrasted "transhumance" and piedmont areas) require a typically co-determinative research approach:

- multi-disciplinary
- multi-tiered
- multi-annual, - both with hindsight and in a co-evolutionary future study perspective (Zinck and Farshad, 1990/95).

Therefore, based upon lessons learned in the Third World during the last decades, the following sections of this paper consist of working hypotheses, or propositions regarding (the theory and practice of) general development planning, regional and rural development planning as applied to a "transhumance" piedmont zone in Cameroon, West Africa.

Propositions regarding opposing schools of development thought in a substantive sense (Firey, 1960, pp. 11-54 and 243-253; Moris, 1981, pp. 89-98; Todaro, 1990, pp. 62-94; Dahiya, 1991, Vol.1, pp. 223-245/325-346; and UN/ESCAP, 1979, pp. 13-15 and 23-31)

Staged economic growth, modernization and redistribution theories have painted a too optimistic picture of urban industrialization and the route "from peasant to farmer" as the single universal (in fact western) development path for societal evolution. In contrast to evolutionary theorists, adherents of the dependency, centre-periphery and domination theories have too heavily concentrated on international factors of overriding influence upon internally polarizing forces at sub-national, (i.e., regional and local) levels.

In advancing ecologically balanced and institutionally sustainable resource development, long-term time horizons could hardly be reconciled with short-term human aspirations striving for socio-political stability, and for continuation of existing natural resource exploitation processes including inherent capital- versus labour-intensive technologies.

Here, spatial resource planners are to be mindful of the ideological mixture of academic disciplines, i.e. of economists, sociologists and eco-biologists. They are all operating from different development concepts and idealistic policy criteria such as economic efficiency and gainfulness, social equity and distributive justice, cultural adaptability and political legitimacy as well as ecological sustainability and biological diversity. Thus, collective resource decision

making and development planning are today inspired by a multi-disciplinary range of agreed-upon methods of scientific inquiry, data collection and analysis, cause-effect and incentive-response generalizations, and as a consequence by antithetical policy prescriptions and rationalizations for local-level problem solutions (MacIntyre, 1979).

In promoting genuine area development in Third World countries resource planning practitioners have to reconcile indeed two conflicting sets of policy options:

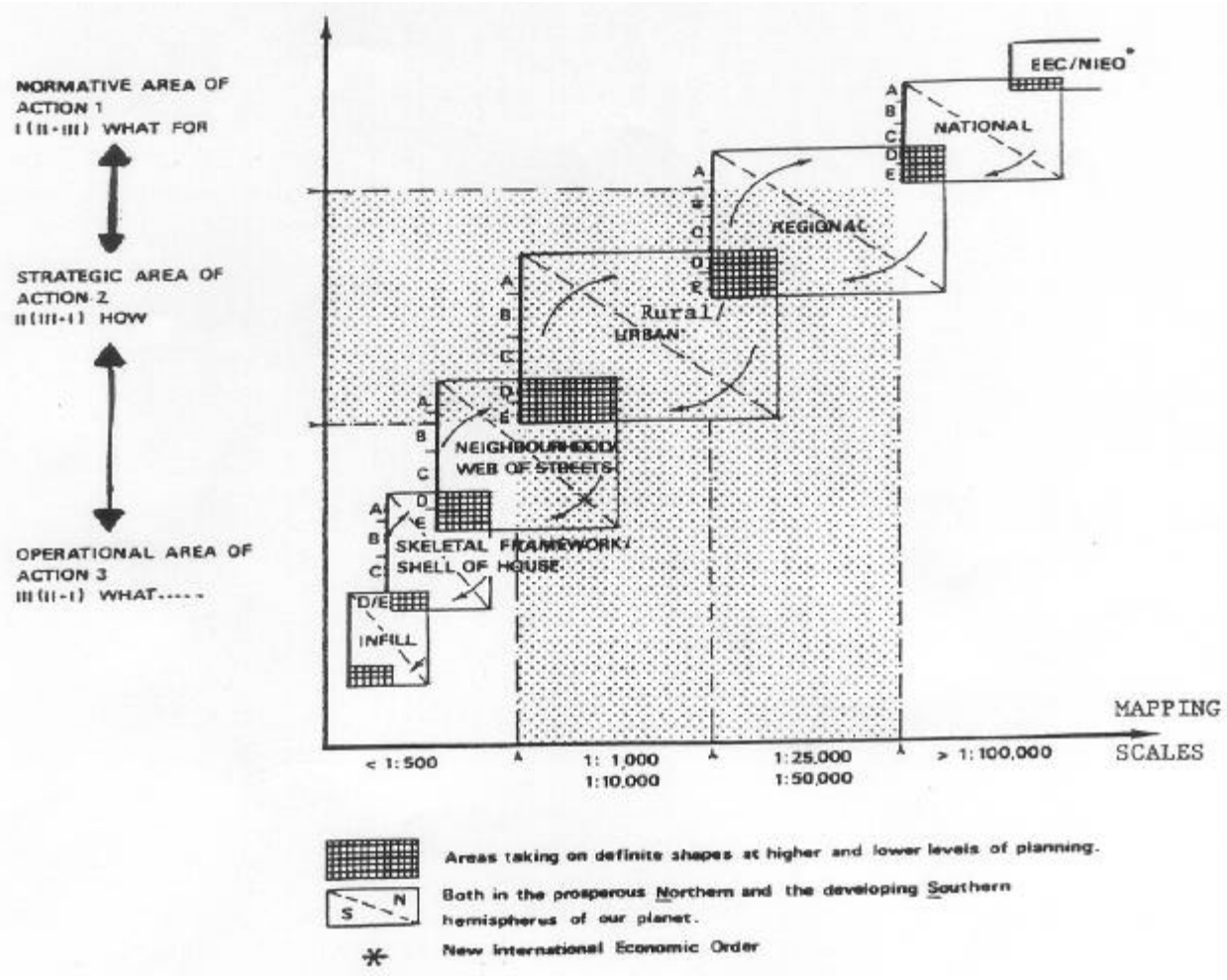
- on the one hand, to respond to bureaucratic interests of national headquarters in combination with private entrepreneurs and progressive farmers favoring politico-administrative stability and free-trade economic growth "from above"; and
- on the other hand, to respond to community interests of poverty-stricken, rural and urban masses favoring equalization of incomes, know-how and bargaining power, popular participation and resource mobilization "from below", in combination with preservation of local value patterns and natural resource conservation.

Propositions on opposing styles of public resource management in an administrative procedural sense (Litchfield, 1956; Lindblom, 1959, pp. 79-88; Ozbeckhan, 1969, pp. 13-15 and 130-153; Faludi, 1971, pp. 253-266; Myrdal, 1972, pp. 107-174; Veenstra, 1976/1982, pp. 29).

Collective decision making is considered synonymous with public management, and ought to entail all levels, from (inter)national to local, with regard to long- and short-term time horizons. Here, the three-tiered cascade system or integral lock image of figure 1 will crop up in the minds of socio-spatial planning practitioners involved at either the bottom or the top end. In mixed economies all over the Third World, public and private (geo)-information packages for policy making, development planning and plan implementation are travelling up and down between various decision-making levels, as indicated by the circular arrows. The following systemic elements are distinguished in figure 1.

At all territorial levels of government and private organizations the classic decision-making cycles A-E are repeatedly and simultaneously swinging around like sluice-gates, -thus representing five public management roles or tangent wheels turning around as follows:

- A = Policy making** on such contested problems, development objectives and alternative courses of action as rural/urban employment generation, income distribution, supply of public services and physical infrastructure, environmental protection, etc. This, in view of compartmentalized knowledge bases, one-sided technology know-how, conflicting values of powerful interest groups and unstable institutions.
- B = Area Programme and Action Project Planning** for allocating, among other things, renewable natural resources (land/water, forest/vegetation, fishery and livestock/wildlife resources) in combination with capital/infrastructures, human/institutional resources, equipment and managerial skills.
- C = Communication**, inter-departmental **coordination** and community **participation** for channeling policy making and resource allocation outcomes (A + B) into and between organizations, both vertically and horizontally, **thus pressing for local organizational change**.
- D = Control** of policy and programme/project implementation (among others) through land use zoning, water rating, wage structures, credit schemes and legal statutes of (watershed) development authorities, including enforcement of norms and standards collectively agreed upon.
- E = Internal monitoring and impact evaluation** of management functions A-D regarding such policy test criteria as economic efficiency, distributive effectiveness, political acceptability and ecological sustainability.



**Figure 1. Public resource management: a set of locks joining general policies to detailed projects.**

At this point it is to be realized that planning per se contains rationalizing elements of all five processes A-E. However, some of these elements are emphasized by various planning professions, operating from different concepts and ideals of collective consumption, production and politico-administrative behavior. Particularly physical (town and country) planners have been concerned mainly with zoning regulations, building codes, etc. in order to program and control (B + D) specific urban and regional land uses.

Similarly, economic development planners have paid attention to employment and income generation (A + B), whereas accountants usually focus on expenditure and revenue programming and budgeting (B + D). Subsequently, the following definition of planning emerges:

Public planning entails a multi-annual process of successive rounds to systematically elucidate the specific development problems and goals, to explicitly select a multi-disciplinary range of policy criteria, to appraise alternative development options and means, to identify available human, capital, natural and institutional resources, and to implement, monitor and evaluate future policies, programs and projects collectively decided upon.

Note in figure 1 the action areas 1-3 specified along the vertical axis and demonstrating three basic forms (I-III) of human aspirations in collective decision making and planning. The Roman numerals in front of the brackets refer to one of the three dominant forms, assuming that they prevail in the particular action area concerned, over and above the two other forms. In this case, we see that in area 3 the dominating form III consists of operational-executive,

short-range project management striving mainly for efficient resource utilization at relatively stable micro-levels of government administration (district, village), private businesses and voluntary associations. Here, the main questions posed (what, where, when, for whom?) require concrete action on housing or irrigation blocks which, for example, dominates this particular area 3, without being completely screened off from strategic and normative forms II and I.

The second area of action is dominated by strategic intermediary, middle-range program management, striving for effective socio-cultural changes at meso-levels of rural regions and urban municipalities, (semi-)private firms and cooperatives. In this intermediate case, wedged between normative policies (I) and action projects (III), the most important question is: *How, in view of the multitude of development objectives and scarcity of resources do we arrive at integrated rural/regional development frameworks?*

Ideally, in the first action area I, normative valuing, long-range policy making dominates at both national and international macro-levels. Despite frequent attempts to drown the principal question in floods of strategic and operational issues, the following can still be heard: what are we developing for? What are the innovative, distributive or emancipatory features of our (intersectorally co-ordinated) development policies, which we are implementing legitimately at various administrative levels?

Ideal-type distinctions, thus summed up regarding territorial resource management in public and private spheres, are jeopardized by the apparently autocratic behavior of:

- Dominating local government authorities, such as those in the national capital, regional port or other metropolitan centers.
- Influential central agencies such as finance, public works, railways, etc.
- Powerful international private corporations dealing with oil, diamonds, electronics, wholesale trade, etc.

We propose, nevertheless, that the three basic forms of public resource management (I-III) appear to be simultaneously present in a more or less latent, yet integrated state; this is to include the concomitant conflicts involved at all levels of spatial resource management in both government and private settings. This is also to include the appropriate decision-making processes A-E and planning techniques which are seen to be alternately emphasized by the mixture of scientifically trained professionals at different levels (I-III) of the various institutions concerned.

Finally, feed-back and feed-forward loops (as indicated by circular arrows) are to react inside the collective management system upon solving conflicts and problems, but also upon seizing opportunities by the socio-political actors, i.e. representatives of groups in various well-known inner party circles. Here too, it occurs that more or less rational trade-off devices, but above all influence, power, interest and leadership skills, of these collective gatekeepers come to bear upon the allocation of public resources in debate and negotiation of multi-level decision-making situations. Public and private management situations are thus primarily typified internally by contractual networks of interpersonal and inter-institutional co-operation, competition, bargaining, co-optation, coalition, brokerage, etc. directed more or less towards collective consensus.

Last, but not least, it is to be realized that two main forms of public decision making and, as a consequence, two typical planning styles are practiced, i.e., blueprint and process planning. Assuming complete access to information and technical know-how of future public works (irrigation, sewerage and housing schemes, roads, electricity supply systems, etc.), engineers, architects and physical planners design and implement their blueprints. This type of comprehensive planning stems from the idealized model of economically rational (wo)man



fully capable of collecting and handling all necessary data, dealing with all planning options, applying a multi-disciplinary range of appraisal criteria, controlling all necessary resources for plan implementation, and apparently surrounded by a stable and predictable physical, economic and socio-political environment.

These omnipotent features of a rationally deciding person are perhaps an escape route or disguise for site-specific design and closed-off construction of a single bridge, for example, where engineer-planners are left to their own bureaucratic devices. However, for urban and regional plan formulation and implementation, people's behavior is never fully understandable, predictable or controllable --not even in socialist "command" states. In view of a complex and turbulent environment and many different interest groups and planning agencies, as well as a wide range of development problems and goals, the number of appraised alternatives and interventions is to be limited and related to a few well understood collective goals. Here, socio-spatial planners can merely strive for public consensus with incremental changes, i.e., by improving the problematic status quo in successive rounds of trial and a lot of error. To achieve that plan implementers work together, socio-spatial planners become negotiators, brokers, and sometimes even advocates on behalf of poverty-stricken urban and rural communities. Thus, planning becomes the "science of muddling through and disjointed incrementalism". It can be considered as an ongoing learning process grasping for development targets which are constantly on the move and in need of progress monitoring and impact evaluation to prepare for new interventions, i.e., future projects, programs and policies becoming increasingly more efficient, effective, socio-politically acceptable and legitimate.

Propositions on regional development theories, typologies and strategies "from above and from below" (Friedmann, 1966, pp. 67-98; Veenstra, 1970, pp. 12-25; Hilhorst, 1971, pp. 81-106; Friedmann, 1973.a, pp. 41-64 and 235-248; UN/ESCAP, 1979, pp. 32-41; Stöhr and Fraser Taylor, 1981, pp. 63-69; Belshaw and Douglass, 1981, pp. 1-15)

In order to combat the typical adversities of Third World rural regions, development planners have quite arbitrarily relied upon theoretical constructs of regional economic growth originating from inside and/or outside, of agricultural modernization and polarized centre-periphery integration, as derived from historical experiences in industrialized countries. Misapplication of industrial- and urban-led policy prescriptions over recent decades left ill-treated Third World peripheries with the following unresolved problems:

- Lack of local decision-making and planning capacities, and of proper territorial control over their own resources.
- Continued polarization of development in a few urban core areas, resulting in spatial concentration of social benefits and market forces.
- Severe damage to rural ecologies of transitional physical environments caused by increasing population pressure and unrestrained exploitation of natural resources.
- Boom-bust phenomena associated with heavy specialization in one or a few export commodities.
- Spatial enclave effects, i.e., failure to translate government investment projects into broad-based rural development because of leakages of local savings and the brain-drain from rural regions to urban cores and abroad; and
- Increasing spatial manifestations of rural-urban inequalities.

Mindful of this bleak picture, the attached regional typology of figure 2 could be employed as the conventional stone of wisdom "from above" in differentiating nation-wide regional development problems, main features and subsequent development planning strategies for spatial resource management.

It should be recognized that any government is, in the first instance, forced to limit nation-

wide regional development efforts "from above" because of the following constraints:

- Simultaneous overall establishment of a socio-spatial and administrative planning system creates red-tape rigidities and socio-political tensions unfavorable for continuous adaptation to a turbulent environment, both at home and abroad.
- Scarcity of skilled personnel to properly survey and plan, and also implement, monitor and evaluate regional development strategies, programmes and projects.
- Scarcity of capital resources to finance nation-wide large-scale infrastructural investments.
- Inability of a vertically, sectorally organized government administration to rapidly adapt to the territorial decentralization required for such nation-wide efforts.

It will therefore be necessary to list a country's regions according to the legitimate priority that can be attached to their development planned from above, and act upon it successively. In case of actions being undertaken, i.e., resource surveys, plan formulation and implementation for typical regions' transformation, the following policy recommendations can be made. If the development objective of national and regional government authorities and local interest groups is to spread economic activities over all sub-regions and districts, and if the existing regional center is strong and well-located for supporting such a distributive objective, the best spatial development strategy would be the dispersion of the planned social and physical infrastructure investments from sectoral headquarters in the regional capital over the area's secondary and tertiary centers. Among these central places the ones closest to the district's boundaries will have highest priority given the objective of socio-economic expansion-- all this subject to its economic feasibility: a road leading from nowhere to nowhere would be pointless! On the other hand, if the development objective is to consolidate the district's production and consumption structure, rather than its spatial expansion, the investments related to exploitation of natural resources will preferably be concentrated either in one central growth point or along a dominating transport corridor.

It should be remembered that the legitimate socio-spatial strategies in question are a strong indicator of the stage in which the country's center-periphery relationships find themselves. When the country's dominating structures, i.e. central cadres, banking and marketing institutions as well as transportation and communication networks, are exploited mainly for extractive purposes, strategic planning proposals will differ in substance from the ones that are collectively accepted in case the distributive elements have become important,- leaving aside environmental protection and local religio-cultural identity raising specific interests.

All in all, central plan administrators and intellectuals (mis)guided by these socio-spatial strategies and inherent policy instruments have not been able, at least within a tolerable time span, to improve or even stabilize levels of living in Third World peripheries. Here, rural regions have not been considered as the source of self-sustaining economic growth, but were treated as administrative areas composed of production zones: policy criteria for local resource use being "top-down" determined by elitist interest groups residing mainly outside the rural society. So, it was proposed that these regions were to be functionally integrated into the (inter)national economic system through production for export. Regional strategies therefore focused on development of trunk roads, particularly to the capital city and port, on modernization of agro-livestock production, and provision through intermediate towns of public services and industrial dispersion. However, these prescriptions have been silent about institutional reforms needed: land and water (re)distribution, government decentralization, devolution of political power, popular participation and community self-help, in short, about equity enhancing policies and projects. The result has been rural stagnation and planned dependency of the majority of rural and urban poor "small people" upon extra-local political and economic control.

**Figure 2. Regional development planning characteristics "from above"**

Characteristics	Typology of regions		
	1. Upward-transitional regions, core areas and corridors	2. Downward-transitional: old agricultural/industrial regions	3. Peripheral natural resource frontiers
Development problems	Strangulation of economic growth; inefficient absorption of rural-urban migration into labour force; inadequate physical, economic and social infrastructure in cities	Stagnant urban and rural economies leading to structural poverty; inability to support population at adequate levels of living	Creation of new industrial matrix, transport corridors, irrigation works, agricultural communities, including basic administrative and social Services
Main features	One or more clustered cities; agriculture for export and support of urban populations; capital-intensive industrialization and farming; adequate market organizations, and intercity and farm-to-market transportation	Low productivity and capitalization; fragmentation of agricultural holdings; old mining practices; small potential resource base; selective outward migration; widespread apathy and fatalism in relatively isolated village communities; sub-standard services	Population movement into new areas; agricultural, forest and mineral development; weak settlement pattern; strong dependencies on outside world
Spatial planning strategies directed towards: - Agricultural/land use planning - Infrastructural planning - Energy planning - Environmental management - Development of information systems and planning staff through on-the-job training	Spatial integration through carefully selected secondary and tertiary growth points and urban development corridors, including the direct surroundings with their own economic specializations	Consolidation of activities and re-activating distressed areas by investment (return flow) incentives; selection of intermediate growth points and rural resettlement projects along the perimeter, including necessary service and rural Development packages	Multi-functional expansion of activities into resource region; establishment of strong focal city, and transport and communication linkages with outside world. Popular bottom-up approaches in and around small district towns

### 3. Local Grassroots Planning as an Antidote

Thus, in the last instance, district and regional planning officers as well as their colleagues/sectoral managers, i.e., the field activists, are to frame their own appropriate policy prescriptions "from below". The latter are meant as an antidote for, or complementary to, conventional propositions "from above" as laid down in figure 2. These grassroots precepts might prove to be particularly suitable for many Third World areas that in the near future cannot expect to benefit from "top-down" industrial enclave development, and thus are to be employed as provisional second-best strategies "from below" while competitiveness in the world economic system is built up. Called also "trials for Selective Spatial/territorial Closure" (SSC), the following substantive ingredients are considered essential for regional strategies "from below".

- For example, provision of broad and equal access to land and other available natural resources through land reform.
- Assignment of priority to the satisfaction of basic human needs (food, shelter and basic services), but reducing dependence on outside inputs by promoting local trade, transport and service facilities.



- Promotion of productive activities, exceeding regional demand (export-based), priority being given to:
  - Full employment of local labour and natural resources.
  - Regionally adequate technologies which are to minimize waste of scarce resources while maximizing the use of regionally abundant resources, taking into account local cultural patterns and value systems as well as conservation of renewable natural resources: land, water, forests, pastures, etc.
  - Competitiveness in extra-regional markets by qualitative product differentiation, rather than by purely quantitative price competition in standard mass production.
- Introduction of national credit and pricing policies which offer terms of trade and loans favourable to natural resource utilization in agriculture, forestry, fishery, animal husbandry, etc., especially in peripheral regions.
- Improvement of intra-regional transport systems, intermediate city functions (growth poles) and rural-to-rural transport and communication facilities.
- Introduction or revival at district, village and neighbourhood levels of communal decision-making structures for self-determination and self-reliance regarding integrated resource allocation, storage and processing of regional produce, allocation of regional surpluses, savings, etc.

Although (or perhaps because) egalitarian societal structures, regional consciousness and local empowerment are outstanding SSC preconditions, an understandable lack of support from central governments in Third World nation-states forms the major reason why rural regional planning "from below" has made little progress on a large territorial scale, and then only during relatively short, revolutionary periods. On the contrary, foreign development assistance should be mistrusted for turning the donors' planning frustrations with the western scene (resulting from among other things democratic equalization, welfare state consumerism, ecologic failures and ruthless infrastructure planning) into too innovative experiments in the Third World, thus exercising societal vivisection indeed on a global scale.

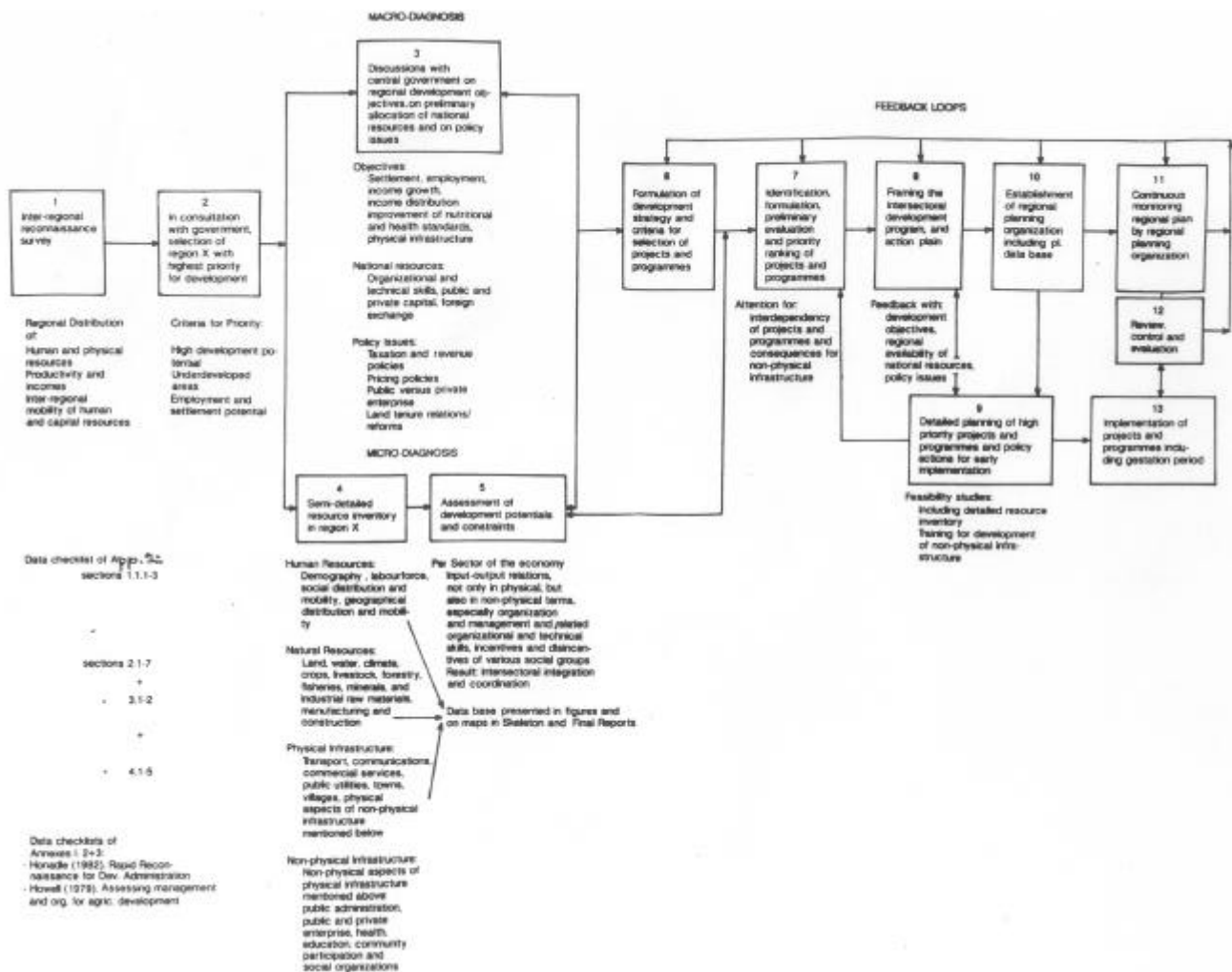
Propositions on conventional versus reduced working procedures for integrated area planning: a plea for staggered territorial institution building and organizational change (Smith/IBRD, 1980, pp. 1-48; Johnston and Clark, 1982, pp. 155-224; Korten, 1986, pp. 1-15, etc.; Uphoff, 1986, pp. 1-79; Israel, 1990, pp. 111-201; Staudt, 1991, pp. 35-80 + 190-214).

Provincial and district planning officers all over the Third World have been urged during last decades to formulate their own medium-term strategic frameworks or eventually foreign aided, integrated area development plans. The aim is to counteract the "black magic" of shortsighted annual routines of project-shopping-list procedures and fragmented sector programming and budgeting, predominantly guided from central headquarters in national capitals.

Both indigenous and expatriate field practitioners have seen, however, those brand-new strategical frameworks, i.e., "out of the blue" inter-sectoral project bundles being defused during the 1980s, like unexploded bombs. A general lesson has thus been learned: not trying to change from the omnipotent foreign side, but rather from the domestic side of standing bureaucratic procedures for project/sector/area planning and budgeting. So, in area development planning it is proposed to manoeuvre between two extremes, i.e., between the "devil and the deep blue sea" of:

- On one side, central policy guidelines, statutory rules and regulations rigidly governing the bureaucratic operations of annual planning and budgeting routines, actually weeding out sectoral project lists; and

- On the other side, quasi-academic one-off happenings of comprehensively constructing an integrated area development blueprint comprising a heavy load of intersectoral project packages, which leave many questions on their consistency, implementation and replication unanswered.



**Figure 3a. Global outline of a comprehensive regional planning procedure (Free from: Van Staveren and Van Dusseldorp, 1980 and OAS/DRD, 1984).**

So, in the first instance, conventional regional planning procedures will be dealt with, but their reduction and adaptation to specific rural settings will receive increasing attention; refer to the explanations given in attached figure 3a. To start with, conventional prescriptions by would-be neutral and dispassionate adherents of a consistent methodological canon indicate that after the necessary selection of a priority region (2) the area development team should begin its tasks with an inventory and analysis of both central and local development objectives and policy issues, of human, natural and capital resources, (non-)physical infrastructure, etc. Macro- and area-specific diagnoses together lead to an assessment of development problems, potentials and constraints (5). Problem structuring in its turn is followed along with eventual feedback loops by selection and formulation of a regional development strategy (6) which subsequently determines the selection and framing, in (pre)feasibility terms, of inter-sectoral project packages to be implemented, monitored and evaluated (13 + 12). Particularly foreign assisted, single-region planning exercises including the multi-disciplinary hotch-potch of resource surveyors, socio-spatial planners and program controllers/evaluators (temporarily jetted in from abroad) are to be mistrusted because of

their time-consuming work and costly team management. Here, difficulties have been encountered in applying the broad conventional prototypes of the 1970s as detailed in figure 3a, to specific Third World rural peripheries. For instance, the internal inconsistencies of applying the Israeli "Rehovot Approach" of integrated rural development (Weitz, 1979) to a predominantly rural region in the Orinoco basin plains of Venezuela have been summarized by Belshaw (1983, pp. 9 and 19), as follows.

**Re steps 1-3 of macro-diagnosis:** confusion abounds over what would constitute the (exact boundaries of the) priority planning region, and over the macro- as well as area-specific development objectives, target groups, constraining policy issues and resources to be expressed by planned per capita growth rates for the regional income, net savings and investments, (sectoral) labor participation, production, consumption, service and poverty indicators. Because of the isolated single-region emphasis, the existence of inter-regional linkages for migration, land encroachment and broad ecosystems' imbalances, as well as for agro-produce marketing, transport and processing, for provision of farm inputs, consumer good supplies and financial flows has been neglected.

**Re step 4 of area-specific diagnosis:** In land use planning, mismatches have been noted between land suitability classes and smallholder farming systems, being mapped at inappropriate scales. In this respect, land tenure relationships, land reform, agricultural commodity price shifts and labor wage differentials have usually been overlooked. So, the relative competitiveness of local manufacturing vis-à-vis extra-regional enterprises located in larger urban centres of contiguous regions has seldom been analyzed.

**Re steps 5-13: sustainable development** of human, natural and institutional resources pointing towards strengthening local community participation and self-determination, public administrative capabilities, decentralized statutory powers and financial absorptive capacities requiring in turn the progressive improvement of a planning data base, sequential plan (re)formulation, implementation, on-going evaluation, on-the-job training of local administrators, etc. - has been hastily omitted altogether in "out of the blue" single-shot happenings.

Consequently, the external co-determinative adversities of, and internal planning limitations for, rural-led regions in the Third World suggest the following reduction and shifts in emphasis to be made in area development procedures, i.e., the staggered approach climbing the managerial ladder in figure 1 "from below". Here, lessons learned from mistakes made during the 1980s already led to a checklist with constituent components of a multi-annual working procedure for improving (in sequential rounds) rural planning-cum-implementation capacities at lower government levels in Aceh province, Indonesia (Veenstra, 1989, pp. 532-542). In order to gradually break the shackles of top-down control and enable lower-level self-determination, the conventional wisdom of planning activities 2-13 represented in figures 3a/b is to be relaxed, and closely tied to nation-wide bureaucratic planning and budgeting routines, as exemplified by the West-African case of figure 4 and explained below. Particularly in view of Tikar's disintegrated administrative structure, but generally accounting for the limited availability of government funds and qualified planning staff, measures were to be taken at three territorial levels as follows.

First, at inter-provincial level, i.e. for the geographical entity of the Tikar water catchment basin as a whole, an inter-sectoral steering and monitoring committee (SMC) is to be established. It should be reinforced by a qualified foreign volunteer/rural plan co-ordinator and his local counterpart, as well as by a mother-and-child health care officer/female volunteer from abroad. This regional SMC, consisting of representatives of the central planning ministry, provincial and district heads and technical sectoral officers is to safeguard the annual plan formulation, budgeting, implementation, monitoring and evaluation of pilot programs with proposed interventions A.6.1-D.3.4. (in figures 5 and 6 of Appendix 1) to be executed in the exemplary priority chiefdoms initially selected. Here, mobilization and co-

ordination are to take place of foreign donors (:EEC, FAO, UNICEF, Federal Germany, etc.), sectoral government agencies and local communities involved in the multi-annual planning procedure of figure 4.

Second, at district level, the expatriate Tikar plan co-ordinator/catalyst and his locally nominated planning colleagues are to merely steer by the three existing district development committees (DDCs) during their annual budgeting meetings in favour of integrated priority-chiefdom plan implementation.

Third, emphatic revival of rural village structures, local leadership and of traditional chiefdom councils is to be aimed at. Hereto, inside priority zones, existing village development committees (VDCs) are to be given an official status and fresh start, instigated by specifically appointed, priority-zone co-ordinators/chiefdom development volunteers from abroad. These expatriate community development workers are to catalyze particularly the respective priority chiefdom councils (CDCs) including local technical staff for participatory planning and grassroots implementation of the exemplary project bundles A.6.1.-D.3.4.

**Figure 3b. Detailed Design for Rural Regional Planning Procedure (Free from Belshaw, 1983, Appendix 1.2)**

<b>Planning Steps (in approximate time sequence of figure 3a)</b>	<b>Associated Planning Activities, Methods and Techniques</b>
<b>Step 3.</b> Macro-Diagnosis	<ul style="list-style-type: none"> <li>- Characteristic policy indicators for regional economic growth and structural transformation from "peasant to farmer": Weitz, 1979, Tables 1-6; FAO/WCARRD (1980). Socio-Economic Indicators for Monitoring and Evaluation; Sundaram (1984). Data and Information Needs for Sub-National Planning.</li> <li>- Inter-sectoral input-output relations within the region, including labour, capital and commodity flows.</li> </ul>
<b>Step 4.</b> Area-Specific Diagnosis	<ul style="list-style-type: none"> <li>- Demographic analysis: birth, mortality, natural increase rates; net rural-urban migration patterns; age cohort structures</li> <li>- Geographical distribution of agro-economic zones, urban and rural service networks; centrality analysis on rural access to social and physical infrastructure; refer to figure 7.</li> <li>- Natural resource assessment: hydro-geological survey; agro-meteorological analysis; land suitability classification and land use surveys, utilizing indigenous knowledge systems as well</li> <li>- Rural micro-analysis: farming systems and household economy studies through rapid rural surveys; village systems analysis; commodity market, factor market and enterprise analyses</li> <li>- Rural institutional analysis on behavior and performance by "gate-keepers" in collective decision making and control: refer to figure 1.</li> <li>- Assessment of recent public sector policies and on-going projects, their effects and impacts according to stated development objectives.</li> </ul>
<b>Step 5.</b> Rural Problem Structuring	<ul style="list-style-type: none"> <li>- Economic growth, distributive and environmental consequences of recent patterns of collective resource management: incidence of deprivation, and rural poverty causation analysis; refer to Gregory (1967, Ch. 7) and Birgegard (1980).</li> </ul>
<b>Step 6.</b> Preliminary Strategy Formulation And Selection (Lichfield, 1975; Hickling 1978; v. Steenbergen, 1990)	<ul style="list-style-type: none"> <li>- Reconciliation of national and regional devel. objectives, their assumed effects and impacts as well as magnitude of required resources in view of devel. problems, potentials and constraints: receipt of central planning resource ceilings, physical and social planning norms; submission of cases for revisions hereto; regional revenue raising estimates.</li> <li>- Identification of major policy shifts, and of potential projects: phased decentralization - both functional and territorial - and popular participation; analysis of top-down sectoral initiatives relevant for the region.</li> <li>- Iterative matching of identified project packages, resources, policies, their effects and impacts: analysis of expected costs and benefits of alternative development strategies, with subjective probabilities.</li> <li>- Dialogues with responsible policy makers leading to choice of preferred interim regional development strategy: strategic choice approach in Third World planning.</li> </ul>
<b>Steps 7-13.</b> Detailed Project Generation And Implementation Along The	<ul style="list-style-type: none"> <li>- Project formulation and appraisal on following aspects:  <ul style="list-style-type: none"> <li>social cost: benefit or cost: effectiveness analysis.</li> <li>agro-technological and engineering feasibility incl. applied research priorities.</li> <li>planning standards and norms for physical and social infrastructure, guided by rural and urban settlement plans; refer to relevant propositions hereafter.</li> </ul> </li> </ul>

<p>Project Cycle/ Treadmill (Refer to Rondinelli, 1977, pp. 5-18; but also to Morgan, Honadle, Rosengard, and Rondinelli, 1983, pp. 299-339; Bendavid-Val, 1991, pp. 173-224)</p>	<p>environmental impact assessment. institutional feasibility with special reference to rural poverty alleviation: popular participation and self-determination, reform of internal structure and operating procedures of standing organizations as well as inter-institutional jurisdictions. indicators and interventions for (particularly deprived) target groups: women, children, cultural minorities! distributive outcomes and impacts of projects. reorientation of interim strategy choice in light of increasing micro- and macro-planning information, of shifts in national policies and inter-regional coordination on large-scale multi-regional projects.</p> <ul style="list-style-type: none"> <li>- Five-year development, and rolling regional action plans (1-2 years) being prepared, and negotiated for (foreign) funding: formal procedures for major projects only.</li> <li>- Design and introduction of appropriate monitoring and evaluation systems for regional plan implementation and operation, review and reformulation (: Casley and Kumar/IBRD, 1987), including a georeferenced base-line data bank being built up.</li> <li>- High- end medium-level manpower planning and budgeting; in-service and on-the-job training programmes; "appreciation-level" training for politicians and community leaders through workshops and seminars; popular literature, other media and public meetings for target groups involved in plan formulation and implementation.</li> <li>- Design and introduction of effective financial accounting, auditing and inspection measures.</li> </ul>
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In order to mobilize and regularly inform all public and private parties directly concerned with Tikar's experimental planning-cum-learning process (1990-96), annual seminars of 2 to 4 days each are to be organized at district and priority chiefdom levels.

The annual routine meeting, held by DDCs all over the plain, took place in January 1991. Taking advantage of this, explanations are to be given on the selection and identification, and eventual (foreign) funding, of the first round of four priority-chiefdom project packages by some of the principal expert consultants mentioned in our synoptic chart of figure 5. In the same vein (but with the assistance of the newly appointed Tikar plan co-ordinator, his two regional planning colleagues and local community development workers), district and chiefdom seminars are to be held in 1992 and 1993, dealing among other things with:

- progress made by and lessons learned from implementing pilot interventions A.6.1.-D.3.4. in the four priority zones;
- building up a local data base for long-term Tikar planning purposes (refer to Appendix 2 for examples)
- retreat of foreign project funding and chiefdom development volunteers from the first round of four priority chiefdoms 1990-92;
- subsequent re-selection of a second round (1993-96) of about three other priority zones in the area.

Running parallel with the successive rounds of local seminars, three on-the-job training cycles (1991-93) are proposed for a limited group of about 25 senior sectoral planning officers, who preferably are at district level the "seconds in command" inside their own agencies, i.e., agriculture, animal husbandry, education, public works, etc. Three field workshops of three weeks each are to deal with a wide range of short- and long-term rural planning subjects, as spelled out in this paper's propositions, and to be presented by an interdisciplinary group of expert trainers/consultants who will use as case-study materials all the reports A-D and maps 1-16 listed in figure 5 of Appendix 1.

Here, to liberate local planners from their functional bondage to central headquarters, a scaling-up revision or topsy-turvy twist in lower-level area planning is suggested:

- III Away from narrow project feasibility, implementation and progress monitoring through logical frameworks (Callewaert, 1988)
- II Towards focussing on core problem structuring and strategic area development choices to be made (Van Steenberg, 1990; Hickling, 1978), ultimately
- I Supported by action-oriented policy studies (Majchrzak, 1984) laying initial emphasis on conflicting policy issues, means and instruments, as well as on interested stakeholders,



their available resources and controversial values.

So, instead of being fragmentarily instructed from above by sectoral policy guidelines and annual resource ceilings, local field staff is to gradually establish its own well-grounded cumulative body of grassroots planning knowledge, supported by a multi-disciplinary range of action-oriented policy indicators generated by rapid rural data collection and processing techniques.

The learning-by-doing process of figure 4 cannot be effectively adjusted without (Clayton and Pétry, 1981, pp. 1-11 and 253-260):

- Monitoring, defined as a process of measuring, processing and communicating operational information on project performances, external conditions and impacts; and
- Evaluation, i.e. determining cause-effect relationships between project inputs and outputs including external constraints, using logical frameworks as an analytical tool for determining strategic effectiveness.

**Figure 4. Operational-cum-strategic planning procedure for Tikar plain, Cameroon, 1990-1996: refer to Appendix 1 with description of reduced regional planning study in West Africa, including synoptic figures 5 and 6.**

Components of learning-by doing process	Planning rounds 1-3		
	1. First round of 1990-1992 priority area mobilization, plan implementation, monitoring and evaluation	2. Second round of 1993-1996 priority area selection, plan formulation, implementation, monitoring and evaluation	3. Strategic development plan formulation for Tikar plain as a whole by local district administration itself; 1997-2001.
1. Multi-level and intersectoral institution building: - regional, i.e. interprovincial (SMC) - District (DDCs) - Chiefdom (CDCs) - Village (VDCs)	Intervention A.6.1.: Establishment of regional SMC, as well as revival of priority-chiefdom and local village development committees. Appointment of regional plan coordinators and priority-chiefdom development workers		
2. Start up, information + community participation	Intervention A.6.2.: Annual seminars to be organized for some days at district and priority-chiefdom levels.		Closing seminars organized around strategic framework
3. On-the-job training of second-tier planning staff (Veenstra, 1982, Table A): Learning-by-doing workshops	Intervention A.6.3.: First operational workshops subjects to be dealt with in 1991: - Identification, formulation, monitoring + evaluation through logical frameworks of priority area project packages: classic project cycle/treadmill - Foreign + domestic program budgeting and implementation	Subjects to be dealt with during second strategic workshop 1992: - Regional and rural development planning stages, steps and rounds "from above and below" - Antagonistic development views - Secondary + primary data collection, processing and reporting including questionnaireing - Problem structuring + selection of problem-related factors for area priority setting, and choice of preferred strategies	Subjects of third policy oriented workshop of 1993: - Theories, strategies, objectives for regional development planning including typologies of sub-regions - Structural elements of rural poverty, rural development planning approaches and techniques - Rural settlement policy options, including drinking water, primary health care and education, feeder roads, rural energy supply and small-scale rural agro-processing
4. Staggered Introduction of Monitoring + on-going Evaluation = M/E	Intervention A.6.4.: M/E of first round of four packages	M/E of second round of newly sel. priority area programs	
5. Building up local planning data checklist c.q. GIS	Intervention A.6.5.: Standard data list and maps to be established for priority-		

maps; refer to Appendix 2	area project packages + strategic development framework to be formulated for Tikar plain.		
		A.6.6.: Second planning round executed	A.6.7. Integrated strategic framework formulated "from above and below"

Our Tikar regional plan co-ordinators and local community development workers are to be warned in advance, however, of introductory failures in monitoring and evaluation (M/E) systems usually associated with (Bamberger and Hewitt, 1990, Annexes C-I):

- A poor system design, i.e., production of more M/E data than are needed or can be analyzed;
- Inadequate staff, equipment, transport, etc. for M/E activities such as early base-line surveys;
- Substantial delays in processing and analysis of data and in presentation of M/E results;
- M/E reports remaining untouched, i.e., unused by local sectoral officers who feel themselves threatened by M/E results!

Despite conflicting imperatives of plan evaluators and administrators, M/E processes (directed towards both area programme and action project data collection and analysis) contribute principally to inter-sectoral efforts at district and priority chiefdom levels to improve secondary data initially used to:

- structure development problems and objectives for the Tikar plain as a whole (study phase I/step I.2);
- establish a standard list and portfolio of synthetic and thematic maps representing problem-related factors, or scored policy criteria for priority-area re-selection during 1992 (original study phase I/steps I.3+4)
- identify budgeted project packages B.2.1-D.3.4 per priority chiefdom (original study phase II).

Ultimately, becoming well-versed by three training workshops during 1991-93, supported by foreign technical assistance and project funds and provided with an improved data base, the "second-in-command" group of senior sectoral officers is now to take over the second round 1993-96 of continued planning in, say, three other Tikar chiefdoms to be selected. Here, the same planning steps and study phases as presented in figure 6 of Appendix I are to be adhered to, but taking into account the lessons learned from trials and errors during 1990-92. An independently operating SMC is to organize instructive seminars (again at district and newly selected chiefdom levels) to reinforce local village and chiefdom structures and to coordinate local and foreign funds made available for newly formulated project packages, being monitored and evaluated, etc. with continued assistance of regional plan co-ordinators and local community development workers.

Note that the repeated selection of priority zones is not considered to be a final objective in itself. On the contrary, the two sequential rounds of priority package formulation and implementation are to serve the main aim of building up local planning capacities and a reliable data base for the Tikar plain as a whole. This is to leave the bureaucratic routine of annual project shopping lists behind and to strive for a multi-annual development strategy (well understood by the local administration) which by itself comes to grips with rural planning weaknesses in this part of the Third World. As a consequence, national long-term planning guidelines, large-scale interventions and programmes (such as the artificial lake Mapé designated "from above", i.e. from central headquarters in Yaoundé) are to be incorporated into a five-year development strategy for the entire catchment, thus integrating the rather short-sighted annual priority-area packages "from below" with a long-term strategical framework for the entire plain "from above". Because of acquaintance with new crafts and team spirit built into the local planning machinery from below during 1990-96, the

inter-provincial SMC is now to work towards an indicative five-year Tikar development framework 1997-2001. Finally, a series of seminars during 1995-96 should inform a broad audience, including politicians and senior officials from national to local levels, on the following topics.

- Secondary and primary data collected and processed, including (computer-assisted) production of synthesized and thematic maps; refer to Appendix 2.
- Study reports produced by sectoral working groups with regard to
  - socio-economic, institutional and project funding topics of domain A in our synoptic chart of figure 5 in Appendix 1;
  - the production sectors of domains B and C in our chart;
  - rural infrastructure sectors of domain D in our chart.
- Leading (sub)sectors, key projects and supporting programs ultimately indicated by the Tikar strategic framework for another five years to come: 1997-2001.

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## 5. Appendix 1 Reduced Regional Planning Study For Tikar Plain In Cameroon

Country	: Cameroon, West Africa
Client	: National Ministry of Planning and Environment
Type of services Delivered by ITC	: Project management for guiding a rural planning study in close cooperation with the leading partner: The Royal Dutch Consulting Bureau HASKONING
Funding Agency	: European Economic Commission (EEC) in Brussels, Belgium
Approximate value	US\$ 675,000

### Background of the planning study

Located along the northwestern border of Cameroon and Nigeria, the Tikar plain has experienced (through spontaneous immigration during the last decades) a rising population pressure, ranging from 10 to 50 inh./km<sup>2</sup> on its relatively fertile soils (4,000 km<sup>2</sup>). This problematic situation, typical of a rural resource frontier region in the Third World, has been aggravated during recent years by the construction of a reservoir for national river control purposes. This artificial lake keeps permanently flooded 250-500 km<sup>2</sup> of gently undulating piedmont lands, formerly cultivated for subsistence and cash crop

Production as well as grazed by nomadic cattle herds. As a consequence, thousands of peasants have haphazardly been (re)settled in the Tikar plain without adequate provision of infrastructure and proper assistance in/substitution of their coffee plantations.

In order to counter-balance downward trends in sustainable production and living standards, the Ministry of Planning and Territorial Development in Yaound distributed during 1988 terms of reference for a regional planning study of the Tikar plain as a whole. Subsequently, technical and financial study proposals, made among other international consultants by Haskoning and its sub-contractors, were finally selected as an innovating, in fact reduced approach towards rural development planning of the endangered plain.

### Assignment to Dutch consultant, and experts' performances

During 1989, the proposed project team of ten (10) experts was to be strictly managed along a reduced working procedure of three main study phases (I-III),

- taking up three months each, i.e., inter-disciplinary inventory and diagnosis (I)
- inter-sectoral and multi-annual program design at pre-feasibility level (II)
- bankable project identification inside some priority zones for the next operational years (1990-1993) (III).

The synoptic chart of figure 5 presents the actual performances of the inter-disciplinary working groups A-E as laid down in respective maps 1-16 and Reports A-D, initially also called Annexes A.1, B.2, C.3, etc. The crucial idea behind the reduced, in fact nine-month working procedure is clearly brought out by study steps 1.2-4 of figure 6: results of field surveys had to be strictly structured towards translation into problem-related factors, or criteria for selection of some priority investment zones in the Tikar plain.

An obvious distinction has been made in figures 5 and 6 between problem diagnosis through analysis of secondary data and field surveys (Phase I), and proposing problem solutions B.2.1-D.3.4 through logically selected, multi-annual improvement programmes (: Phase II).

### Phase I of Inter-disciplinary Inventory, Problem Diagnosis and Priority Area Selection

The first three study months were synthesized in a project management paper pinpointing:

- on the one hand, the limited administrative capacities, as well as lack of reliable data and government funds (as derived from Reports A.2 + 6) for comprehensive rural plan formulation and implementation in the Tikar plain as a whole
- on the other hand, the urgent problems of population and grazing pressure, their multi-faceted causes and effects (as derived from Reports A.1, B.3, C.3 and D.2) to be initially counterbalanced by inter-sectoral project packages designed for some carefully selected priority chiefdoms only.

As brought out by Rep. A.2 and figure 8, the eleven traditional chiefdoms in the Tikar plain were to function indeed as basic administrative units of analysis and programming for the five working groups (A-E) altogether. From these low-level planning units, four (4) were selected as short-term priority action zones for the next study phases (II and III) on the following scored criteria (= Steps 1.3/4 in figure 6):

- being representative of the different development problems of the plain as a whole, i.e. susceptible as exemplary zones for pilot interventions and action training;
- showing high population densities and growth through immigration and/or resettlement;
- demonstrating local dynamism by a chiefdom development committee, capable of raising and managing its own community development funds;
- endowed with suitable soils for agro-livestock developments; and
- provided inadequately with primary education, health services, safe drinking water and local markets.

### Phase II of medium-term program design for the period 1991-96

Agreement on observations and proposals, made in favour of the reduced rural planning approach, paved the road for the multi-annual programming of problem solutions by the study team during phase II. Here, the respective series of Reports A.5

until D.3, - still called Annexes -, and maps 3-16 culminated in the global inventory of proposed interventions A.6.1-D3.4 of Report B.6; see our synoptic chart again.

Particularly from Report A.6, Chapter 3 and Addenda 1 and 2, it has been concluded that qualified planning staff is very much limited, leading towards institutional development proposals:

- for (foreign assistance in) establishing a Tikar regional co-ordination and monitoring committee leaning heavily on chiefdom community development workers from abroad, stationed in the four exemplary priority zones; and
- for an interconnected series of on-the-job training workshops of three weeks each during three years (1990-1993) in order to transfer surveying, mapping, plan formulation and implementation, monitoring and evaluation skills to an inter-sectoral group of local government staff in the Tikar plain.

At the finale of study phase II, the detailed review of Report B.6 on total program costs for the Tikar plan as a whole during the period 1991-1996 revealed an estimated amount of FCFA 8,130 million of which:

- 20% was to be invested in the four productive sectors of agriculture, animal husbandry, fishery and forestry;
- 35% was to be spent on social infrastructure, i.e. education, health and drinking water supply; and
- 45% was to improve the disturbed rural road system around the artificial lake.

Total program costs for five years per Tikar inhabitant amounted to FCFA 206,000, decreasing to FCFA 100,000 in the very four priority zones only.

### Phase III of short-term project identification in four priority chiefdoms

A decisive project management report concluded the last study phase III, September-November 1989, by specifying for the period 1990-1993 functions, tasks, costs and benefits of:

- A.6.1 Regional and local co-ordination directed towards budgeting and implementing annually four inter-sectoral project packages in the selected priority chiefdoms;
- A.6.2 Start-up continued information and mobilization of local government staff through annual seminars at district and chiefdom levels;
- A.6.3 Annual workshops of on-the-job training in plan formulation practices for about 25 local government staff members;
- B-D Inter-sectoral investment programs for directly productive sectors and rural infrastructure in the four priority chiefdoms amounting to US\$ 13 million;
- A.6.4 Monitoring and evaluating these investment programs on their input, output, effects and impacts as specified by the logical frameworks of phase II;
- A.6.5 Building up a local database for planning purposes, including a portfolio of synthetic and thematic maps;
- A.6.6 A second round of priority area selection for the period 1993-1996 as based on an improved data base by a well-trained local planning staff;
- A.6.7 Formulating "at the end of the day" a comprehensive development strategy for the Tikar plain as a whole based on experiences gained during two rounds of priority area development by local district and chiefdom administrations themselves.

**Figure 5. Synopsis of experts and their performances, i.e. report contents during Tikar planning study phases I - III, March - December 1989**

Expert Working Groups A - E and their man-months spent in Cameroon and Europe	<b>Study Phases and Steps</b>		
	<p><b><u>Inventory and Diagnosis</u></b> (March-May) Step 1.1 Delimitation of 11 spatial units for analysis, plan formulation and implementation Step 1.2 Problem analysis and goal setting for Tikar plain as a whole Step 1.3 Selection of problem-related factors for priority setting among 11 units/ chiefdoms Step 1.4 Identification of four priority action zones/chiefdoms</p>	<p><b><u>Inter-Sectoral and Multi-Annual Programme Design</u></b> (June-August) at Pre-feasibility level, making use of Logical Frameworks* for Selection of Interventions (: their verifiable targets, inputs, outputs and hidden assumptions) per Priority Chiefdom, and for Tikar plain as a whole</p> <p>* (Rosenberg and Hagehoeck, 1973, Imboden, 1978; Callewaert, 1988; Kijne MDF, 1992)</p>	<p><b><u>Short-term Program/ Project Identification</u></b> (Sept-Nov) in four priority Chiefdoms only, computer assisted Map Production (: scale 1:200,000) and Final Report Editing (March, 1990)</p>
<p><b><u>Socio-Economic Working Group A</u></b> including Study Coordination and Management</p>	<p>Paper with summary of reduced study approach and results of St. 1.1-4, i.e. eleven Chiefdom, problem setting, thirteen selection factors and four priority action zones. <b><u>Report A.1</u></b> Socio-demographic</p>	<p><b><u>Report A.5/D.3</u></b> Alternative population projections until 2006, derived from Rep. A.1, and necessary rural infrastructure proposed as derived from Rep. D.2, inc. cost estimates: programs D.3.1-4. <b><u>Report A.6</u></b> Study of limited sources of (semi-) public finance and personnel for</p>	<p>Executive Summary consisting of: - Synopsis of preceding reports A-D of study Phases I-II, incl. maps 1-16. - Summary of Volume I with multi-annual planning process</p>

<p>1. Regional Planner/ Coordinator (9 mm) 2. Social Demographer 3. Agro-Economist (5 mm)</p>	<p>study on (re) settled population, permanent vs. seasonal migration and employment, incl. map with migration flows. <u>Report A.2</u> Organizational study of Tikar local administration from Chiefdom to provincial level, incl. structural diagr. of p. 18/19. <u>Report A.4/D.4</u> Study on hierarchy of local market centers, and self sufficiency in food production, incl. map with commodity flows.</p>	<p>project implementation in Tikar plain, both in rural infrastructure and productive sectors. <u>Report A.7</u> Study of agro-processing: coffee husking, maize milling, rice threshing, palm oil and tapioca production.</p>	<p>in two rounds, 1990-1992 and 1993-1996 - Summary of logical frameworks*, costs and benefits of productive programmes proposed in Volume II. - Summary of costs/benefits of progr. proposed for rural infrastructure in Report III.</p>
<p><u>Working Group B</u> on Soils, Agriculture and Animal Husbandry  4. Agronomist (5 mm) 5. Soil Scientist/Photo interpreter (2,5 mm)  6. Livestock Expert (2,5 mm)</p>	<p><u>Report B.1</u> Study on physiographic mapping units, soil classification, vegetation types and actual land suitability classes.  <u>Report B.3</u> Study on nomadic livestock rearing, i.e. the marginal Mbororo lifestyle, excessive grazing pressure, graziers' income (FCFA 78,000 cap/yr.), leading up to six improvement programs B.3.1-6 being proposed: -----&gt;</p>	<p><u>Report B.1/B.5</u> Calculation of potential production levels for actual land suitability classes and different crops, - as being combined with: <u>Report B.2/B.4</u> Financial analysis of eleven farming systems specified as to crop calendars, capital and labour inputs and incomes averaging FCFA 750,000/hh/yr led to four agric. extension programs being detailed in <u>Report B.6</u>: B.2.1. Increased use of selected planting material and plant protection chemicals. B.2.2. Increased use of chemicals and organic fertilizers and soil improvement. B.2.3. Generalization of 2nd cropping cycle in farm cultivation. B.2.4. Improvement of preservation/transformation of agricultural produce. B.3.1. Adapted literacy campaign for Mbororo social integration. B.3.2. Establishment of grazier associations by executive cell. B.3.3. Improvement program for poultry, goats, sheep etc. B.3.4. Pilot progr. for drying cattle carcasses for domestic market. B.3.5. Establishment of feeding centers for transit cattle. B.3.6. Study of tsetse fly and toxic plants for eradication strategy.</p>	<p>Phase III Final report I, proposing: A.6.1 a regional/local coordination structure; A.6.2 progr. start-up and mobilization A.6.3 on-the-job training in planning; summary of investment progr. of Rep. II and III amounting to FCFA 3,690 million for period 1990-1992; A.6.4 progr. monitoring and evaluation A.6.5 establ. of data base for plan-formulation A.6.6 a second round of priority chiefdom selection for 1993-1996 A.6.7 formulation of comprehensive development strategy for Tikar plain "at the end"</p>
<p><u>Working Groups C</u> on Fishery, Forest and Ecology  7. Fishery, Wild Life and Ecological Exp. (1,8 mm). 8. Forestry Expert (1,7 mm)</p>	<p><u>Report C.1</u> Study on fish production, income (FCFA 220,000/hh/yr) marketing and processing as related to artificial lake, leading to: -----&gt;  <u>Report C.2</u> Study on soil types sensitive to erosion, water-related human diseases and wild life preservation. <u>Report C.3</u> Study on rapid deforestation, caused: - by fires for crop and grass production - by selective cutting for timber and firewood leading up to the following proposals: -----&gt;</p>	<p>C.1.1. Monitoring number of fishermen and fish catches. C.1.2. Improvement of fish smoking techniques through demonstration. C.1.3. Training of government fishery staff. C.1.4. Improvement of fish markets sanitation.  C.3.1. Establishment of agro-forestry village woodlots for local population. C.3.2. Establ. of raw material base for forest-industries: 1,000 ha. C.3.3. Monitoring watershed degradation in Tikar plain.</p>	<p>Phase III Final Report II, proposing logical frameworks*, costs and benefits of productive programs: B.2.1-4 in agriculture and transformation of agric. prod. B.3.1-6 in animal husbandry C.1.1-4 in fish production and processing C.3.1-3 in agro-forestry and environmental protection</p>
<p><u>Working Group D</u> on Rural infrastructure 9. Civil Engin. (4 mm) and Technician(s) (1 mm)</p>	<p><u>Report D.1</u> Study on water availabilities per watershed area in Tikar Plain <u>Report D.2</u> Study of gaps in provision of primary and sec. education, health services, drinking water and rural roads leading up to proposals in Rep. A5/D3: -----&gt;</p>	<p>D.3.1-4 Proposed programs for expansion of school buildings, personnel of health, drinking water facilities, equipment and personnel, and of rural roads.</p>	<p>Phase III Final Report III with proposed programs D.3.1-4 in education, health, drinking water supply and rural roads.</p>
<p><u>Working Group E</u> on Computer</p>	<p>Sixteen (16) Maps produced on Tikar plain:</p>	<p>4. Map with vegetation/forest types 5. Grazing land suitability map</p>	<p>11/12. Maps with existing and future infrastructure in</p>

Assisted Map Production 10. Cartographer (1mm)	1. Map with surface and boundaries of 11 chiefdoms 2. Map with four priority chiefdoms 3. Physiographic Map.	6. Land use map 7. Map with eleven regional farming systems 8. Map with actual and potential land suitability classes 9/10. Maps with existing and future infrastructure in education	health 13/14. Maps with existing and future drinking water facilities 15/16. Maps with existing and future rural road pattern
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N.B. 300 FCFA = US \$1

**Figure 6. Reduced Procedure for Problem Structuring, Goal Setting, Discriminating Factors for Area Selection, and Identification of Priority-Area Project Packages for First Executive Round of 1990-92**

Planning steps - Export Working groups A-D	Step I.2.a Problem structuring: Start-up of logical framework			Step I.2.b Setting of general development objectives and specific goals	Step I.3. Discriminating and scoring factors for area selection per lowest administrative unit. i.e. chiefdom	Step I.4 Identification of priority-area project packages 1990-93 through logical framework (Kijne/MDF, 1992; Callewaert, 1988)
	Core problem	Causes	Effects			
Socio-economic working Group A, incl. plan coordination Human Resource, Institutional And Financial Potentials	- Increasing population pressure in Tikar Plain  - Weak, and fragmented public administration	- Spontaneous immigration from northwestern plateaux - Decreasing cultivable land - Limited planning capacities, local authority competences + funds	- Tribal conflicts over land use - Frictions between nomadic herdsmen and agriculturists  - Deterioration of local incomes, employment and living standards: malnutrition	- Institution building i.e. reinforcing local administration, through: - Multi-level + intersectoral plan coordination - Community participation and development - Training of local planners - Improvement of (M/E) planning data base	A.1.1. Population density/km <sup>2</sup> (198-8): score 10 = < 20 inh/ km <sup>2</sup> ; score 30 = > 50 inh/km <sup>2</sup> A.1.2. Annual pop. growth (1966-88) score 10 = 3%; score 20 = 3-3.5%; score 30 = > 3.5% A.1.3. Immigrants as % of population; score 10 = < 40%; score 20 = 40-70%; score 30 = > 70% A.2. Community dev. committee + local funds in dynamic use: score 10 = non-existent; score 30 = dynamic; score 60 = very dynamic	Interventions A.6.1-5: Institution building - Appointment of regional plan coordinators and local community devel. workers - Organization of instructive local seminars - Organization on-the-spot of training workshops - Introducing program and project monitoring and on-going evaluation (=M/E) - Establishing a local planning data base
Working group B on soils, agriculture and animal husbandry  Agro-Livestock  Production Potentials	- Soil degradation  - Pressure on grazing lands around artificial lake Map - Marginal nomadic Mbororo life style: individualistic - Regular mortality from epidemics among	- Intensification + expansion of agric. production  - Decreasing yields - Decreasing grazing land, versus - Increasing local livestock rearing + transit towards Douala + Yaoundé	- Shortages of staple food - Increasing food prices - Decreasing (coffee) exports _ foreign exchange position - Rural deprivation  - Pasture degradation - Neglect of soil conservation - Illiteracy among Mbororo herdsmen + women - Heavy cattle	- Reduction of competition for land, i.e. of conflicts and frictions, through: - Improvement of soil fertility + protection - Impr. of agricultural production and incomes - Mbororo social integration: externally and internally - Improvement of Mbororo incomes through meat preservation, i.e. drying, and transit feeding centres to be stimulated - Eradication of tsetse fly and toxic plants - Increase of animal protein intake at farm village level	B.1.1. Agric. land suitability: score 10 = marginally suitable; score 20 = moderately suitable; score 30 = suitable B.1.2. Erosion hazard: score 10 = high; score - 20 moderate; score 30 = low  B.1.3. Suitable grazing lands as % of total available land Score 30 = > 75%; score 20 = 25-75%; score 10 = < 25%	Interventions B.2.1.-4 through agric. extinction service: - Increased use of selected (coffee) planting material and plantprotection chemicals - Increased use of chemical + organic fertilizers (non-subsidized) and soil improvement - Generalization of second cropping cycle in farm cultivation - Improvement of preservation + transformation of agricultural produce Interventions B.3.1-6 on animal husbandry: - Adapted literacy campaign for Mbororo social integration into civil society of

	chickens, sheep, goats, pigs in peasant farms, particularly along main roads	- Unknown diseases and cures/vaccinations of small animals	losses during dry season, but because of trypanosomiasis and toxic plants, too - Heavy losses in small animal-husbandry sector at farm level			Cameroon - Establishment of dynamic graziers' associations of Mbororo livestock rearing - Pilot prog. of drying cattle carcasses for domestic market - Establishment of feeding centres for transit cattle - Survey of tsetse fly + toxic plants for eradication strategy - Improvement through applied research of small animal husbandry sector.
Working Group C on fishery, forestry and environmental protection  Natural Resource Development Potentials	- Threatening over-exploitation by fishermen of lake Mapé - Inefficient fish smoking techniques - Unhealthy and inaccessible fish markets  - Rapid deforestation - Destruction of organic soil materials	- Too intensive fishing on the lake - Lack of technological know-how on fish preservation - Too rapid fishery development around new lake  - Man-made fires for crop + pasture production - Selective cutting for timber + firewood	- Declining fish catches, i.e. profitability after 1991 - Losses in protein quality, taste and durability as well as in fuelwood - Increased transport prices on unhygienic markets  - Loss of vegetation cover in watersheds - Siltation of new lake Mapé - rising firewood, timber = round wood demand and prices	- Avoiding over exploitation of lake Mapé through control measures - Profitability increase through improved smoking - Decrease on fuelwood consumption for smoking - Improvement of public sanitation and accessibility of fish markets  - Local tree production for supply of firewood, timber, fodder and nuts - Reduction of work by women in firewood collection - Reducing pressure on natural forests, if any! - Environmental control		Interventions C.1.1.-4 on fishery development: - Monitoring fish catches + number of fishermen by licensing - Improvement of fish smoking techniques through demonstration of ovens, etc. - Training of fishery staff in monitoring, improved smoking, fishing etc. - Construction of shelters, water wells and sanitary blocks at fish markets, incl. respective rural roads Interventions C.3.1-3 on forestry development: - Stimulating agroforestry village woodlots to satisfy local demands - Establ. of raw material base (: 1000 ha) for timber industries - Monitoring watershed deforestation, sediment transport to the new lake, wild life preservation and beekeeping
Working group D on rural infrastructure  Service Delivery Potentials Of Social And Physical Infrastructure, Incl. Rural Market Centres	- Non-attendance and drop-outs at primary schools - Lack of school facilities + qualified teachers - Lack of primary health care program, facilities and personnel: both	- School age children engaged in agro-live-stock production - Early marriages of girls - Deteriorating govt. budgets + farm incomes/paying capacities for education + health	- Illiteracy, particularly among women - High pupil/class + pupil/teacher ratio's - Long walking distances to schools, health centres + hospitals	- Promotion of kindergartens - Improvement of educational services - Organization of women training and development program - Promotion of primary health care system - Supplement and improvement of health facilities + workers  - Provisions of safe	D.2.1.a. Number of primary school pupils per 1000 inh. Score 10 = > 200; score 20 = 150-200; score 30 = < 150 D.2.1.b. Nr. of pupils/ classroom. Score 10 = < 50; score 20 = 50-70, score 30 = > 70 D.2.1.c. Nr. of pupils/ qualified teacher. Score 10 = <50 score 20 = 50-70; score 30 = > 70	Interventions D.3.1. on education: - Construction of 59 classrooms, incl. community self-help contributions - Allocation of 47 qualified teachers - One women training centre to be installed in collaboration with one centre for advice on appropriate technology in palm oil and cassava processing, maize milling, etc. to reduce heavy women's work



<p>curative and preventive</p> <ul style="list-style-type: none"> <li>- Unreliable drinking water sources (: rivers, wells, boreholes) of bad quality on long walking distances</li> </ul> <p>- Disrupted rural road transportation around artificial lake Mapé</p> <ul style="list-style-type: none"> <li>- Inaccessibility of Tikar plain from outside during rainy season</li> </ul>	<p>services</p> <ul style="list-style-type: none"> <li>- Destruction by inundation of artificial lake</li> <li>- Unknown human disease pattern, etc.</li> <li>- Low surveying, construction + maintenance capacities, particularly of piped drinking water systems + motor pumps</li> </ul> <ul style="list-style-type: none"> <li>- Inundation of tracks + trunk roads by artificial lake</li> <li>- Lack of road maintenance</li> <li>- Deplorable state of some tracks + bridges, if any.</li> </ul>	<ul style="list-style-type: none"> <li>- Fetc hing water and outbreaks of water-borne diseases cause economic time losses</li> </ul> <ul style="list-style-type: none"> <li>- Commodity + passenger transport is badly hampered: (inter-) regional markets and public services become inaccessible</li> </ul>	<p>drinking water from stable sources of supply (: boreholes) at acceptable distances for women + children: 500 m from settlements</p> <ul style="list-style-type: none"> <li>- Improvement of local maintenance capacities</li> </ul> <ul style="list-style-type: none"> <li>- Opening up the Tikar plain externally towards the northern Nigerian frontier and northwestern mountainous plateaux</li> <li>- Improving internal traffic along collector and feeder roads</li> </ul>	<p>D.2.2. Qualified health workers per 1000 inh. Score 10 = &gt; 1 qu. h. worker; score 20 = 1 qu h. worker</p> <p>D.2.3. Number of inhabitants per drinking water service point (: well, public tap, borehole, etc.) Score 10 = &lt; 500 inh.; score 20 = 500-1000; score 30 = &gt; 1000 inh.</p> <p>D4/A4. Importance of existing rural market centres. Score 60 = inter-regional market; score 30 = regional market</p>	<p>load Interventions D.3.2. on health care:</p> <ul style="list-style-type: none"> <li>- Construction/improvement of health centres and hospitals</li> <li>- Allocation of + 70 health professionals</li> <li>- Setting up primary health care service on the basis of nutritional + epidemiological studies to be executed</li> </ul> <p>Interventions D.3.3. on drinking water supply:</p> <ul style="list-style-type: none"> <li>- 51 boreholes to be surveyed and drilled; hand pumps, distribution networks and public taps to be installed in settlements of 2000-5000 inh. incl. community self-help contributions</li> </ul> <p>Interventions D.3.4. on rural roads:</p> <ul style="list-style-type: none"> <li>- Construction of new tracks: 10 klm*</li> <li>- Improvement of existing tracks: 84 klm*</li> <li>- Maintenance of existing tracks: 74 km including community self-help contributions</li> <li>- Improvements of planning data base through study of Tikar traffic flows</li> </ul>
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## 6. Appendix 2 Checklist for Data Inventory and Analysis (Free From Paats, 1987)

1.	SOCIAL SERVICES AND SETTLEMENT STRATEGY	<u>Source</u>
1.1.	<u>Settlement strategy</u>	
1.1.1.	Determine population of the district by ward (= sub-district) and by village broken down by sex (sex ratio) and by age groups	Census
1.1.2.	Determine population dynamics by district and ward, including birth and death rates, population growth (1963-1969-1980) and immigration	Census
1.1.3.	Determine geographical distribution (population dot maps) and density by ward and village	Census
1.1.4.	Determine the total number of primary schools in the district, including their geographical distribution, level (lower primary/upper primary) and accessibility (total population within ... kilometer of the facility)	CEO Census
1.1.5.	Determine other educational facilities, such as secondary schools, vocational training centres and other non-formal training programmes (UNZA extramural)	CEO
1.1.6.	Determine the total number of hospital and rural health centres (= RHC) in the district, including their geographical distribution, level (grade I/II RHC) and accessibility (total population within ... kilometer of the facility)	PMO Census
1.1.7.	Determine the total number and geographical distribution of extension	PAO

	workers, such as agricultural extension staff (including their qualification: SAA, AA, CD), Community Development Assistant, Community Health Worker, Veterinary Assistant)	PMO PVO
1.1.8.	Determine the geographical distribution of improved water supply (hand dug wells with cover, hand pumps, etc.)	DWA District Council
1.1.9.	Determine location and accessibility of seasonal and marketing depots for crops and cattle sale yards, dip tanks and crushpens	Namboard WPCU PVO
1.1.10.	Determine the number of local courts and their geographical distribution	PLCO
1.1.11.	Determine the presence and geographic distribution of shops (the trade licenses/taxation register can be used for this, but random field checks will be required to determine if the shops are operational)	District Council
1.1.12.	Determine the availability of electricity supply, postal services, telephone, fuel supply, banking facilities (including Lima Bank), FTC, Police	ESCO PTC, PAO District Council

1.1.13.	Combine all data, collected under 1.1.1 through 1.1.12 into a classification of existing settlements in the district, using the classificatory index scheme of the Provincial Medium Term Plan 1986-1991	See: Rural Services and Secondary Centres in Western Province, 1986
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## 1.2. Education

1.2.1.	Determine literacy rate by sex	CEO
1.2.2.	Determine total number of primary schools, enrolment by sex	CEO
1.2.3.	Determine enrolment in primary schools as a percentage of the relevant age cohort by sex, district and ward	CEO
1.2.4.	Determine the following educational indicators by district, ward and school: pupil/class ratio, pupil/teacher ratio and progression/drop-out rate lower primary to upper primary schools	CEO
1.2.5.	Assess the quality of educational structures, including the number of permanent and semi-permanent buildings and the number of staff houses	CEO
1.2.6.	Determine total number of secondary schools, including enrolment by sex and class	CEO
1.2.7.	Determine progression rates from primary to secondary (grade 7 - form 1) and from junior secondary to senior secondary (form 2 - form 3) schools, including drop-outs and repeaters	CEO

## 1.3. Health

1.3.1.	Determine the following health indicators at district level <ul style="list-style-type: none"> <li>- Number of doctors per 1000 population</li> <li>- Number of beds (hospital and RHC separately) per 1000 population</li> <li>- Number of other medical and paramedical staff per 1000 population</li> </ul>	PMO
1.3.2.	Incidence of diseases, including geographical distribution per RHC	PMO

## 1.4. Water supply

1.4.1.	Determine the availability of township water supplies in the district, their capacity, number of house connections and public standpipes	District Council DWA
1.4.2.	Analyze rating structure (monthly payable water charges), revenues and expenditures for township water supplies (including number of staff)	District Council

## 2. AGRICULTURE, LIVESTOCK, FISHERIES AND CO-OPERATIVES

### 2.1. Climate

2.1.1.	Collect data on temperature to include <ul style="list-style-type: none"> <li>- Absolute maximum/minimum and average maximum/minimum temperature on a monthly basis</li> </ul>	Meteorological Department
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	- Incidence of night frost (NB. Data from the district meteorological station to be used. If not available, one could use the data of the nearest station, but the latter should be used with care. Records to be used should cover a long period, if possible 30 years)	
2.1.2.	Collect data on precipitation: - Per year and per month - Per growing season and per 10 days of growing period	Meteorological Department
2.1.3.	Collect data on evapo-transpiration: - Per year and per month - Per growing season and per 10 days of growing period - Rainfall excess deficit	Meteorological Department
2.1.4.	Collect data on wind velocity: - Per year and per month - Wind direction - Frequency and intensity of storms	Meteorological Department
2.1.5.	Collect data on day length and sunshine percentage: - Per year and per month - Per 10 days of growing period	Meteorological Department
2.1.6.	Collect data on air humidity: - Per year and per month - Per 10 days period - Dewpoint temperature	Meteorological Department

2.1.7.	Determine the agro-climatic zone(s) to which the district (or parts of the district) belongs, using the data collected under 2.1.1 through 2.1.6	ARPT PPU
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## 2.2. Land and soils

2.2.1.	Determine present land use (total hectares), resulting in a land use map: - Natural vegetation/forests - Agriculture (annual and perennial cultivation) - Grazing - Wildlife (national parks) - Other land uses (townships, etc.)	PAO ARPT PPU
2.2.2.	Determine geography and general features: - Land types (upland, dambo, floodplain), including: * Position and elevation * Relief and slope * Land surface conditions	PPU SSU PAO ARPT
2.2.3.	Determine soil profile description and classification	SSU
2.2.4.	Determine physical land qualities (constraints) for specific uses	PAO, ARPT SSU

## 2.3. Hydrology

2.3.1.	Determine presence of surface water resources: - Lakes, rivers - Reservoirs, canals	DWA PAO
2.3.2.	Determine the presence of ground water resources: - Springs - Wells (NB. For the present exercise no further data will be required. Detailed investigations, to include such aspects as water level and discharge, flow velocity, aquifer characteristics, will be required if development of water resources will be considered to be necessary for the development of the district)	DWA
2.3.3.	Determine water use for agriculture: - Total area under irrigation (hectares) - Livestock drinking water facilities	PAO PVO
2.3.4.	Determine hazards in relation to water resources: - Water logging: areas subject to (periodical) high water tables	PAO SSU

- Salinisation and alkalization  
(NB. It will probably not be possible at this stage to give details in total area.  
A qualitative description will suffice at present)

#### 2.4. Land suitability

2.4.1.	Data collected under Climate (2.1), Land and Soils (2.2) and Hydrology (2.3) should be combined into land suitability maps for specified types of land utilisation. A distinction will have to be made for present and for improved conditions	APRT SSU,PPU PAO
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#### 2.5. Crop production

2.5.1.	Determine:	PAO
	- Number of households, engaged in agriculture	ARPT
	- Number of farms and classification according to size, including geographical distribution (for instance: total hectareage, subsistent/emergent/commercial)	
2.5.2.	Determine cropping patterns:	PAO
	- Crops grown: area and yields (including geographical distribution)	ARPT
	- Total production per district and ward (block) and marketed surplus	WPELL
	- Crop rotation: succession and fallow	
	- Cropping calendar	
2.5.3.	Farming systems description (zoning) to include a.o.:	ARPT
	- Labour use and labour film	
	- Use of fertilizer	
	- Mechanization	
	- (Source of) non-farm income	
	- Potential for improvement	
2.5.4.	Determine the number of extension staff available, their distribution, their qualifications, the number of farmers per extension, staff at district and ward (block) level and determine the number of training courses for farmers on an annual basis, including enrolment and subject	PAO
2.5.5.	Determine research activities undertaken at district level	PAO, ARPT
2.5.6.	Determine marketing organizations and the number of storage depots (seasonal/permanent), their method of construction, total crops purchased per depot and total inputs sold at depots	Namboard WPCU
2.5.7.	Determine the number of co-operative primary societies, their nature (single, multi-purpose), their stage of development (fully established/study groups), their membership, their paid-up capital and their geographical distribution	PMCO WPCU
2.5.8.	Determine the availability and use of credit:	Lima Bank
	- Total number of applicants and total number approved loans by type and purpose of loan (seasonal/medium term), including geographical distribution	Commerc. Banks
	- Source of loan (Lima Bank, CCS, Commercial Bank)	Co-oper. Credit
	- Repayment rate	Scheme
2.6.	<u>Livestock production</u>	
2.6.1.	Determine total number of cattle heads in the district, including geographical distribution and management practices	PAO PVO
2.6.2.	Determine herd composition (male/female, oxen/bulls/heifers/calves, etc.)	PAO, PVO
2.6.3.	Determine the livestock products and their relative importance:	PVO
	- Meat	PAO
	- Milk	
	- Draught power	
	- Manure	
2.6.4.	Determine the availability of grazing areas, including:	PVO
	- Area available	PAO
	- Type of area (upland, dambo, floodplain)	
	- Nature of grazing area (seasonal/permanent, browsing)	
	- Nutritional grazing capacity	
2.6.5.	Determine incidence of livestock diseases and disease control activities and the number and location of diptanks and crushpens	PVO
2.6.6.	Determine the number of extension staff (veterinary assistants) available,	PVO

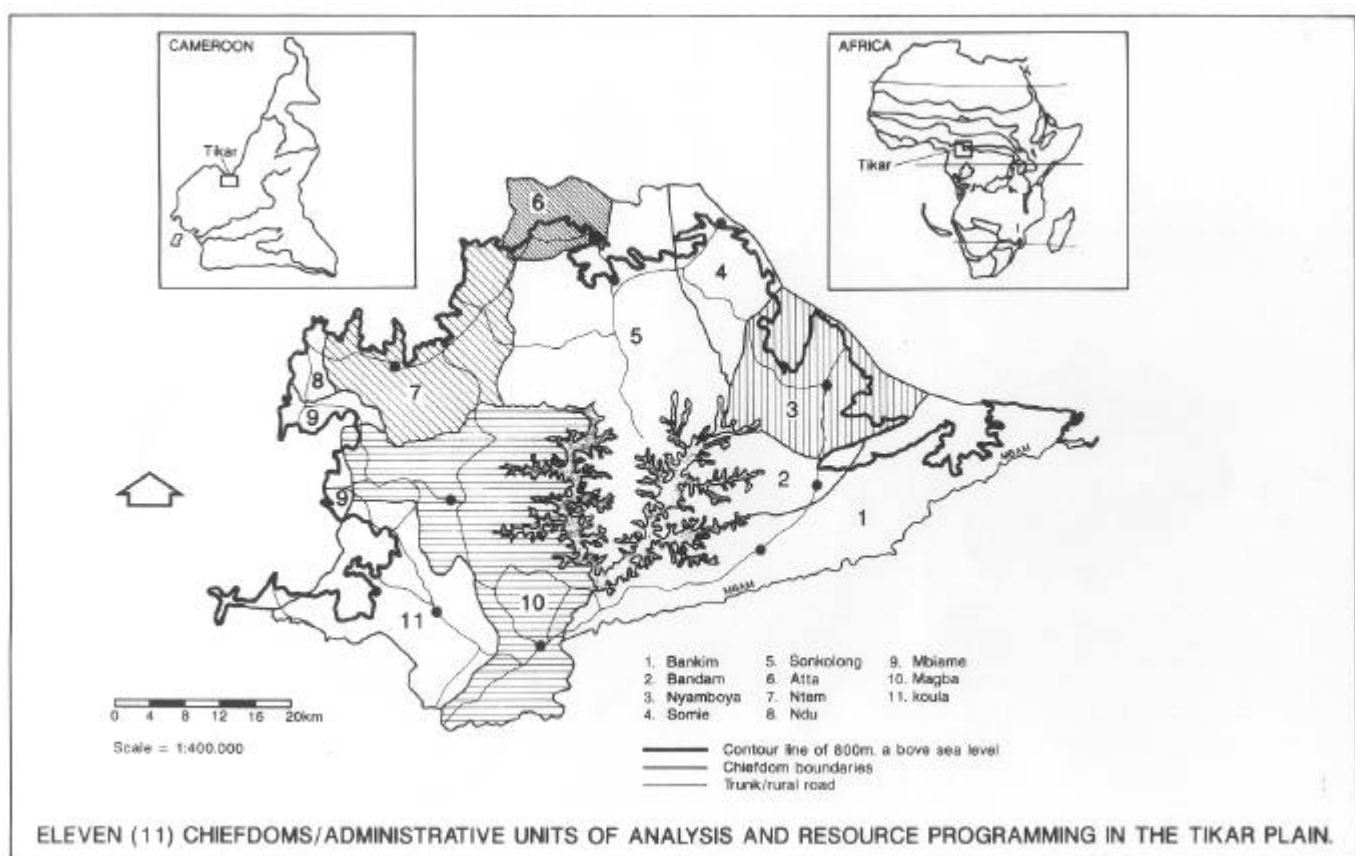
	their distribution, their qualifications, the number of (livestock) farmers per extension staff at district and block level	PAO
2.6.7.	List the research activities undertaken at the district level	PAO, PVO
2.6.8.	Determine the number and location of cattle saleyards in the district, the number of heads of cattle bought per saleyard and for the whole district (calculate the offtake) Determine the number of cattle slaughtered locally and the number of cattle transported alive (NB. Make a distinction between cattle slaughtered for local consumption and slaughtered for onward transportation to the line-of-rail)	PVO WPCU CSB
2.6.9.	Determine the number of primary societies, involved in livestock, their nature (single/multi-purpose), their stage of establishment (fully established, study groups), their membership, their paid-up capital and their geographical distribution	PMCO WPCU
2.7.	<u>Fisheries</u>	
2.7.1.	Determine the availability of fishing water, to include: - Open water - Fish ponds	Fisheries Dept.
2.7.2.	Assess the fishstock (specified per type)	Fisheries Dept.
2.7.3.	Determine the total production from fisheries and fish culture	Fisheries Dept.
2.7.4.	Determine harvesting, preservation and processing methods	Fisheries Dept.
2.7.5.	Determine the share of the fish production, marketed outside the district	Fisheries Dept.
2.7.6.	Determine research and extension activities concerning fisheries and fish culture	Fisheries Dept.
2.7.7.	Determine the kind of organization among fishermen, including fishing co-operatives	WPCU, PMCO Fisheries Dept.
3.	EMPLOYMENT, INDUSTRIES AND COMMERCE	
3.1.	<u>Industries and commerce</u>	
3.1.1.	Determine the establishments in the industrial sector (manufacturing, agro-processing, etc.), including the number of employees, turnover, capital investment and location	District Council
3.1.2.	Determine the establishments in the commercial sector (shops, etc.), including the number of employees and location (NB. Data of the trade licensing officer can be used. However, random checking will be required, in order to establish whether all trade license holders are actually operating an establishment)	District Council
3.1.3.	Determine extension and credit programmes in the district	District Council SIDO, VIS
3.2.	<u>Forestry</u>	
3.2.1.	Make an inventory of: - Area under natural (gazetted and ungazetted) and forest plantations - Major species - Volume of wood in natural forests and plantations	Forestry Dept.
3.2.2.	Determine the production of forests and plantations, including forest products: - Timber - Firewood - Fruits/oils, honey and wax	Forestry Dept.
3.2.3.	Make an inventory of all private sector and public sector activities in forest exploitation (saw milling, plantations, etc.). Determine the number of employees of private sector forestry operations	Forestry Dept.
3.2.4.	Determine research and extension programmes in the forestry sector	Forestry Dept.
4.	COMMUNICATIONS AND INFRASTRUCTURE	



4.1.	<u>Roads</u>	
4.1.1.	Determine the total length of roads, both provincial and feeder roads, in the district, their location, their standard and quality and the authority responsible for maintenance	Roads Department District Council
4.1.2.	Determine the percentage of the population within ..... km of an all weather and seasonal road	Census
4.2.	<u>Waterways and harbours</u>	
4.2.1.	Determine the total length of waterways in the district, their location, navigability and the authority responsible for maintenance	DWA District Council
4.2.2.	Determine the number of harbours in the district, their handling facilities, capacity and location	DWA District Council, PTC
4.3.	<u>Bus services</u>	
4.3.1.	Determine bus services in the district, including routes, frequency, number of passengers transported (If no data on passengers are available, it may be considered to carry out random checks)	UBZ District Council PTC
4.4.	<u>Posts, telecommunications and radio</u>	
4.4.1.	Determine the number and location of postal service, including post offices, postal agencies and mail runners	PTC
4.4.2.	Determine the capacity of the telephone exchange in the district, the number of connections (public and private connections to be separated)	PTC
4.5.	<u>Electrification</u>	
4.5.1.	Determine the location of electricity generating source and capacity in the district	ESCO Private
4.5.2.	Determine the number of connections, rating structure, staff and revenues and expenditures	ESCO Private

Explanation of abbreviations used

ARTP	=	Agricultural Research and Farming Systems
CEO	=	Provincial Educational Office
CSB	=	Abattoir
DWA	=	Provincial Department of Water Affairs
Lima Bank	=	Agricultural Credit Bank
Namboard	=	Provincial Marketing Board
PAO	=	Provincial Agricultural Office
PLCO	=	Provincial Local Courts Office/Ministry of Justice
PMCO	=	Provincial Ministry of Co-operatives
PMO	=	Provincial Medical Office
PPU	=	Provincial Planning Unit
PTC	=	Post, Telegraph and Communications/Ministry of Power, Transport and Communications
PVO	=	Provincial Veterinary Office
SIDO	=	Small-scale Industry Development Organization
SSU	=	Soil Survey Unit
UB	=	United Buscompany
VIS	=	Village Industry Service
WPCU	=	Provincial Co-operative Union
ESCO	=	Electricity Supply Corporation



**Figure 8. Administrative Units in the Study Area.**