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Chad

Rural Policy Note

Building a Sustainable Partnership

October 7, 2010

Agricultural and Rural Development Unit
Sustainable Development Department
Country Cluster AFCC1
Africa Region



Document of the World Bank

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This policy note builds on a re-engagement mission in December 2009 and was prepared during April-September 2010 by a team comprising Josef Loening (AFTAR), Nancy Ruth Morgan (FAO) and Julien Vallet (consultant). The team is grateful for inputs received from Nicolas Ahouissoussi (ECSSD), Stephen Mink (AFTSD), Jean Kamanzi (ARD), Stephane Forman and Patricia Seex (AFTAR) as well as comments from the Chad country team. The peer reviewers were Ali Mahmoud Khadr (Senior Manager, IEGCR), Joseph Baah-Dwomoh (Country Manager, AFMBJ), and Mathurin Gbetibouo (Lead Agricultural Economist, LCSAR). This work was carried out under the overall guidance of Kathryn Hollifield (Acting Country Director, AFCCM), Karen McConnell Brooks (Sector Manager, AFTAR) and Michael Morris (Program Coordinator, AFTAR). The team would like to thank the Chadian authorities and donor community at all levels for their excellent cooperation.

CURRENCY EQUIVALENTS

(Exchange rate effective September 8, 2010)

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US\$ 1.00 = CFA 504.25

US\$ 1.00 = SDR 0.66

FISCAL YEAR

January 1 – December 31

WEIGHTS AND MEASURES

Metric System

Abbreviations and Acronyms

AAA	Analytical and Advisory Services
AFD	French Development Agency (<i>Agence Française de Développement</i>)
AFTAR	Agricultural and Rural Development Unit Africa Region
AGOA	Africa Growth and Opportunity Act
ALSP	Agriculture and Livestock Services Project (<i>Projet de Services Agro-pastoral</i>)
ARD	Agricultural and Rural Development Anchor Unit
ARRSP	Agricultural Rehabilitation and Recovery Support Project
ASPOP	Agricultural Services and Producers Organization Project
CAADP	Comprehensive Africa Agriculture Development Program (<i>Programme Détaillé de Développement de l'Agriculture Africaine</i>)
CAS	Country Assistance Strategy
CDD	Community-Driven Development
CEBEVIRHA	Economic Livestock Commission (<i>Commission économique du bétail, de la viande et des ressources halieutiques</i>)
CEEAC	Economic Community of Central African States (<i>Communauté Economique des Etats d'Afrique Centrale</i>)
CEMAC	Economic and Monetary Community of Central Africa (<i>Communauté Economique et Monétaire d'Afrique Centrale</i>)
CET	Common External Tariff
CGE	Computable General Equilibrium
CNAR	National Center for Research Support (<i>Centre National d'Appui à la Recherche</i>)
CNCPRT	Chad National Federation of Rural Producers (<i>Conseil National de Concertation des Producteurs Ruraux du Tchad</i>)
CPI	Consumer Price Index
CPIA	Country Policy and Institutional Assessment
CST	Chadian sugar company (<i>Compagnie Sucrière du Tchad</i>)

DD	Dutch Disease
DES	Dietary Energy Supply
EC	European Community
ECOSIT	Survey on Household Consumption and the Informal Sector (<i>Enquête sur la Consommation du Secteur Informel au Tchad</i>)
ECSSD	European and Central Asia Sustainable Development Department
ERR	Economic Rate of Return
ESW	Economic and Sector Work
FAO	Food and Agriculture Organization of the United Nations
FEWS NET	Famine Early Warning Systems Network
GAFSP	Global Agriculture and Food Security Program
GDP	Gross Domestic Product
GTZ	German Development Cooperation (<i>Deutsche Gesellschaft für Technische Zusammenarbeit</i>)
ICR	Implementation and Completion and Result Report
IEGCR	Independent Evaluation Group Country Evaluations
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
INSEED	National Statistical Institute (<i>Institut National de la Statistique, des Études Économiques et Démographiques</i>)
IRAM	National Development Research Institute (<i>Institut de Recherche et d'Application des Méthodes de Développement</i>)
IRR	Internal Rate of Return
ISA-LSMS	Integrated Surveys on Agriculture - Living Standards Measurement Study
ISN	Interim Strategy Note
ITRAD	Chadian Institute of Agronomic Research for Development (<i>Institut Tchadien de la Recherche Agronomique pour le Développement</i>)
LCSAR	Agricultural and Rural Development Unit Latin America Region
LPDR	Rural Development Policy Letter (<i>Lettre de Politique de Développement Rural</i>)
MFI	Microfinance Institution
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organization
NPFS	National Program for Food Safety
NPRS	National Poverty Reduction Strategy
ONASA	National Food Security Office (<i>Office National Sécurité Alimentaire</i>)
ONDR	National Office of Rural Development (<i>Office National du Développement Rural</i>)
PAD	Project Appraisal Document

PADUR	Urban Development Project
PARCAFIP	Public Finance Capacity Building Project (<i>Project d'Appui au Renforcement des Capacités en Finances Publiques</i>)
PIDR	Rural Development Intervention Plan (<i>Plan d'Intervention pour le Développement Rural</i>)
PNDE	National Plan for Livestock Development (<i>Programme National de Développement de l'Élevage</i>)
PNSA	National Food Security Program (<i>Programme National de la Sécurité Alimentaire</i>)
PROADEL	Local Development Project Support Program (<i>Projet de Développement Local</i>)
PRODALKA	Mayo Kebi National Rural Decentralization Development Program (<i>Programme de Développement Rural Décentralisé du Mayo Kebi</i>)
PRSP	Poverty Reduction Strategy Paper
PSAP	Agricultural and Livestock Services Project (<i>Projet de Services Agropastoral</i>)
SAM	Social Accounting Matrix
SCRD	Sector-based Consultation for Rural Development
SDA	Master Plan for Agriculture (<i>Schéma Directeur Agricole</i>)
SDEA	Integrated Plan for Chad's Water Development and Management (<i>Schéma Directeur de l'Eau et de l'Assainissement du Tchad</i>)
SDR	Special Drawing Rights
SPFS	Special Program for Food Security
TI	Transparency International
UNPCT	Chad National Union of Cotton Producers (<i>Union nationale des producteurs de coton du Tchad</i>)
WBI	World Bank Institute
WFP	World Food Program
WHO	World Health Organization
WTO	World Trade Organization

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EXECUTIVE SUMMARY

Background and objectives

1. The Chad Rural Policy Note builds on the findings of a rural sector stocktaking mission carried out in Chad in December 2009. An initial draft of the Note was prepared as a ‘just-in-time’ desk study designed to contribute to the preparation of the Chad Interim Strategy Note (ISN), which was approved by the World Bank’s Board of Directors in June 2010. This finalized version of the Note intended mainly for an internal audience aims furthermore to establish a knowledge baseline that can be used to better position the Bank to design future activities in the rural sector of Chad. In that context, the objectives of the Note are to summarize existing information about the rural sector in Chad, identify knowledge gaps, and highlight key policy issues around which the dialogue in the rural sector might focus, with the objective of improving rural growth prospects and reducing poverty.

Country context

2. Chad is a low-income country with a population of about 11.2 million people, roughly 80 percent of whom live in rural areas. Living conditions are generally very poor: according to the 2009 UNDP Human Development Index, Chad ranks 175 out of 182 countries surveyed. GDP per capita currently stands at US\$ 421, and the most recent household survey carried out in 2003 showed that 55 percent of the population was living below the poverty line. At that time, rural areas accounted for 87 percent of the national incidence of poverty.

3. Despite the recent emergence in Chad of a dynamic petroleum industry, overall GDP growth has declined. The agricultural sector has been hit particularly hard in recent years. The agricultural growth rate fell from minus 1.5 percent in 2008 to an estimated minus 26.8 percent in 2009. Nonetheless, the economy continues to be dominated by the rural sector, which employs about 72 percent of the population. The rural economy is relatively undiversified: two crops (cotton and gum Arabic) and livestock contribute about two-thirds of agricultural and rural GDP. Yields for the main staple crops are among the lowest in Africa.

4. Because the country’s agricultural potential remains largely unrealized, Chad regularly faces severe food security issues at the national level. Some 44 percent of the population, or approximately 5 million people, are considered food insecure. This figure is expected to increase in the future, because Chad is considered extremely vulnerable to climate change. Another dimension of poverty is nutrition, which remains a major concern. Chad currently has one of the highest chronic malnutrition rates, with 40 percent of children under 5 affected by stunting, with little significant improvement observed over the last decade.

5. Food security remains of particular concern. Following a prolonged period of unreliable rainfall that led to drought in many parts of the country, in 2010 cereal production is estimated to have fallen by 12-34 percent compared to the previous year. In addition, deteriorating pasture conditions have led to increased mortality in cattle, with death rates reported as high as 31 percent in some areas. Crop shortages are resulting in higher-than-average cereal prices. A nutritional survey conducted in late 2009 by the NGO *Action Against Hunger* revealed that acute malnutrition in certain hard-hit regions (Kanem, Batha, Ouaddai) affected as much as 27 percent of the population, well above WHO emergency levels. In recognition of the worsening food security situation, an FAO and WFP needs assessment concluded that up to 2 million people will require assistance during 2010. This assistance will likely be supported by record food aid

shipments, estimated at nearly 100,000 tons. Shipments of maize and sorghum will likely constitute over one-half of total imports.

6. The Government's vision for agricultural development — as articulated in the first Poverty Reduction Strategy (adopted in June 2003) and embodied in the second National Poverty Reduction Strategy (adopted in April 2008) — is expressed in four sub-sectoral strategies: (i) the National Program for Food Security, (ii) the Master Plan for Agriculture, (iii) the National Plan for Livestock Development, and (iv) the Integrated Plan for Water Development and Management. While the objectives of the Poverty Reduction Strategy are admirable (achieve sustainable growth, promote environmental conservation, and build rural capacity), in practice rural development policy in Chad is fragmented and lacks coordination. As a result, the Government's ability to respond to the evolving crisis appears limited.

Main challenges facing the rural economy

7. The performance of the rural sector in Chad has been influenced by a range of factors:
- (i) ***Unfavorable institutional environment.*** Many of the institutions charged with serving the rural economy are ineffective. Highly centralized line ministries, low levels of human capacity, weak governance structures, and judicial deficiencies impede the implementation of policies and programs targeting rural areas.
 - (ii) ***Low level of public expenditure.*** Even though Government revenues have increased significantly since the discovery of oil, and even though plans have been announced to increase public spending on non-security-related priority sectors, expenditures destined for the rural sector have decreased continuously since 2007. In addition, actual allocations to the rural sector have been lower than planned allocations, which has adversely impacted rural expenditure efficiency.
 - (iii) ***Lack of rural financial services.*** Rural financial services barely exist in Chad, with the exception of the agricultural credit system introduced under the national cotton parastatal, Cotontchad. Due to low penetration and a difficult overall operating environment for microfinance institutions, rural credit is expensive. In the informal sector, moneylenders may charge as much as 100 percent interest per month, and in the formal sector, village savings and loan associations and women's savings associations charge 25 percent interest per month or more in many areas. Innovative instruments such as warehouse receipt systems, introduced on a pilot basis, have so far yielded limited results.
 - (iv) ***Weak research and extension system.*** A weak agricultural research and extension system contributes to low farm-level productivity. The agricultural research system is constrained by low levels of funding, limited involvement of farmers in the orientation of research, and weak dissemination of research products beyond the research stations. The extension system suffers from limited decentralization, weak capacity of regional extension institutions, lack of accountability by extension agents to farmers, and the remoteness of many villages.
 - (v) ***Inefficient output markets.*** Sorghum, millet, rice, and maize are the most important food staples in Chad, accounting for more than one-half of the average daily intake of approximately 1,990 kilocalories. N'Djamena is the largest market for cereals, with Moundou a distant second. The heterogeneous nature of the nation's main agricultural production zones, their physically dispersed nature, and the lack of connectivity due to poor roads, hampers food security and market effectiveness, resulting in persistent

supply instability and price volatility. Cereal prices and yields in Chad are highly variable and support the need for actions aiming to stabilize domestic supply.

- (vi) ***Unreliability of agricultural water.*** Erratic rainfall and regular droughts regularly lead to food deficits. This is lamentable, because Chad is relatively well endowed with renewable water resources (4,050 cubic meters per inhabitant per year, compared to 2,380 in Niger and 1,595 in Sudan). Available water supplies should be adequate to meet the population's needs. The potential exploitability of renewable groundwater resources is considered favorable, and 335,000 hectares are classified as easily irrigable. This potential is largely untapped; currently only 7,000 hectares have been developed for irrigation, mostly using traditional technologies, with only a few modern and privately-owned schemes in operation.
- (vii) ***Need for strategic investments.*** A wealth of experience from elsewhere in the Sahel shows that irrigation can serve as a powerful stimulus to agricultural growth by raising yield potential. Mobilizing groundwater resources, however, needs strategic investments in simple technologies such as boreholes and pumps that have the potential to lift the groundwater, as well as institutional and management systems that will ensure the long-term sustainability of these investments.
- (viii) ***Low productivity of livestock systems.*** The livestock sector accounts for one-half of agricultural GDP, supports the livelihoods of 40 percent of the rural population, and generates considerable foreign exchange earnings. Yet growth in the sector remains sluggish. Key barriers to accelerated growth include extensive livestock systems that are increasingly impeded by limited availability of water, lack of access to grazing lands, widely prevalent animal diseases, and conflicts that arise when cropping activities are hampered by arrival of pastoralists in search of water and pasture. Livestock exports 'on the hoof' are challenged by the lack of infrastructure and institutions needed to promote and regulate cross-border trade.
- (ix) ***Collapsing cotton sector.*** The cotton sector, which has long played a central role in the rural economy, is mired in a deep and sustained crisis. Three out of four cotton producers are poor. Cotton production decreased from 270,000 metric tons in 1997 to only 33,000 metric tons in 2009. The cotton sector faces significant challenges: (i) collapsing world prices and an appreciating CFA relative to the US dollar, (ii) deep financial arrears of many producer organizations to Cotontchad, (iii) low productivity due to use of outdated agronomic practices and germplasm, and (iv) the dysfunctional institutional structure of Cotontchad, which is characterized by payment delays, untimely provision of input supplies, and delays in the removal of cotton from farms. After racking up heavy debts, many cotton producers exited the sector and diversified into food crops. Implementation of the 2005 cotton sector Road Map and structural reforms are still pending.

Potential drivers of rural growth

8. Despite the many challenges facing the rural economy in Chad, a number of areas show promise as potential future drivers of rural economic growth and poverty reduction:

- (i) **Water resources development for crops and livestock.** With droughts already frequent and water scarcity likely to increase in the future due to global climate change, exploiting water for agriculture and livestock has been identified as an urgent strategic priority for the country. Development of water resources for agriculture and livestock will be important for rural households individually and for the country as a

whole. Irrigation projects have generated attractive economic returns elsewhere in the Sahel, particularly in countries such as Niger and Burkina Faso, where agro-climatic conditions are similar to those found throughout much of central and southern Chad. Development of water resources for use in livestock production is particularly important from a social perspective. Competition between nomadic pastoralists and sedentary agro-pastoralists is growing as these two groups increasingly compete for access to scarce land and water resources. Appropriate investments in and management of agricultural water resources are needed to sustainably and equitably develop pastoral areas.

- (ii) **Livestock value chain development.** Stimulating increased growth of livestock production systems will not be possible unless pastoral systems can be sustainably developed and the livestock value chain can be oriented more toward commercialization. For this to happen, a number of inter-related challenges will have to be overcome. The short term agenda includes ensuring strategic access to water resources, developing a pastoral code, and strengthening veterinary services. In the medium and long term, challenges include enhancing marketing transparency, improving transport and logistics facilities, enhancing access to energy to improve cold storage and storage management, and responding to quality and food safety requirements.
- (iii) **Cotton sector strengthening and diversification.** In the short run, there is an urgent need to assist the many households that depend on cotton as a major livelihood source. For this reason, the Government should urgently pursue the agreed reforms in the cotton sector, particularly as these relate to addressing the two immediate priorities of reducing indebtedness and improving the availability and quality of production inputs. It should look seriously at disengaging from the sector and ceding increased responsibility to the private sector and to farmer organizations. It should look at measures that would increase productivity at the farm level and boost profitability for farmers. Over the longer term, a different strategy will be required: cotton farmers will have to be helped to break their reliance on a crop whose prospects remain highly uncertain. Therefore, the Government also needs to explore ways to diversify the agricultural production base and reduce the dependence on cotton. Farmers are already exiting from the cotton sector and diversifying toward other promising crops; sesame, cowpea, groundnuts, and onions, together with spirulina, all appear to have potential. A Computable General Equilibrium simulation exercise carried out in 2007 concluded that a successful agricultural diversification strategy could mitigate the decline in agricultural GDP resulting from decreased cotton production.

The Bank's rural development strategy during the INS period

9. Consistent with the vision laid out in the INS, the Bank's strategy with regard to rural development in Chad will have to be built on three main pillars. The first pillar will consist of deepened analytical work and improved knowledge in strategic areas where the potential is greatest for payoff in terms of growth and poverty reduction. The second pillar will consist of a better understanding of how the Government's current rural sector strategy is being implemented and what has been the level of coordination between the different ministerial departments that are responsible for implementing the different strategies that make up the rural development package. The third pillar will consist of stronger engagement between the Government, the Bank, and other key stakeholders and partners in productive dialogue about needed reforms.

Three pillars for Bank re-engagement

10. **Pillar 1. Analytical work.** The literature review carried out during preparation of this Note identified three main areas where analytical work is urgently needed to fill critical knowledge gaps. These include: (i) identifying opportunities for improving the management of water resources for crop and livestock production (this would include a review of water needs in the livestock sector and how to manage these); (ii) putting in place a strategy for cotton sector reform; and (iii) identifying economically attractive and environmentally sustainable agricultural diversification possibilities.

- (i) **Water resources development for crops and livestock.** An assessment is needed to identify and quantify the water resources (groundwater and surface) that can be exploited for crop and livestock production. The assessment should review the experience of past irrigation programs, including their effectiveness and efficiency. In addition to assessing the potential for irrigated crop production, the review would pay particular attention to how water resources could be used for sustainable management of livestock production systems. Given the abundance of underground water, the review would pay particular attention to measures that would: (i) improve access to agricultural water through boreholes and pumps to enhance agricultural productivity and incomes in vulnerable regions regarding food security; (ii) enhance sustainable livestock production, reduce social conflicts between pastoralists and agro-pastoralists; and (iii) strengthen the institutional and technical capacities of water users, producer organizations, Government institutions, and private sector support services
- (ii) **Cotton sector reform.** There is a need to update the knowledge base in the cotton sector and to identify the key elements necessary for cleaning up the sector and improving its productivity. The review would help identify the main steps of a reform program that could be implemented in the short to medium term. Key elements of the review would include: a clear definition of the future organization of the cotton filière; the roles of the different stakeholders, such as the government, the private sector, farmer organizations, and individual producers; the extent of farmer indebtedness to Cotontchad and how this can be absorbed; the accompanying measures including actions to improve the performance of producer organizations, actions on how to improve productivity, and how to finance the critical functions (road maintenance, research, extension, seeds, etc.);
- (iii) **Agricultural diversification.** Analytical work is needed to inform the design of a future diversification strategy for the sector. This work would focus on identifying commodities that could provide attractive alternatives to cotton and that could justify increased investments in irrigation. The Chadian cotton sector faces daunting challenges, and difficult choices will have to be made to allow the sector to regain a sound footing. Many cotton farmers will require help in their diversification strategies. Developing irrigation may also require identifying high-value crops that may be able to support the cost of irrigation schemes. The sector would therefore benefit from a diversification strategy that would facilitate farmers' transition toward food security crops (sorghum, millet, and cowpea) and irrigation for agribusiness development (spirulina, onions, and groundnuts, fruits and other vegetables).

11. **Pillar 2. Diagnostic of Chad's rural development strategy.** A second area in which the Bank could productively re-engage with the Government of Chad would be in assisting the Government to carry out a diagnostic study of the performance of the four current rural development sub-strategies. Such an assessment might examine the levels of expenditure devoted

to each sub-strategy and describe the level of coordination between the different ministerial departments responsible for their implementations. The results of this diagnostic study would serve as an important input for the development of a national agricultural investment framework, which could form the basis for concrete multi-year expenditure plans with associated actions, modalities, and delivery channels.

12. **Pillar 3. Deepened policy dialogue.** A third area in which the Bank could productively re-engage with the Government of Chad would be in the policy arena. The level and intensity of the dialogue on rural policy issues could and should be ramped up as additional knowledge is gained concerning critical issues affecting the sector. Issues around which the policy dialogue can begin immediately include the need to jump-start stalled reforms in the cotton sector, what should be the main elements of the cotton-sector reforms, how to absorb the large outstanding farmers' debts to Cotontchad, what measures are needed to improve livestock trade and strengthen private veterinary services, and what interventions are needed to improve rural sector governance so as to leverage greater impacts from rural expenditures.

RESUME EXECUTIF

1. Cette Note de Politique Sectorielle est basée sur les conclusions d'une mission d'information sur le secteur rural conduite au Tchad en Décembre 2009. Une première ébauche avait été préparée afin de contribuer à l'élaboration de la Note de Stratégie Intérimaire de la Banque mondiale (ISN) pour le Tchad, qui a été approuvée par son Conseil d'Administration en juin 2010. La version finale de ce document à vocation interne vise à établir une première base de connaissances destinée à accompagner la conception des futures activités de la Banque dans le secteur rural du Tchad. Dans ce cadre, les principaux objectifs de cette Note de Politique Sectorielle sont de : dresser un premier bilan non exhaustif des informations et données existantes sur le secteur rural ; identifier les lacunes au niveau des connaissances du secteur ; suggérer des thématiques autour desquelles il serait possible de relancer le dialogue sur le secteur rural afin d'améliorer les perspectives de croissance et de réduire la pauvreté en milieu rural.

Contexte national

2. Le Tchad, pays à faibles revenus, a une population avoisinant les 11,2 millions d'habitants, dont environ 80 pourcent vivent en zone rurale. Les conditions de vie sont généralement très précaires et, selon l'indice de développement humain du PNUD pour 2009, le Tchad se classe 175ème position sur les 182 pays sous revue. Le PIB nominal par habitant est estimé à 421 dollars américains, et l'enquête auprès des ménages la plus récente (menée en 2003), a montré qu'environ 55 pourcent de la population vivent en dessous du seuil de pauvreté. À l'époque de l'enquête, 87 pourcent des pauvres résidaient en zone rurale.

3. Malgré la récente apparition d'une industrie pétrolière dynamique, la croissance globale du PIB a diminué. Le secteur agricole a été durement touché ces dernières années et son taux de croissance est passé de -1,5 pourcent en 2008 à -26,8 pourcent en 2009. L'économie continue néanmoins d'être dominée par le secteur rural, qui emploie environ 72 pourcent de la population. L'économie rurale est relativement peu diversifiée : deux cultures (coton et gomme arabique) ainsi que l'élevage contribuent à environ deux tiers du PIB agricole. Les rendements des principales cultures de base sont parmi les plus faibles d'Afrique subsaharienne.

4. Le potentiel agricole et hydraulique du pays demeurant en grande partie inexploité, le Tchad est régulièrement confronté à de graves enjeux de sécurité alimentaire au niveau national. Environ 44 pourcent de la population (environ 5 millions d'habitants) sont considérés comme étant en situation d'insécurité alimentaire. Cette proportion pourrait s'aggraver dans l'avenir, le Tchad étant considéré comme extrêmement vulnérable aux aléas du changement climatique. Une autre composante de la pauvreté est la malnutrition, qui reste une préoccupation majeure. Le Tchad a actuellement l'un des taux les plus élevés de malnutrition chronique au monde, 40 pourcent des enfants de moins de 5 ans étant touchés par des retards de croissance, alors qu'aucune amélioration significative n'a été observée au cours de la dernière décennie.

5. La sécurité alimentaire reste particulièrement préoccupante en 2010. À la suite d'une réduction significative de la production céréalière en raison de sécheresses et des pluies irrégulières, la production a connu un repli estimé entre 12 à 34 pour cent par rapport à l'année précédente. Par ailleurs, la détérioration des conditions de pâture a engendré un taux de mortalité atteignant 31 pourcent chez les bovins dans certaines régions. Les pénuries de production ont entraîné une augmentation du prix moyen des céréales, limitant l'approvisionnement des ménages pauvres des zones urbaines et périurbaines. Sur la même période, une enquête nutritionnelle menée fin 2009 par l'ONG Action Contre la Faim a révélé que la malnutrition aiguë a augmenté jusqu'à 27 pourcent dans certaines régions (Kanem, Ouaddai, Batha), bien au-dessus des niveaux d'urgence établis par l'OMS. Tenant compte de l'accélération de l'insécurité alimentaire dans certaines zones pastorales et des zones affectées par les conflits, une évaluation des besoins

menée par la FAO et le PAM estime que 2 millions de personnes auront besoin d'assistance au cours de l'année 2010. Cette assistance devrait être prise en charge par une aide alimentaire record, estimée à près de 100.000 tonnes, composée principalement de maïs et de sorgho, qui représentera probablement plus de la moitié des importations totales.

6. **La politique de développement rural au Tchad est fragmentée et manque de coordination.** La vision du Tchad pour le développement de son secteur agricole, telle qu'énoncée dans la première Stratégie Nationale de Réduction de la Pauvreté (adoptée en Juin 2003) et exprimée dans la deuxième Stratégie Nationale de Réduction de la Pauvreté (adoptée en avril 2008), est déclinée au travers de quatre stratégies sous-sectorielles: (i) le Programme National pour la Sécurité Alimentaire, (ii) le Schéma Directeur Agricole, (iii) le Plan National de Développement de l'Élevage, et (iv) le Schéma Directeur de l'Eau et de l'Assainissement. Les principaux objectifs sont de parvenir à une croissance durable de la production agricole, ainsi qu'à la conservation de l'environnement et au renforcement des capacités en milieu rural.

Principaux défis de l'économie rurale

7. La performance du secteur rural au Tchad est conditionnée par une série de facteurs, parmi lesquels on peut distinguer:

- (i) ***Un environnement institutionnel défavorable.*** Une gouvernance de faible qualité, des ministères sectoriels très centralisés, des retards dans le processus de décentralisation, la faible capacité des institutions et des carences dans la réglementation foncière, qui sont l'héritage d'un environnement institutionnel très imparfait.
- (ii) ***Un faible niveau de dépenses publiques.*** En dépit de l'augmentation des recettes publiques suite à la découverte du pétrole et des plans de réaligement budgétaires pour augmenter les ressources des secteurs prioritaires non liés à la sécurité, les dépenses publiques en direction du secteur rural n'ont cessé de diminuer depuis 2007. L'allocation inter-ministérielle est généralement plus faible que prévue, affectant l'efficacité des dépenses en milieu rural. Une réelle volonté politique, combinée avec de ***l'assistance*** technique et un dialogue stratégique, pourraient améliorer l'impact des revenus pétroliers du Gouvernement. Il y a par ailleurs peu d'information sur l'efficacité des dépenses du secteur public en milieu rural.
- (iii) ***Un manque de services financiers en faveur du monde rural.*** Les services financiers au Tchad sont insuffisamment développés à l'exception du système de crédit agricole accordé par la Cotontchad en faveur des producteurs de coton. En raison de la faible pénétration du secteur bancaire et d'un environnement d'exploitation très compliqué pour les institutions de microfinance, le crédit rural demeure coûteux. Les prêteurs peuvent céder à des taux d'intérêt de 100 pourcent, tandis que les associations villageoises et les associations de femmes proposant des services d'épargne et de prêt accordent des crédits à des taux de 25 pourcent par mois dans certaines régions. Les services financiers ruraux sont inégalement répartis sur le territoire, et des instruments novateurs tels que les systèmes warrantage introduits sur une base pilote ont produit des résultats décevants.
- (iv) ***Un faible système de recherche et de vulgarisation agricole.*** Au Tchad, la faiblesse du système de recherche et de vulgarisation explique en partie la faible productivité au niveau de l'exploitation. Le système de recherche est limité par : (i) la faiblesse des financements, (ii) l'implication limitée des agriculteurs dans la définition des choix stratégiques de recherche, et (iii) la faible diffusion des produits et résultats de la recherche au-delà des stations expérimentales. Le système de vulgarisation souffre : (i) d'une décentralisation limitée, (ii) d'une faible capacité des institutions régionales de

vulgarisation, (iii) du manque de responsabilisation des agents vis-à-vis des producteurs, et (iv) de l'éloignement de nombreux villages.

- (v) ***Des marchés agricoles insuffisamment développés.*** Le sorgho, le millet, le riz et le maïs, apportant plus de la moitié des 1990 kilocalories nécessaires par jour, sont les principaux produits agricoles commercialisés au Tchad. N'Djamena s'avère être le plus grand marché pour les céréales, loin devant celui de Moundou. L'hétérogénéité et la dispersion géographique des principales zones de production agricole du pays, ainsi que le manque de connexion entre les marchés en raison du mauvais état des routes, entrave la sécurité alimentaire, enraye l'efficacité des marchés et explique une persistante instabilité des approvisionnements et la volatilité des prix. Les prix des céréales et les rendements apparaissent au Tchad comme très variables, ce qui renforce l'intérêt d'actions visant à stabiliser l'offre intérieure.
- (vi) ***Manque de fiabilité de l'eau agricole.*** Pluies erratiques et sécheresses persistantes sont la cause de déficits alimentaires. Paradoxalement, le Tchad demeure riche par ses ressources en eau renouvelable (4050 mètres cubes par habitant et par an, contre 2380 au Niger et 1595 au Soudan), et la mobilisation des ressources disponibles s'avèrerait largement suffisante pour répondre aux besoins de la population. Le potentiel d'exploitation des ressources souterraines renouvelables est considéré comme favorable voire très favorable, et 335.000 hectares sont classés comme facilement irrigables. Ce potentiel est largement inexploité; actuellement seuls 7000 hectares ont été développés pour l'irrigation (essentiellement au moyen de technologies traditionnelles, avec seulement quelques périmètres modernes et privés en activité).
- (vii) ***Le besoin d'investissements stratégiques.*** Une panoplie d'expériences menées dans d'autres régions du Sahel montre que l'irrigation peut servir de puissant stimulant à la croissance agricole en augmentant le potentiel de rendement. Toutefois, la mobilisation des ressources en eau souterraine dépend d'investissements prioritaires dans des technologies simples et éprouvées telles que les forages et pompes, ainsi que de la mise en place de systèmes institutionnels et de gestion cohérents, qui assureraient la durabilité des investissements initiaux.
- (viii) ***La faible productivité des systèmes d'élevage.*** Au Tchad, l'élevage génère près de la moitié du PIB agricole, reste le moyen de subsistance de près de 40 pourcent de la population rurale, et génère une quantité importante de devises. Le secteur a été reconnu comme un catalyseur potentiel pour la croissance économique et un moyen d'assurer la sécurité alimentaire pour les populations vulnérables. Les principaux freins à la croissance sectorielle résident dans le fait que les systèmes d'élevage extensifs sont toujours plus entravés par une disponibilité limitée en eau et un manque d'accès aux pâturages, que l'incidence des maladies animales reste élevée, et que des conflits surviennent lorsque les activités agricoles sont entravées par l'arrivée d'éleveurs transhumants à la recherche de points d'eau et de pâturages. Enfin, les exportations de bétail sur pied sont limitées par le manque d'infrastructures et d'institutions *ad hoc* pour réglementer le commerce transfrontalier.
- (ix) ***L'effondrement du secteur coton.*** Le sous-secteur cotonnier, qui a longtemps joué un rôle central dans l'économie rurale, subit aujourd'hui une crise profonde et persistante. 3 producteurs sur 4 sont pauvres. Au cours de la dernière décennie, la production de coton a considérablement diminué, passant de 270.000 tonnes de coton graine en 1997 à 33.000 tonnes en 2009. Le secteur coton fait face à d'important défis, tels que: (i) la chute des prix mondiaux du coton accompagnée de l'appréciation du FCFA vis-à-vis du dollar, (ii) l'ampleur des arriérés financiers des organisations de producteurs vis-à-

vis de la Cotontchad, (iii) la faible productivité due à des pratiques agronomiques désuètes et l'utilisation de semences de faible qualité, et (iv) les dysfonctionnements institutionnels de la Cotontchad (tels que les délais de paiement, une fourniture inappropriée d'intrants, des retards dans l'évacuation du coton vers les usines). De nombreux producteurs sont non seulement pauvres mais aussi souvent lourdement endettés et sortent progressivement du secteur en cherchant à diversifier leur production vers les cultures vivrières. Malgré le besoin urgent d'un plan d'action, l'exécution de la feuille de route du secteur coton établie en 2005 et les réformes structurelles restent toujours en attente.

Sources potentielles de croissance pour le secteur rural

8. Malgré les nombreux défis auxquels est confrontée l'économie rurale, certaines activités s'avèrent être des moteurs de croissance potentiels et prometteurs à même de réduire la pauvreté. On citera tout particulièrement :

- (i) ***Le développement des ressources en eau agricole.*** Avec des sécheresses fréquentes et des pénuries en eau de surface risquant de s'aggraver en raison du changement climatique global, l'exploitation des ressources en eau est une priorité urgente et un impératif stratégique pour le pays. Le développement des ressources en eau pour l'agriculture et l'élevage sera bénéfique à la fois pour les populations rurales et pour le pays dans son ensemble. Les projets d'irrigation ont permis des activités économiques attractives et rentables dans d'autres régions du Sahel, en particulier au Niger et au Burkina Faso, qui comptent des zones agro-climatiques similaires à celles du centre et du sud du Tchad. Le développement des ressources en eau destinée à l'élevage est particulièrement importante sur le plan social. La concurrence entre éleveurs nomades et agro-pasteurs sédentaires pour l'accès à des ressources en terre et en eau limitées s'accroît. Des investissements appropriés dans la gestion des ressources en eau agricole sont nécessaires pour développer durablement et équitablement les espaces pastoraux.
- (ii) ***Le développement de la filière élevage.*** Stimuler la croissance des systèmes de production animale au Tchad ne sera pas possible sans une valorisation durable des systèmes pastoraux et une plus forte orientation de la filière bétail vers la commercialisation. Pour ce faire, un certain nombre de défis interdépendants devront être surmontés. Dans le court terme, ces défis sont en particulier (i) d'assurer un accès stratégique aux ressources en eau, (ii) de développer le code pastoral, (iii) de renforcer les services vétérinaires. Dans le moyen terme, ces défis sont (i) d'accroître la transparence de la commercialisation, (ii) de perfectionner les infrastructures de transports et de logistique, (iii) d'améliorer l'accès à l'énergie pour faciliter l'entreposage à froid et les pratiques de stockage, et enfin (iv) de répondre aux exigences de qualité et de sécurité alimentaire.
- (iii) ***Le renforcement du secteur cotonnier et la diversification agricole.*** Le Tchad devrait, de toute urgence, poursuivre les réformes dans le secteur du coton et traiter les priorités actuelles du secteur telles que l'endettement des producteurs envers la Cotontchad et la disponibilité et la qualité des intrants. Il convient de se pencher sérieusement sur le désengagement de l'Etat du secteur et de définir clairement les rôles pour le secteur privé, les organisations de producteurs et le gouvernement. Le Gouvernement devrait en particulier s'attacher à promouvoir des mesures améliorant la productivité du secteur et la rentabilité pour les agriculteurs. Le Tchad devrait ainsi revenir à la feuille de route de 2005 sur la réforme du secteur coton et aborder les priorités sectorielles telles que l'endettement des producteurs et la qualité des intrants. Le Tchad a également besoin de diversifier sa production agricole afin de réduire sa dépendance au

coton. Bien que les agriculteurs diversifient déjà leurs systèmes de production en réaction à la crise du secteur cotonnier, ils doivent cependant s'adapter à des cycles de production plus courts en raison du changement climatique. Le sésame, le niébé, l'arachide et les oignons, ainsi que la spiruline, semblent avoir un potentiel considérable en tant que cultures vivrières ou de rente. L'analyse effectuée à l'aide de la Matrice de Comptabilité Sociale du Tchad suggère qu'une stratégie de diversification agricole réussie pourrait atténuer quelque peu la baisse du PIB agricole résultant de la chute de productivité du secteur coton.

La Stratégie de développement rural de la Banque pendant la période de mise en place de l'ISN

9. Conformément à la vision tracée dans l'ISN, la stratégie de la Banque en matière de développement rural au Tchad devrait être basée sur trois axes principaux. Le premier axe consisterait à approfondir le travail d'analyse et de renforcement des connaissances dans des domaines stratégiques où le potentiel de gain en termes de croissance et de réduction de la pauvreté sont importants. Le deuxième axe serait d'analyser les modalités de mise en œuvre des différentes stratégies gouvernementales pour le secteur rural et surtout le niveau de coordination entre les départements ministériels chargés du développement rural. Le troisième axe impliquerait un dialogue productif entre la Banque, le Gouvernement et les autres Partenaires au Développement, sur les réformes clés dans le domaine rural.

Trois axes prioritaires pour le réengagement de la Banque

10. **Pilier 1. Travaux analytiques.** La revue bibliographique engagée lors de la préparation de la présente note a identifié trois principaux domaines pour lesquels il serait important à court terme d'approfondir les connaissances. Ces domaines sont les suivants, dans l'ordre décroissant de priorité : (i) une analyse des possibilités d'irrigation et des autres utilisations des ressources en eau, notamment l'examen des besoins en eau pour l'élevage, et un état des lieux des options en matière de gestion des ressources disponibles ; (ii) l'identification des étapes nécessaires pour la mise en place d'une stratégie de réforme du secteur coton ; et (iii) les possibilités de diversification agricole.

- (i) **La Gestion des ressources en eau agricole.** Cette évaluation permettrait de confirmer les ressources en eau disponibles (à la fois les eaux souterraines et de surface) susceptibles d'être exploitées par le Tchad pour l'irrigation, ainsi que pour le développement pastoral et de l'élevage. L'examen devrait porter sur l'expérience acquise avec les programmes d'irrigation passés, y compris l'efficacité et l'efficacité des projets d'irrigation. Au-delà du potentiel d'irrigation, l'examen porterait une attention particulière à la façon dont les ressources en eau peuvent être utilisées pour la gestion durable des ressources pastorales. Compte tenu de l'abondance des eaux souterraines, l'examen portera une attention particulière aux mesures visant à : (i) améliorer l'accès à l'eau agricole à travers les forages et pompes pour accroître la productivité agricole et les revenus dans les régions vulnérables en matière de sécurité alimentaire ; (ii) améliorer la production animale durable et réduire les conflits sociaux entre les pasteurs et agro-pasteurs ; et (iii) renforcer les capacités institutionnelles et techniques des usagers de l'eau, des organisations de producteurs, des institutions gouvernementales, du secteur privé et des services d'appui.
- (ii) **La réforme du secteur coton.** Le deuxième domaine d'investissement analytique serait de mettre à jour la base de connaissances sur le secteur du coton et d'identifier les éléments clés nécessaires à l'assainissement du secteur et l'amélioration de sa

productivité. L'examen devrait aider à identifier les principales étapes d'un programme de réforme qui peuvent être mises en œuvre dans le court et moyen terme. Certains des éléments clés devraient comprendre: une définition claire de la future organisation de la filière coton, les rôles des différents acteurs comme le gouvernement, le secteur privé, et les agriculteurs / organisations paysannes; l'ampleur de l'endettement des agriculteurs vis-à-vis de la Cotontchad et comment cette dette peut être absorbée; les mesures d'accompagnement des réformes y compris les actions pour améliorer la performance des organisations de producteurs, la productivité, et pour assurer le financement des fonctions essentielles (entretien des routes, recherche, vulgarisation, semences, etc.);

- (iii) **La diversification agricole.** Le troisième domaine de travail analytique pourrait porter sur la diversification agricole, le développement des chaînes de valeur et d'éventuelles productions à haute valeur ajoutée qui pourraient justifier une augmentation des investissements dans l'irrigation et simultanément supporter leurs coûts. Le secteur du coton tchadien actuellement fait face à des défis énormes et des choix difficiles devront être faits pour permettre au secteur de retrouver une base saine. Beaucoup de producteurs de coton auront besoin d'aide dans leurs stratégies de diversification. Un appui à la diversification faciliterait la transition des agriculteurs vers des cultures alimentaires (sorgho, mil, niébé), améliorant la sécurité alimentaire du pays, et un développement de l'irrigation pour le développement agro-alimentaire dédié au marché domestique et régional (spiruline, oignons, arachides, fruits et légumes).

11. **Pilier 2. Diagnostic de la mise en œuvre de la stratégie de développement rural du Tchad.** Le deuxième axe dans lequel la Banque pourrait renouer son dialogue avec le gouvernement serait d'aider celui-ci à faire une étude de diagnostic de la performance des quatre sous-stratégies actuelles de développement rural. Un tel diagnostic pourrait examiner le niveau des dépenses consacrées à chaque sous-stratégie et d'analyser le niveau de coordination entre les différents départements ministériels en charge de leur mise en œuvre. Les résultats de cette étude pourraient constituer un apport important pour l'élaboration d'un cadre national d'investissement agricole susceptible d'être transformé en programmes de dépenses pluri-annuels associés à des actions concrètes de mise en œuvre.

12. **Pilier 3. Renforcement du dialogue sur la politique de développement rural.** Le troisième et dernier axe de réengagement pourrait être dans le domaine du dialogue avec le gouvernement sur la politique de développement rural. Le niveau et l'intensité du dialogue pourrait et devrait être renforcé en même temps que nous approfondissons nos connaissances de certains problèmes critiques du secteur. Les domaines où le dialogue serait susceptible de commencer immédiatement sont : la relance de la réforme du secteur du coton et la révision de ses principales composantes ; la gestion des dettes des producteurs de coton envers la Cotontchad ; l'amélioration du commerce du bétail et des services vétérinaires privés ; et le renforcement de la gouvernance du secteur rural destinée à améliorer l'efficacité des dépenses en milieu rural.

1. INTRODUCTION

Background and objectives

1. Chad is a low-income country with a population of about 11.2 million people, roughly 80 percent of whom live in rural areas. Living conditions are generally very poor: according to the 2009 UNDP Human Development Index, Chad ranks 175 out of 182 countries surveyed. GDP per capita currently stands at US\$ 421, and the most recent household survey carried out in 2003 showed that 55 percent of the population was living below the poverty line. At that time, rural areas accounted for 87 percent of the national incidence of poverty.

2. Despite the recent emergence in Chad of a dynamic petroleum industry, overall GDP growth has declined. The agricultural sector has been hit particularly hard in recent years. The agricultural growth rate fell from minus 1.5 percent in 2008 to an estimated minus 26.8 percent in 2009. Nonetheless, the economy continues to be dominated by the rural sector, which employs about 72 percent of the population. The rural economy is relatively undiversified: two crops (cotton and gum Arabic) and livestock contribute about two-thirds of agricultural and rural GDP. Yields for the main staple crops are among the lowest in Africa.

3. Because the country's agricultural potential remains largely unrealized, Chad regularly faces severe food security issues at the national level. Some 44 percent of the population, or approximately 5 million people, are considered food insecure. This figure is expected to increase in the future, because Chad is considered extremely vulnerable to climate change. Another dimension of poverty is nutrition, which remains a major concern. Chad currently has one of the highest chronic malnutrition rates, with 40 percent of children under 5 affected by stunting, with little significant improvement observed over the last decade.

4. The Chad Rural Policy Note builds on the findings of a rural sector stocktaking mission carried out in December 2009. An initial draft of the Note was prepared as a 'just-in-time' desk study designed to contribute to the preparation of the Chad Interim Strategy Note (ISN), which was approved by the World Bank's Board of Directors in June 2010. This finalized version of the Note aims furthermore to establish a knowledge baseline that can be used to better position the Bank to design future activities in the rural sector of Chad. In that context, the main objectives of the Note are to summarize existing information about the rural sector in Chad, identify major knowledge gaps, and highlight key policy issues around which the dialogue in the rural sector might focus, with the objective of improving rural growth prospects and reducing poverty.

B. The Bank's interim assistance strategy

5. The Bank's assistance program in Chad during the period July 2010 to June 2012 will be guided by an Interim Strategy Note (ISN), presented to the Board on July 22, 2010. The main objectives for Bank engagement during the ISN period will be to re-establish a productive dialogue and working relationship with state and non-state actors, and strengthen the Bank's knowledge base for further engagement. The Bank will therefore focus on the delivery of knowledge products and analytic and advisory services in various sectors. The ISN has three pillars: (i) strengthening governance, (ii) improving access to key social services, and (iii) promoting sustainable and diverse growth. The Bank will make use of a mix of knowledge products, analytical activities, and lending operations to implement the proposed strategy. Agricultural and rural activities during the ISN phase include increased planning and management capacity at decentralized levels through a second phase of the existing PROADEL, as well as undertaking analytical work, to better understand the drivers of growth, agricultural

productivity increases, and rural poverty reduction. It is expected that the results of the further analytical work would help to eventually prepare a new lending operation. During the ISN period, the Bank will also pursue policy dialogue in the areas of better governance in the rural sector, including improving management of the cotton sector; increasing the allocation of resources to the rural sector; improving the effectiveness and the impact of public expenditure in rural areas; and institutional reform for sustainable growth.

C. Outline of the Rural Policy Note

6. Including this introduction, the Rural Policy Note includes five sections. Section 2 outlines the Country Context. Section 3 gives a Summary of Rural Sector Issues by synthesizing available information on the rural sector, touching on the overall institutional environment, rural expenditure trends, and reviews the status of several sub-sectors, including financial services, research and extension, cereal markets, water, and livestock. Section 4 examines three areas that can represent three Strategic Growth Pillars for the agricultural and rural sector: (i) water resources development for irrigation and livestock, (ii) livestock value chain development, and (iii) cotton sector strengthening and diversification. Section 5 summarizes proposals for further work in the rural sector to generate knowledge and fill gaps and to improve policy dialogue. We include in Annex a summary of Lessons Learned from past Bank-financed operations.

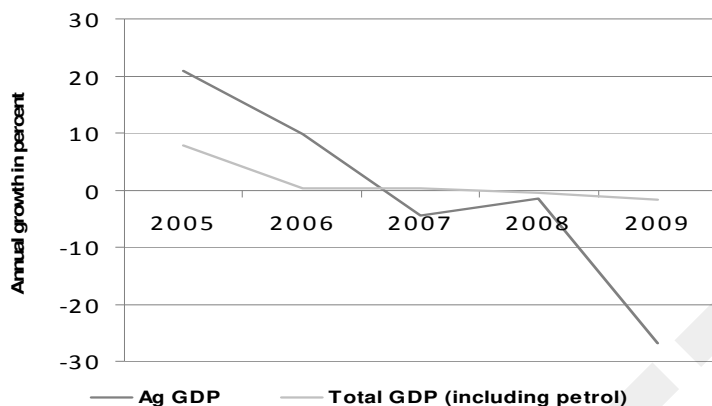
2. COUNTRY CONTEXT

A. Recent economic developments

7. Following a long period of very gradual decline, in 2009 Chad's agricultural sector suffered a severe weather-related downturn. Year-on-year agricultural growth plummeted from minus 1.5 percent in 2008 to an estimated minus 12 to 34 percent in 2009 in the face of a severe drought that affected virtually all crops and was reflected in a particularly dismal performance of the cotton sector (IMF, 2010) (Figure 1). A modest rebound is expected in 2010-2012 based on anticipated better rainfall. Meanwhile, the livestock growth rate, which was 2.8 percent in 2008, will likely stagnate over the next few years as a result of high livestock mortality and continuing poor livestock production conditions, with the 2009 drought expected to lead to a severe decline in pasture conditions.

8. Official data in Chad are notoriously unreliable, especially as these relate to rural areas (Box 1). In the absence of reliable data, the decline in agricultural production that occurred in 2009 is difficult to estimate with precision. However, evidence of a severe decline comes from field observations suggesting that cereal production fell by 12 to 34 percent compared to the previous year, and that these declines were accompanied by a severe spike in livestock mortality (FAO/WFP/FEWSNET, 2009). The large production decreases has certainly called for record food aid shipments of maize and sorghum, which are estimated to account for over one-half of total cereal imports thus far in 2010. Further evidence of food production declines on this order of magnitude comes in the form of observed high inflation in cereal prices (see Figures 4 and 5 in Section 3E).

Figure 1: Agricultural GDP growth, 2005-09



Source: IMF.

Box 1: Rural data issues

Survey data are outdated. The most recent LSMS-type rural survey is ECOSIT 2 (2003). It collected data from about 7,000 households which were visited three times. The survey was co-financed by the Bank. Survey costs were US\$ 300 per household.

There is no evidence about poverty trends in Chad. ECOSIT 1 (1996) had data issues and a poor sample frame, and was not representative. It is therefore not comparable to ECOSIT 2. However, coverage of up-to-date rural data has somewhat improved since the launch of the ‘Survey on Structural Vulnerability’ (RoC, 2009b) conducted in mid-2009 – though to the late release not fully considered in this report.

Data are often “guesstimated” rather than collected through surveys. Agricultural production data are collected through the Office National de Développement Rural (ONDR). Yields and cultivated areas appear to be “estimated” by local ONDR agents but may not be rigorously measured. More work is needed to understand underlying procedures.

Last population census was conducted in 2009. The resulting data are currently being evaluated and should be available soon. The data will include some basic information on economic activities. The new census will also allow establishing a new sample frame for ECOSIT 3 (planned for 2010-2011).

Official price data for the rural sector are not available. The National Statistical Institute, INSEED, collects monthly price data for more than 300 items in five markets in N’Djamena and a rural market located about 25 kilometers outside the capital city. Prices are weighted using ECOSIT 2 data. Food items comprise more than 60 percent of the household consumption basket.

Last livestock census was in 1976. The Ministry of Livestock, with technical assistance from FAO, has completed preparatory activities for a proposed new livestock census in 2009. The actual census has not started due to a lack of funds.

9. Crop yields have varied significantly around a flat long-term trend and lag significantly behind West African and Sub-Saharan African averages (Figure 2). Rice yields in neighboring countries, such as Cameroon and Niger, have historically been double those of Chad. Rice yields are low in Chad because of poor soil fertility resulting from excessive clearing and land exploitation, lack of access to agricultural tools, underutilization of fertilizer, lack of improved seed varieties, substantial post-harvest losses, a weak research and extension system, and low irrigation capacity. These factors underlying low agricultural productivity are analyzed in more detail in Section 3.

10. Over the past two years, persistently high domestic food prices, the global financial crisis, and a sharp drop in oil revenues have prompted the Government to re-focus attention on rural development as a catalyst to reduce poverty and enhance food security. However because of substantial fiscal deficits in 2009 and 2010, equivalent to about 6.5 percent of GDP in 2009 and 3.7 percent of GDP in 2010, these have negatively affected Government spending in priority sectors, including rural development and hence the focus on rural development is yet to be effective.

B. Structure of the rural sector

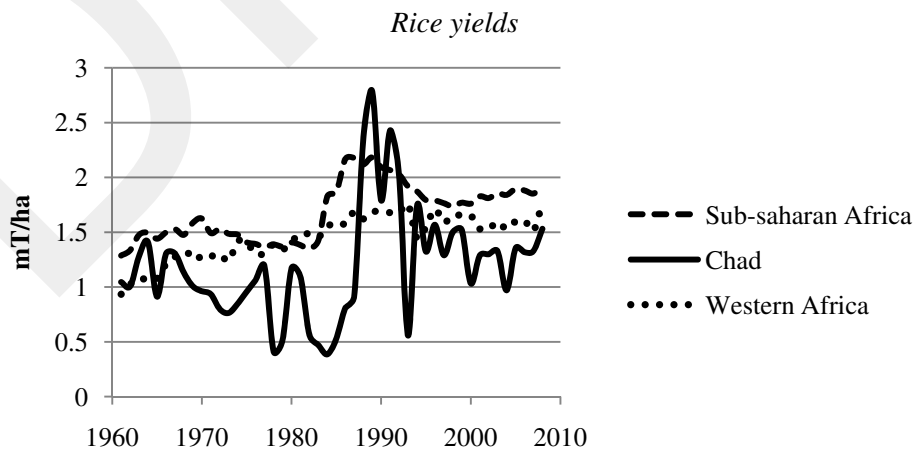
Socioeconomic characteristics of the rural sector

11. Until the discovery of oil in 2003, the rural sector dominated the economy. While the rise of the oil industry has changed the structure of GDP, the rural sector continues to occupy a significant place in the Chadian economy, and it still supports the livelihoods of 86 percent of the total population. As of 2007, 2.9 million economically active Chadians were working in the agriculture sector, of which 1.6 million were women.

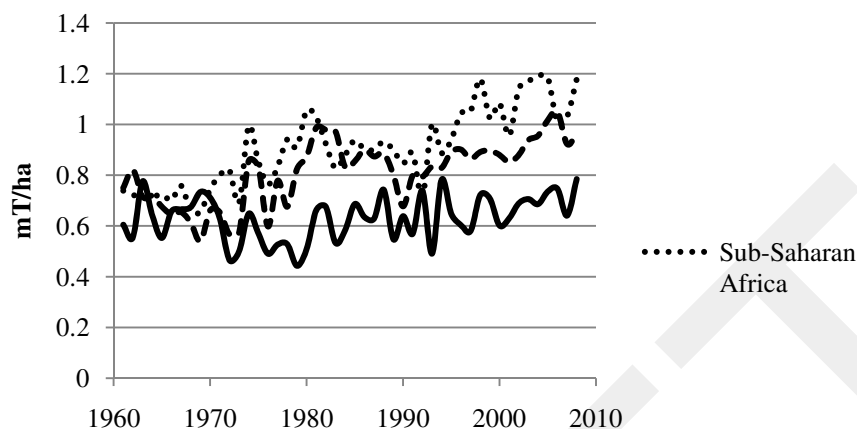
12. In 2008, the most recent year for which final data are available, the primary non-oil sector in Chad generated an estimated 21 percent of GDP, industry generated 40 percent (of which the oil sector accounted for XX percent), and the service sector 39 percent. In the primary sector, 10.3 percent was contributed by food crops, and an additional 1.4 percent was contributed by agro-industrial products. Livestock generated 9 percent of GDP (IMF, 2010).

13. Chad’s agricultural sector could, if adequately developed, contribute to growth and to significant poverty reduction. The agro-climatic conditions however limit rain fed cropping activities to the relatively more favorable southern zones with the possibility of improving livestock activities in the drier Sahelian zones. Better exploitation of the country’s water resources remains a possibility since it is estimated that currently only 7,000 hectares out of an estimated potential 330,000 hectares are irrigated. Stagnating agricultural production and heightened frequency and severity of drought (possibly linked to global climate change) have led to increased concerns about food security.

Figure 2: Rice and sorghum yields in Chad, West Africa, and Africa, 1961-2009



Sorghum yields



Source: FAOSTAT

Agricultural zones, farming systems, and producer organizations

14. The agricultural zones in Chad can be roughly grouped following their ecological and climatic conditions. From north to south, three main zones¹ can be found in Chad: (i) the Saharan zone (northern regions, 47 percent of the country's total area, less than 100 millimeters of rain per year); (ii) the Sahelian zone (middle belt, 43 percent of the country's total area, from 100 to 600 millimeters of rain per year); and (iii) the Sudanian zone (southern regions, 10 percent of the country's total area, from 600 to 1,200 millimeters of rain per year). While more than one-half of the land in the country has the capacity to support livestock, cropping activities are effectively restricted to the relatively more favorable southern zones:

In the **Saharan zone**, farming systems are based on complex oasis systems involving production of dates, irrigated subsistence agriculture, small-scale farming, and extensive livestock activities such as nomadic camel and breeding of small ruminants.

In the **Sahelian zone**, farming systems are based on the production of: (i) groundnuts, cereals, and sorghum (central Sahelian zone); (ii) horticulture (onions, garlic and fruits) (Eastern Sahelian zone and peri-urban zones); (iii) maize and wheat (around Lake Chad); and (iv) irrigated rice along the Chari and the Logone rivers.

In the **Sudanian zone**, farming systems are based on the production of: (i) cotton (in rotation with cereals), irrigated rice and sedentary farming in the western Sudanian zone; (ii) cotton (in rotation with cereals), vegetable crops, roots and tubers (cassava) in the central Sudanian zone; and (iii) groundnuts, rice, roots and tubers, along with transhumant herding in the Eastern Sudanian zone.

1. Nine agro-ecological zones are often described in Chad (CILSS and GTZ, 2009; see Map 1 Appendix): (i) the northern camel, date and salt zone; (ii) the northern transhumant herding zone; (iii) the central flood-retreat cultivation and fishing zone; (iv) the central agro-pastoral and fishing zone; (v) the Western agro-pastoral zone; (vi) the eastern rainfed cereals; (vii) the southeast flood retreat cultivation; (viii) the southern rice cash crops; and (ix) the southern cotton and groundnut cash crops.

Box 2: Is Chad Affected by Dutch Disease?

Countries rich in natural resources are sometimes affected by Dutch Disease (DD). The typical symptoms of DD are the contraction of tradable sectors such as the agricultural and manufacturing sectors, and the appreciation of the Real Effective Exchange Rate (REER). The performance of the agricultural sector in Chad raises the question if the rural economy has been affected by DD.

The three main transmission channels of DD are (i) the spending effect, (ii) the resource movement effect, and (iii) the volatility effect. The spending effect shows that increased income from the booming sectors is mainly spent in non-tradable sectors such as the service sector. Therefore, production and prices of non-tradable sectors rise. The resource movement effect shows that labor and capital move from tradable sectors and non-tradable sectors into the booming natural resource sectors, and a decline in the production in tradable and non-tradable sectors is observed. Therefore, prices in non-tradable sectors rise because there is excess demand in those sectors. As a result of the combined spending and resource movement effects, the REER increases. The volatility channel shows that the movement of the REER is volatile through the spending effect.

Figure 3 depicts the share of the output in agricultural and manufacturing sectors (as a percent of GDP), which shows that the contraction of the agricultural sector is consequential and suggests strongly that Chad is affected by DD. Figure 4, however, shows that output in the manufacturing sector is increasing, whereas output in the agricultural sector declined severely in 2005. The above evidence suggests that the agricultural sector could be affected by DD and that the manufacturing sector is not affected. This is consistent with the results of Benjamin, Devarajan, and Weiner (1989).

The other symptom of Dutch Disease is the appreciation of the REER. However, the real effective exchange rate could not be a meaningful indicator for Chad because the CFA is pegged to the Euro. Finally, there are problems related to cause-and-effect attribution of impact due to diverse external factors (weather, civil war, enabling environment). As a matter of fact, it is difficult to conclude with certainty that Chad is affected by DD. Further analysis should be implemented to explore the issue.

Figure 3: Agriculture and manufacturing share of GDP, 1980-2008

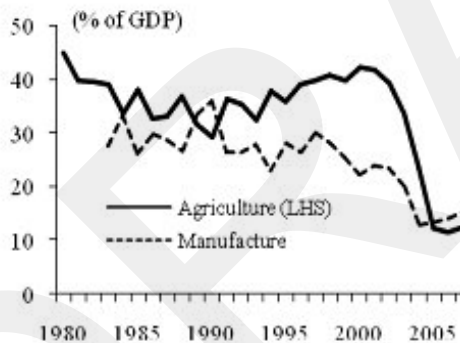
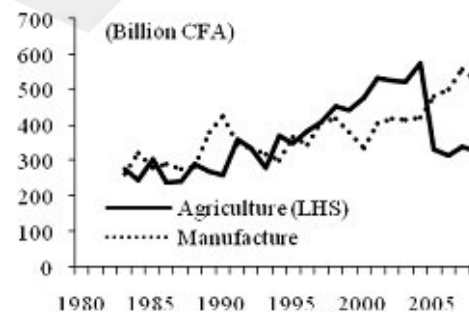


Figure 4: Value added — manufacturing and agriculture, 1980-2008 (constant prices)



Source: World Development Indicators.

15. The rural sector is dominated by small and under-equipped farms. In the Sudanian zone, the average cultivated land per household ranges between 3 and 4 hectares for cotton, 0.5 and 1 hectare for rice, and 1 and 5 hectares for fruit production systems, including 0.25 to 0.5 hectares devoted to market gardening. In the Sahelian zone, the average farmland used per household ranges between 0.25 and 1 hectare (RoC, 2005). In a 2002 study, Mbetid et al., (2002) presented data about farm categorization. The study identified four typical farm models, classified according to farmers' gender and their access to animal traction. The analysis shows that farms are largely under-equipped in Chad: (i) 9 percent of farms are operated manually by women (type I); (ii) 9 percent are operated manually by men (type II); (iii) 56 percent are operated by men hiring animal traction equipment (type III); and (iv) 26 percent of farms are headed by male owners (type IV).

16. The land tenure regime in Chad is essentially characterized by customary law regimes. In the Sudanian area, the bulk of the land remains under the traditional status characterized by usually unwritten secular rules (family lineage, collective ownership of land under the village management chief or the traditional lands chief - *chef des terres*); in the Sahelian and Saharan zones, land tenure is governed by religion-based customary tenure practices (land inheritance on the basis of Islamic law). Private ownership under the modern land tenure law lags behind, and the dualism with the customary law regime is often a source of severe conflicts in Chad. According to law No 23 of July 23, 1967, state ownership is another type of land tenure in Chad. Under the management of a parastatal, farmers enter into contractual arrangements, including paying fees, for the use of state lands (RoC, 2003).

17. Producer organizations (POs) have been growing rapidly in rural Chad and two major organizational dynamics can be distinguished. POs emerged either spontaneously as village-level associative groups or as service providers following the devolution of the State's non-core activities. For instance, POs such as cotton farmer associations (*Groupements villageois*- GVs) are responsible for both the distribution of inputs to cotton producers and primary marketing of seed cotton. POs such as the National Federation of Rural Producers (*Conseil national de concertation des producteurs ruraux du Tchad*- CNCPR) and the National Union of Cotton Producers (*Union nationale des producteurs de coton du Tchad*- UNPCT) are fora for dialogue and also represent key operational actors in the definition of policies about cotton and food security. There appears however to be a proliferation of farmer groupings and associations calling therefore into question the effectiveness of the groupings. A recent survey carried out by ONDR reported that in the Sudanian region alone there are more than 37,000 POs, including 21,000 so-called agricultural groups (*groupement agricoles*), 1,600 health defense groups (*groupements de défense sanitaire*), 7,900 input management groups (*groupements de gestions d'intrants*), 6,600 villages groups (*associations villageoises*), 400 coopératives, and 75 unions (ONDR, 2008).

C. Extent and distribution of poverty

18. Chad is among the 10 poorest countries in the world. The incidence of poverty is high throughout the country, but poverty is most pronounced in rural areas, where about 80 percent of the population resides. In 2003 (the latest year for which survey data are available) there is a marked disparity in per capita annual income between rural areas (US\$ 133) and urban areas (US\$ 328). Some 55 percent of the population remains below the poverty line (World Bank, 2007). The ECOSIT 2 survey also reported that in 2003, rural households spent 69 percent of their revenue to buy essential foods.

19. The high level of poverty is reflected in extensive food insecurity. According to the National Office for Food Security (ONASA), 44 percent of the population, or more than 5 million people, are affected by food insecurity. Since 2009, a severe drought has affected the country, food stockpiles are running low (9,000 metric tons of sorghum remain), and more than 2 million people in the central and eastern regions of Chad are starving, with 100,000 children at risk of acute malnutrition according to assessments carried out by the NGOs Oxfam and *Médecins Sans Frontières* (MSF).

20. Poverty and food insecurity also appear to have a pronounced geographic dimension (Table 1). Living standards and poverty rates vary significantly by agro-ecological zone. Regions lying in the Sahelian agro-climatic zone and some regions lying in the Sudanian agro-climatic zone are characterized by high vulnerability to climate fluctuations, droughts, floods, and serious degradation of productive resources that discourage diversification and affect the inhabitants' ability to generate regular agricultural production and stable household income.

Table 1: Proportion of the population living in poverty, by region, 2003

Parameter	N'Djamena	Secondary towns	Other towns	Rural north	Rural south	Total
Poverty rate (%)	20.8	34.4	47.8	50.6	70.3	55.0
Share of total population (%)	7.6	2.9	9.6	42.3	37.5	100.0
Share of population living in poverty (%)	2.9	1.8	8.4	38.9	48.0	100.0

Source: World Bank (2007).

21. The more vulnerable regions are characterized by structural food insecurity reflecting high levels of malnutrition, particularly among women and children (WFP, 2005). These more vulnerable regions are located in the central eastern (Kanem, Biltine, Ouaddai, Batha), and the northern (Borkou, Ennedi, Tibesti) part of the country. While the 930,000 Chadians who live in vulnerable areas make up only 15 percent of the population, they occupy 71 percent of the total land area of the country. In March 2010, Oxfam reported that malnutrition rates in those regions are well above the 15 percent WHO emergency threshold, more specifically in Kanem (28.8 percent), Batha (27.7 percent), Ouaddai (25 percent), Chari-Baguirmi (24.6 percent), Lake Chad (23.2 percent), and Guera (21.2 percent).

22. Especially worrisome is the prevalence of poverty among cotton producers — located in the southern zones with relatively high agricultural potential. According to the ECOSIT 2 survey, 72.7 percent of cotton producers are poor, compared to 55 percent of the population as a whole. Poverty among cotton producers is associated with: (i) high indebtedness; (ii) limited access to agricultural inputs; (iii) limited use of agricultural equipment (that is often sold to reimburse financial arrears); (iv) problems with land access; and (v) low use of credit.

D. Chad's vision for rural development

23. Not surprisingly in a country where the social indicators are among the lowest in the world, poverty reduction and rural development are central to the Government's development objectives. The discovery of oil should favor introduction of a more ambitious poverty reduction policy by making possible increased public investment in agriculture and rural development. Indeed, the Government's vision targets a diversified and post-oil economy with a marked emphasis on rural development. So far however this has remained a major challenge.

National Poverty Reduction Strategy II

24. The Government adopted its first Poverty Reduction Strategy Paper (PRSP) in June 2003 and the second National Poverty Reduction Strategy (NPRS II) in April 2008. The NPRS II features five broad pillars: (i) good governance; (ii) promotion of robust and diversified growth; (iii) sustainable development of rural areas; (iv) investment in infrastructure; and (v) investment in human capital. The implementation of both strategies has been greatly undermined by persistent internal conflict and weak governance.

25. While the discovery of oil has brought much-needed resources, the Government has acknowledged an urgent need to diversify the economy from oil, in recognition that petroleum resources are limited and prices are highly variable (RoC, 2008b). Faced with oil production that has been declining since 2006, the Government intends to favor development and diversification of the non-oil sector, with an emphasis on rural development to accelerate growth, stabilize revenues, and reduce poverty. Oil reserves are estimated at about 1 billion proven barrels, but

they are projected to be substantially depleted by 2025. None of the companies actively exploring has so far announced finding evidence of new profitable reserves (IMF, 2009b).

Instruments of the rural development strategy

26. The outcome of an inclusive sectoral consultation on rural development held about a decade ago in Geneva are documented in a rural development policy letter (LPDR) and a rural development intervention plan (PIDR). The original PIDR was drawn up in April 2000 by the Government, working in close collaboration with international financial institutions and cooperation agencies. The main rural development objective laid out in the PIDR is a sustainable increase in agricultural production, to be pursued in combination with environmental conservation and rural capacity-building. Five specific objectives are described: (i) sustainable increase in agricultural production; (ii) emergence of competitive sub-sectors; (iii) natural resource management and development; (iv) promotion of the rural sector; and (v) greater effectiveness in public interventions.

27. The overall integrated rural development strategy following the Geneva consultations has since then been complemented by four sub-sectoral strategies (Box 2). Three of these are aligned with the functions of the core line ministries: agriculture, water/environment, and livestock. The fourth sub-sectoral strategy is cross-cutting and focuses on food security. The existence of four separate sub-sectoral strategies, within the agricultural and rural sector, and three of them, each being implemented by a separate line Ministry, points to the fragmented nature of Government policies, and suggests the absence of an integrated and coordinated institutional approach to rural development.

28. It is not clear, from immediately available data, the level of implementation of the above different strategies and whether the planned resources have been available for their implementation. The total amount of expenditure for rural development over recent years (Figure 5) would however suggest that the levels proposed in the strategies have been far **from being** reached. It would be useful to analyze how well these strategies are being implemented and especially the level of coordination between the different ministerial departments responsible for rural development and for implementing the different strategies that make up the rural development strategy package. A quick implementation review of the strategies, including a short rural sector expenditure review, can help reorient these strategies, increase the resources available for their implementation, and/or reinforce the institutional framework for rural development.

Box 3: Chad's rural development strategies are fragmented

The existence of four separate sub-sectoral strategies within the agricultural sector points to the fragmented nature of Government policies and suggests the absence of an integrated and coordinated approach to rural development.

FOOD SECURITY — National Program for Food Security (NPFS). The policy to combat food insecurity started with the FAO-sponsored Special Program for Food Security (SPFS), selected as a priority for low-income countries with a food deficit and implemented in 1999. The NPFS has a component in each of the four ministerial departments — Agriculture, Livestock, Fisheries, and Environment and Water. NPFS has a total budget of CFA 446 billion for five years. It includes actions in the agricultural sector (64 percent), livestock (16 percent), environment (2.5 percent), fisheries (2.5 percent), and village and pastoral water (14 percent). The commitment of the state is CFA 10 billion per year, with counterpart funds from donors.

AGRICULTURE — 2006-2015 Master Plan for Agriculture (SDA). The objective of the Master Plan is to contribute to achieving a sustainable increase in agricultural production within a protected and secured environment. SDA has a total budget of CFA 193 billion to be spent over 10 years. The plan aims to ensure: (i) food security; (ii) increased incomes and employment, particularly in rural areas; (iii) increased economic growth and higher earning of foreign exchange; (iv) a sustainable improvement in rural living standards and quality of life; and (v) strengthened regional integration in the area of trade. The SDA focuses on six strategic options that are translated into programs, and calls for implementation over a 10-year horizon.

LIVESTOCK — National Plan for Livestock Development (PNDE). This plan has the overall objective to increase sustainable livestock production to improve and enhance the contribution of the livestock sector to the growth of the national economy, and also contribute to poverty reduction and food security. The PNDE has a total budget of CFA 184 billion for eight years. The overall objective is broken down into seven specific objectives to: (i) increase livestock production through intensification and diversification while securing pastoral and agro-pastoral systems; (ii) develop animal *filières* and encourage specialized production through promotion of productive and economically desirable livestock; (iii) develop marketing and exports by introducing new processing and conservation technologies; (iv) improve the global knowledge base of the sector by setting up national statistics for the sub-sector and the diffusion of economic characteristics of livestock; (v) preserve and enhance achievements in animal health and veterinary research; (vi) establish a policy to manage pastoral resources by putting the farmer at the forefront; and (vii) empower and build capacity for all actors in the livestock sector.

WATER — 2003-2020 Integrated Plan for Water Development and Management (SDEA). The SDEA is a multi-sectoral strategic master plan providing guidelines to manage water resources. Adopted in 2003, the plan presents the policy, strategy, and action plan adopted for the water sector, with a view to achieving its objectives by 2015 and beyond to 2020. The strategy includes five areas: (i) potable water; (ii) pastoral water; (iii) agricultural water; (iv) water resources; and (v) sanitation. The plan provides an organizational framework for water governance, as well as national capacity-building. In the area of pastoral water, the plan calls for securing transhumance throughout the country and rational development of pastoral land. Implementation of SDEA would require CFA 53 billion per year (RoC, 2003).

3. SUMMARY OF MAIN RURAL SECTOR ISSUES

A. Institutional environment

29. By international standards, the quality of governance in Chad is weak. The country ranks consistently in the bottom quartile of rankings compiled on the basis of governance indicators, such as World Bank's Country Policy and Institutional Assessment (CPIA), the International Finance Corporation's Doing Business survey, and the World Bank Institute (WBI) Governance Indicators. The 2009 CPIA score for Chad (2.6) is one of the lowest in Africa. The poor quality of governance reflects not only capacity constraints but also the prevalence of rent-seeking behavior. Chad ranks fifth from the bottom on the Transparency International (TI) Corruption Perception Index.

30. Rural ministries in Chad are not immune to the general problem of poor governance. For example, within the Ministry of Agriculture, there is limited capacity for planning, monitoring, and evaluation of rural investment programs to ensure their social, environmental, and economic soundness. The capacity to collect rural statistics is extremely weak (RoC, 2005). In addition, the effectiveness of the Ministry in providing services to the rural population appears impaired by its highly centralized organization, lack of internal coordination mechanisms, lack of in-service training for staff, widespread logistical problems, low levels of remuneration, and high staff turnover rates (RoC, 2005).

31. Decentralization of government functions is enshrined in the constitution and endorsed by law (Loi 002/PR/2000), but implementation has been slow. To its credit, the Government recently started to encourage increased participation by local communities in the planning and implementation of rural development activities. Efforts have been made to devolve authority to four levels: (i) group-level communities; (ii) village-level communities; (iii) departments; and (iv) regions. Progress has been delayed, however, by continuing confusion about the composition and scope of authority of some of these administrative units. Chad is currently divided into 18 Regions, 47 Departments, and 199 Sub-Prefectures (415/PR/PM/2002 decree). The territorial boundaries of many rural communities remain undefined, which has precluded election of rural community officials. The fact that local administrative units are not yet well-defined poses a significant barrier to CDD initiatives in some areas. This is despite recent donor activities that have supported reforms to the regulatory framework.

32. Rural development activities in Chad are handicapped as well by deficiencies in the legal and regulatory framework. These manifest themselves in several ways in the rural space. For example, efforts undertaken by the Government to update and formalize the land tenure system remain incomplete, contributing to continuing uncertainty over land ownership and use rights and prolonging long-standing conflicts related to exploitation of land and other resources, including water and pasture. Similarly, legislation governing cooperatives and producer associations is poorly developed and largely ineffective, which causes significant difficulties for legal recognition of producer and civil society organizations.

B. Public expenditures in the rural sector

33. Meaningful analysis of (rural) public expenditure patterns is complicated by lack of reliable data. The overall quality and consistency of Government expenditure data leaves room for improvement, and many of the data that are available are in need of verification. Definitions of certain expenditure groups need to be revisited, including Government transfers to Cotontchad, whose supervision shifted from the Ministry of Agriculture to the Ministry of Commerce over

time. In addition, in mid-2009 the Ministry of Water and Environment was split into two ministries, and in the wake of this institutional reorganization, multi-sectoral transfers to the Food Security Program (PNSA) and other agencies may not be fully captured.

34. Despite the data problems, several general trends can be discerned. Beginning in the early 2000s when oil exports accelerated, total Government revenue increased continuously until 2008 (World Bank, 2009a). Since then, oil revenue declined sharply, reflecting the effects of lower prices on global markets and production problems.

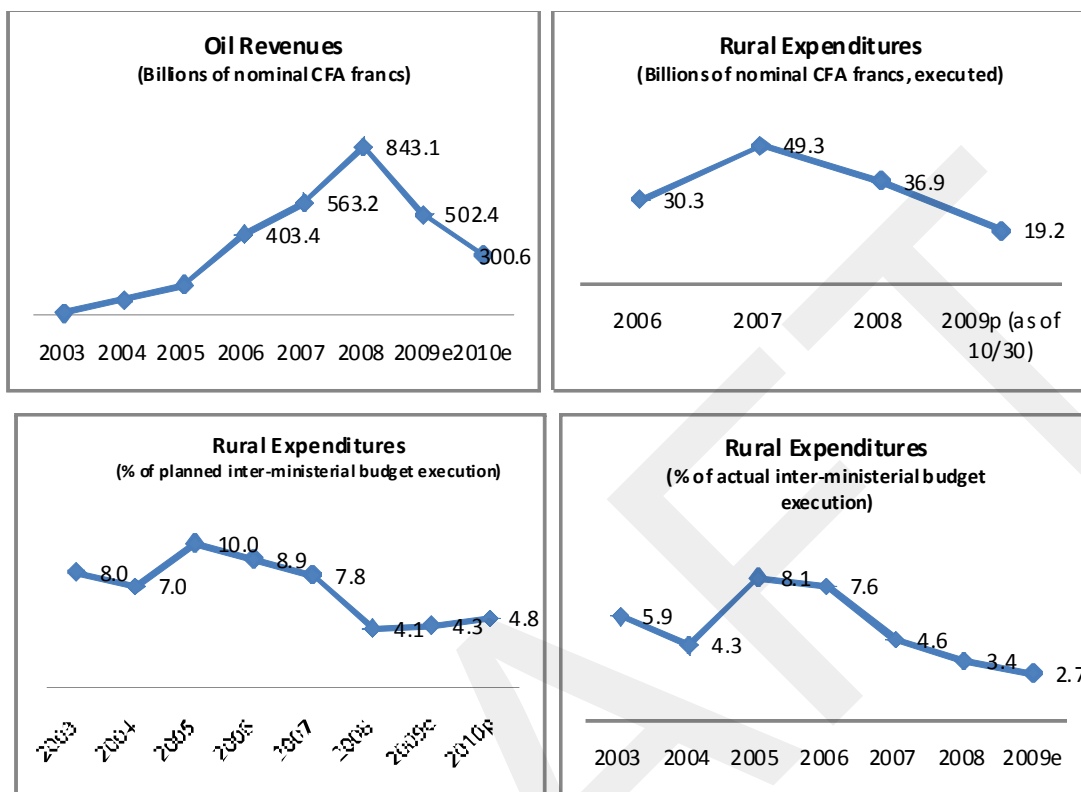
35. Public expenditures for rural development showed a similar pattern, although the downturn actually occurred a year earlier than the downturn in overall Government revenues (Figure 5). Inter-ministerial allocations to rural development activities have consistently been lower than planned. This highlights weaknesses in financial management mechanisms (i.e., lack of budget discipline), which adversely affects institutional stability, introduces a strong element of uncertainty into planning processes, and ultimately has a negative effect on rural expenditure efficiency.

36. The overall impression that emerges from the public expenditure data is that the lagging performance of the agricultural sector can be attributed at least in part to chronic underinvestment in the sector. In 2009 public investments in agriculture and rural development were 2.8 percent of GDP and about 8 percent of total Government expenditures. The discovery of oil and the Government's recently expressed commitment to increase expenditures for the rural economy do not appear to have reversed this trend in a substantive way. Since 2007, rural expenditures in the budgets of the Agriculture, Livestock, Environment, and Water Ministries have actually decreased (Figure 5).

Box 4: Research suggests investments in irrigation and roads as a priority

Levy (2007) developed a computable general equilibrium (CGE) model that showed that increasing public investments in rural infrastructure would be beneficial. He concluded from his analysis that using Chad's annual oil revenue for public investment in irrigation and road infrastructure could; increase GDP by 8.5 percent, increase agricultural production by 8 percent, with a significant improvement in the income of the poorest part of the population (up to 27 percent), and lessen the risks of Dutch Disease. Micro-level evidence also supports the usefulness of irrigation — an evaluation for sub-projects under Chad's ASPOP project finds economic rates of return of about 30 percent (See Annex 1).

Figure 5: Estimated rural expenditure trends, 2003-2010



Source: Ministry of Finance and World Bank staff estimates.

Improving the impact of Government oil revenues

37. Improving the efficiency of rural sector expenditures is only one part of a broader reform agenda, which would also need to include measures designed to increase transparency and improve accountability in public financial management. In order to ensure that additional technical and financial assistance have their intended impacts, Government would have to ensure that the first pillar of its NPRS, that of good governance, becomes an integral part of its expenditure policy. A program to strengthen budget accounting, implementation and control and improve public administration, transparency and anti-corruption would be necessary as part of the implementation plan for the NPRS and of the ISN. Donors should seek to provide financial and technical assistance for public financial management as part of a broad-based program to support good governance with potential benefit for all sectors.

38. Although no formal impact evaluation has been done on the several rural development operations financed by the Government, the Bank and other donors, anecdotal evidence suggests that many interventions have had modest impacts in Chad's challenging environment. Due to the lack of data and impact evaluations, there is little information on the efficiency of rural public sector expenditures. While this lack of data is a common challenge in many countries, the situation in Chad appears to be particularly serious. A rural household and community survey could be useful for generating the data needed to assess development outcomes on the ground. Annex 1 presents a short review and lessons learned from operations financed by the Bank.

C. Rural financial services

39. Rural credit is expensive in Chad because of low penetration and a difficult overall operating environment for microfinance institutions (MFIs). Apart from credit accorded by Cotontchad by supplying inputs (Box 1), other sources of credit are rare and impose high costs on farmers — an estimated 100 percent interest per month through moneylenders and 25 percent per month with certain village associations and women’s associations. ECOSIT 2 reported that 39 percent of surveyed households contracted for credit in consecutive crop years between 1999 and 2003. The amounts borrowed are small with a median of CFA 10,000, although the average is higher among richer households at more than CFA 45,500. Interest rates vary according to whether they are applied on a weekly basis (15 to 20 percent) or a monthly or annual basis (up to 50 or 60 percent) (World Bank, 2007).

40. The National Microfinance Strategy reports that 210 micro-finance institutions (MFIs) are operating in the country (RoC, 2008a). The *Union Nationale des Associations Diocésaines* (SECADEV) is one of the most experienced and active MFIs in the rural sector (IFAD, 2009b). However, 90 percent of the MFIs are located in the southern part of the country, suggesting a need for strategies that would extend microfinance services to more regions. The regulatory framework supporting microfinance (*Réglementation de la Communauté Economique et Monétaire de l’Afrique Centrale* - CEMAC) is quite flexible and allows many actors to create MFIs or benefit from microfinance instruments.

41. Efforts have been made to improve access to rural finance by introducing innovative instruments, such as the warehouse receipt credit system, but uptake of these instruments has been slowed by risks. The GTZ-funded PRODALKA program (IRAM and GTZ, 2007) showed that the warehouse receipt credit system allows farmers to access rural credit in exchange for their agricultural production and this can result in substantial profits for the program. However, the benefits can be jeopardized when prices are low and farmers become reluctant to sell their crops, thus preventing them from obtaining additional credits.

42. The lack of access to formal credit in rural areas is partially mitigated by use of traditional financing mechanisms. Traditional financing systems such as the *Amtchélé* (mobilization of a group to support villagers), the *Nafir* (assistance in the form of labor among individuals of an informal group — each person can benefit from the labor of others and in return must provide his own if necessary), or the *Paré* (traditional tontine) are informal solidarity practices that are widely used to mobilize resources within rural communities. The widespread use of these traditional financing mechanisms does not, however, prevent usurers from lending money at excessive interest rates (IFAD, 2009b).

Box 5: Supporting access to financial services in remote rural areas

Developing Chad's rural financial sector can benefit from experience in other challenging environments. For example, the Rural Entrepreneurship Development Project in Afghanistan that was approved by the Board in March 2010 includes approaches that should also be effective in Chad.

The preferred approach is to support, through capacity-building and training, creation of village-based savings and loan groups and possibly federations, and link them to interested financial institutions. These could be microfinance institutions (MFIs).

The primary savings groups will have between 5 and 25 members, depending on their preference, who meet regularly and collect money to save. Based on the preference of the group, members' savings can either be lent or deposited in a safe place (RFI, safe deposit box).

The groups will have a governance structure that will be transparent, promote capacity-building and empowerment of all members, and prevent fraud and capture by elites. The groups will be trained to keep their own records and the members will be enabled to audit the records and supervise group leaders.

A savings period of no less than six months is suggested in order to develop cohesive and sustainable groups before any outside funding should be considered. After groups have demonstrated that they are able to collect savings on a regular basis and lend and recover those small loans, they could be provided with small seed grants as an equity injection to match their savings.

D. Research and extension

43. An inefficient agricultural research system hampers technology innovation in Chad. Research is organized around the Chadian Institute of Agronomic Research for Development (ITRAD), the University of N'Djamena, and the National Center for Research Support (CNAR). The current research system has several weaknesses related to: (i) poorly funded public research organizations; (ii) farmers with limited influence over the orientation of research; and (iii) weak diffusion of research products in the field. The challenges for research, however, are numerous: (i) safeguarding natural resources; (ii) adapting to climate change; (iii) improving production systems; (iv) organization of the agricultural economy; and (v) systematic dissemination of innovative technologies (IFAD, 2009b). A weak agricultural extension system contributes to low farm productivity in Chad. Agricultural extension is delivered through the National Office for Rural Development (ONDR). Created several years ago to provide extension activities in the cotton regions, ONDR expanded its activities to oilseeds (sesame, groundnuts) and cereals (millet, sorghum, maize) and covers new areas such as the Kanem and the Batha regions. Another source of extension services is civil society organizations, especially NGOs and community-based organizations.

44. The weakness of the extension system is primarily due to: (i) lack of decentralization for rural activities and responsibilities; (ii) weak capacity of regional institutions; (iii) lack of accountability of extension workers to farmers; and (iv) remoteness of some villages that impedes contact between clients and extension workers (IFAD, 2009b). The Implementation Completion and Results Report (ICR) of the Agricultural Services and Producers Organization Project (World Bank, 2009b) reported disappointing results about the delivery of extension services; most beneficiaries reported they were "not satisfied" with the quality of both public and private service providers (Annex 1).

E. Output markets

Domestic cereal markets

45. Sorghum, millet, rice, and white maize are the most important food commodities marketed in Chad. According to FAO's Global Information and Early Warning System, 1.78 million metric tons of cereals were domestically produced in 2008 (including 0.59 million metric tons of sorghum and 0.47 million metric tons of millet). Cereal imports (mainly wheat) averaged 0.16 million metric tons. The estimated cereal deficit in 2009/2010, due to prolonged dry conditions, is likely to range between 200,000 and 639,000 metric tons (FEWSNET, 2010), with imports projected to rise by 20 percent. Food aid requirements (mainly maize and sorghum) are estimated at a record 100,000 metric tons, more than one-half of all import volumes.

46. Sorghum is consumed throughout the country and accounts for 18 percent of the total household Dietary Energy Supply (DES). Per capita consumption of sorghum (as food) is estimated at 37.6 kilograms per year. Millet is most heavily consumed in the eastern and northern regions of the country and accounts for 15 percent of household DES. Per capita consumption of millet (as food) is reported at 26 kilograms per year. Local rice is another basic food commodity, especially for poorer households, but accounts for only 4 percent of the total DES. Per capita consumption of rice (as food) is estimated at 9 kilograms per year. Imported rice and white maize are most commonly consumed in and around the capital.

47. The N'Djamena market is the largest market for cereals. Moundou is the second largest market after the capital and an important consumer center for sorghum. The heterogeneous distribution of production zones, together with poor infrastructure and persistent insecurity, hampers food security and market effectiveness (Map 2).

48. Food-deficit regions are concentrated in the Saharan and Sahelian agro-climatic zones; and these regions are supplied by regional production of sorghum, maize, and rice. Food surplus regions are more prevalent in the Sudanian agro-climatic zone: (i) maize surpluses are produced around the city of Bol in the Lake Chad basin; (ii) rice surpluses are localized in the Mayo Kebbi and Tandjile regions; and (iii) sorghum surpluses are localized in the Mayo Kebbi, Logone, Tandjile, Moyen Chari, and Salamat regions (FEWSNET, 2010). Poor roads however hinder movement of grain from food surplus regions to food deficit regions in the northern part of the country. Persistent conflict and civil unrest along the eastern border with Sudan have also severely hindered trade.

Cereal price developments

49. Cereal prices are chronically volatile and currently very high (Figures 6 and 7). In 2008, the economy was buffeted by the global food crisis — the food consumer price index jumped 100 percent between January 2008 and January 2009. Higher cereal prices fueled the rise in the food price index, with the cereals price index peaking in mid-2009 at 170 percent above the previous year's index. However, steep declines were noted by November 2009 as the Government, in agreement with private traders, established a price ceiling for staple cereals, including millet and maize, to stabilize prices. Cereal prices throughout the country continue to remain above long-run trend levels, and they are expected to increase seasonally during the hunger period from June to September (Figure 6). Prices of sorghum and millet in January 2010 were approximately 20-40 percent higher than the level of January 2007 (Figure 7). Above-average prices of most commonly consumed cereals continue to limit food access for most urban households and the many rural households that are net buyers.

Regional and international trade

50. Information on cross-border trade is patchy. Cross-border food trade occurs with Nigeria and Cameroon. Trade in cereals to Nigeria and Cameroon, especially maize and sorghum appears significant, as do trade in livestock, legal and otherwise. According to FEWS NET (2009), maize is exported from the Lake Chad basin (surplus zone) to Nigeria and (paradoxically) from the maize-deficit region of Tandjile to Cameroon. FEWSNET data also suggest that sorghum is exported to Cameroon from the Tandjile region (sorghum surplus zone) (Map 2 in the Appendix). Live cattle move across the borders into Nigeria and Cameroon, while strong market demand in Sudan and Libya for camels and small ruminants supports livestock trade in that direction (RoC, 2006).

Figure 6: Food inflation growth in N'Djamena, December 2007 to December 2009

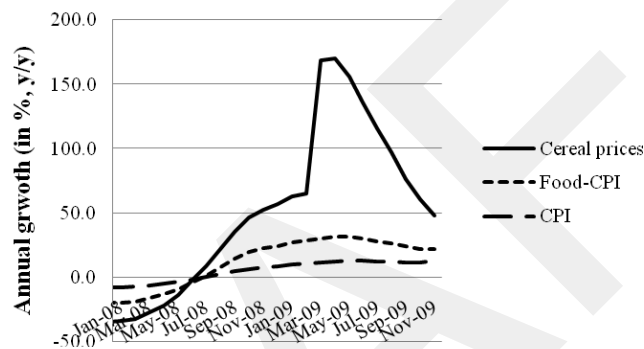
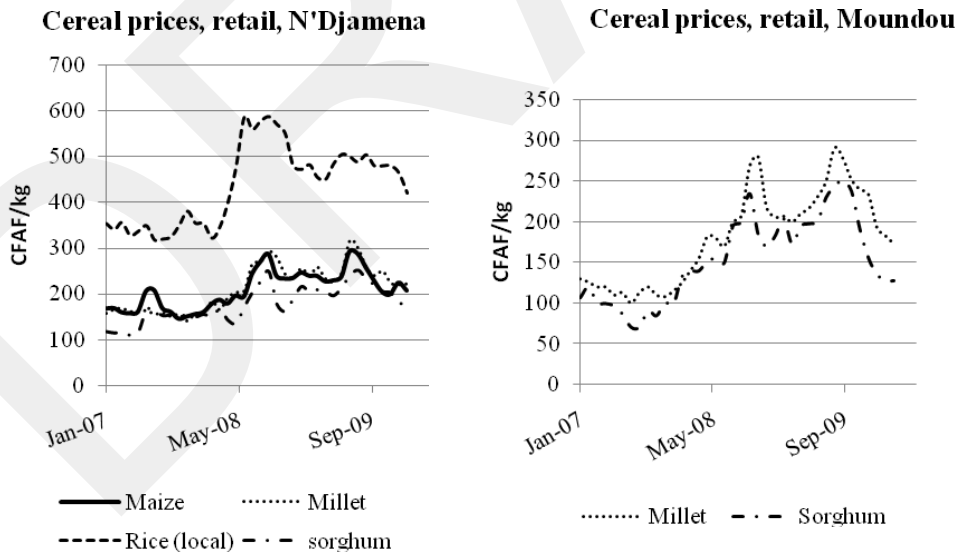


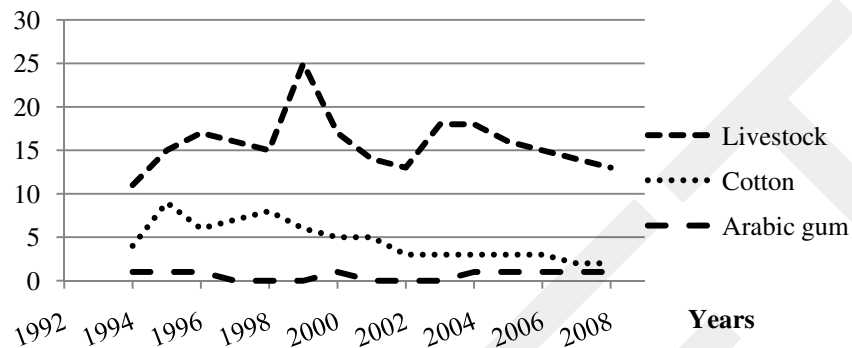
Figure 7: Cereal prices in N'Djamena and Moundou, January 2007 to February 2010



Source: INSEED, IMF, FEWSNET (various estimates).

51. Chad's main non-oil exports are livestock, cotton, and gum Arabic. Non-oil export volumes rose after the large devaluation of the CFA in 1994, but then fell back (Figure 8). Non-oil exports ended in 2008 at about the level of 1994. Reports indicate that regional and national trade from surplus to deficit areas are continuing.

Figure 8: Non-oil agricultural exports in Chad, 1994-2008, percent



Source: IMF.

52. As a member of the Economic and Monetary Community of Central Africa (CEMAC) and the Economic Community of Central African States (CEEAC), Chad has enhanced regional economic integration by: (i) introducing duty-free tariffs for CEMAC countries' products (subject to strict rules of origin); (ii) introducing a common external tariff (CET); and (iii) implementing a common regional agriculture policy through the CEBEVIRHA (*Commission Économique du Bétail, de la Viande et des Ressources Halieutiques*). Market information, enhanced transport infrastructure, market defragmentation, trust, and communication are all positive externalities that can arise from such intra-regional initiatives.

53. Chad has been a member of the World Trade Organization (WTO) since 1996. Chad's exports to the EU remain eligible for duty-free and quota-free access under the 'everything but arms' initiative, and exports to the U.S. market enjoy preferential access under the Africa Growth and Opportunity Act (AGOA). Chad ranks last among 121 countries in the 2009 World Economic Forum Enabling Trade Index in relation to border administration and transport and communications infrastructure.

F. Agricultural water and adaptation to climate change

The Chadian paradox — erratic rainfall and droughts vs. significant unexploited potential

54. National food security in Chad remains highly vulnerable to weather-induced production variability. In 2009, erratic rainfall leading to widespread drought resulted in an annual food deficit of up to 600,000 metric tons, threatening the food supply of up to 2 million people (USAID, 2010). Widespread acute malnutrition in some parts of Chad (such as the Kanem region) has reached as high as 27 percent, well above WHO emergency levels (survey undertaken by the NGO, Action Against Hunger in December 2009).

55. As indicated in UNISDR's (2009) Global Assessment Report on Disaster Risk Reduction, Chad is exposed to natural disaster risks from multiple hazards, including drought (with 33 percent of people and 30 percent of the total crop area exposed to the risk), floods, and landslides. The country experienced 35 disaster events over the past decades. Chad is also rated

as an “extreme risk” by the Climate Change Vulnerability Index and ranks ninth on the list of the “extreme risk countries” in the world.

56. In a background paper for the World Bank’s (2010a) World Development Report on Climate Change, Müller et al. (2009) showed that climate change (warming 2° C) is likely to depress agricultural yields by 15 percent in Sub-Saharan Africa, by 20 to 30 percent in some Sahelian countries, with an average estimated impact of 15 to 20 percent in Chad. The likely decline in agricultural production needs to be viewed in context — an estimated 44 percent of Chad’s population remains food insecure and agricultural yields tend to be highly volatile. Cereal yield growth is flat, among the lowest in Sub-Saharan Africa, and during some periods about 50 percent lower than in neighboring Cameroon.

57. Climate adaptation therefore needs to be at the forefront of strategy discussions as well as plans and programs for agricultural development and operations in order to best anticipate appropriate climate adaptation measures. This would help reduce volatility in the sector and help the country deal better with some of the climatic risks it faces. It would also help Chad respond to the UN Global Assessment Report on Disaster Risk Reduction, which recognizes climate change as a serious threat to the economic development and poverty reduction efforts of countries like Chad that are subject to increasingly frequent droughts (UNISDR, 2010).

58. Potential exists to significantly reduce weather-induced production variability. Chad’s renewable water resources are reported to be of good quality and are sufficiently abundant to meet the population’s food production needs. Renewable water resources are estimated at 43 billion cubic meters per year, of which two-thirds are within the Chari watershed (AQUASTAT, 2010; World Bank, 2009d). Annual renewable surface water resources are estimated at 41 billion cubic meters per year. In addition, annual renewable groundwater is valued at nearly 11.5 billion cubic meters, and exploitable groundwater reserves are between 260 billion and 550 billion cubic meters within aquifers that underlie three-quarters of the total surface area of the country (AQUASTAT, 2010; World Bank, 2009d; RoC, 2003). Consequently, annual per capita renewable water resources are relatively high by regional standards (4,050 cubic meters per inhabitant per year versus 2,380 in Niger and 1,595 in Sudan). Water used for both private consumption and production purposes is less than 25 cubic meters per capita per year, representing less than 1 percent of the available water (AQUASTAT, 2010). With so little use of irrigation, agricultural production depends on climate and unpredictable rainfall.

59. Potential irrigable land in Chad is estimated to be as high as 335,000 hectares, of which only 30,000 hectares are currently provided with irrigation equipment, representing 0.9 percent of the total cultivated lands in the country (AQUASTAT, 2010).

60. The potential to exploit renewable groundwater with boreholes is described as favorable to very favorable (Map 3 in the Appendix). The static water level is generally deep (between 10 meters and 35 meters below ground in most large hydro geological units), which rules out the use of low-cost technologies to lift water (such as animal or human powered pumps). However, the accessibility to the groundwater (depth of drilling divided by success rate) through boreholes is described as favorable in regions such as west Kanem, west Chari-Baguirmi, Moyen Chari and the areas East Faya Largeau (RoC, 2003). Map 3 in the Appendix shows the groundwater exploitability ratio, which is the average discharge from each borehole (1 to 5 cubic meters per hour) divided by the depth of the static water level. By relating water availability to pumping costs, the exploitability ratio conveys the likely economic attractiveness of tapping the aquifer.

61. In view of this background, investment in water resources — particularly for small-scale irrigation — could be viewed as potentially attractive. There are, however, several constraints

arising from water resources mobilization. Those constraints are: (i) ecological, such as the strong pressure on endorheic basins when mobilizing surface water (the sustainability of basins such as Lake Chad and Lake Fitri depends on how upstream water is managed); (ii) political (numerous aquatic systems cross Chadian borders, requiring concerted management by the countries that share these water basins); (iii) economic (the cost of implementing the various irrigation schemes is high and can go up to CFA 14 million per hectare); and (iv) technical (depth, flow rate, success/failure rate are key factors to consider when mobilizing ground water) (RoC, 2003).

Irrigation schemes in Chad

62. In Chad, irrigation infrastructure is mostly traditional and managed by communities. However some irrigation schemes are quite modern in design; many of these are privately owned (Map 4 in the Appendix) (RoC, 2003). Seven main types of agricultural irrigation schemes can be distinguished:

- (i) Flood recession agriculture using basic water-retaining infrastructures (micro-dams, soil bunds) in the Mayo Kebbi, Logone Occidental, Moyen Chari, and Salamat Regions (125,000 hectares, with crops such as berbére and maize);
- (ii) Lowland rice growing (depressions submerged by floods and runoff);
- (iii) Traditional small-scale irrigation with complete water control using basic tools such as the Egyptian chadouf or buckets, in the Biltine and Kanem regions (15,000 hectares, fruits, vegetables, and sometimes cereals);
- (iv) Modern small-scale irrigation with complete water control along the Chari and Logone rivers (2,000 hectares, rice, vegetables, fruits, and condiments);
- (v) Large irrigation areas with partial water control along the Logone river (about 2,000 hectares, rice, wheat, and maize);
- (vi) Large irrigation areas with complete water control along the Logone (Bongor) and Chari (Sarh) rivers (6,620 hectares, sugar cane, rice, wheat, and maize); and
- (vii) Oasis systems, where water is extracted from aquifers (5,900 hectares, date palm, vegetables, cereals, and fruits).

63. Through the Master Plan for Agriculture covering the 2006-2015 periods, the Government wants to tackle food insecurity by increasing production of staple food crops using irrigation with complete or partial water control. The strategy includes increasing: (i) rice yields by 65 percent; (ii) yields of other food security crops by about 30 percent; (iii) rice production area by 10 percent per year, and a significant increase in (iv) the production area devoted to other food security crops.

64. It would be important and useful to review the implementation progress of the irrigation plans in the Agriculture Master Plan. Given the irrigation potential described above, a further review on why this potential has so far not been tapped and of the practical constraints to the development of irrigation and water management would help to better understand why irrigation is not practiced more or why irrigation has not been an important part of past programs supported

by donors. The review could also provide some recommendations as to which schemes or areas may be developed at low-cost and/or would be relatively easier to start with in terms of water resources management.

G. Livestock

Importance of livestock in the Chadian economy

65. Livestock systems in Chad can be categorized into those in which animals move during the year (pastoral, transhumant, and sometimes agro-pastoral) and those which are more intensive (sedentary, including smallholder dairy production and aviculture). Pastoral livestock systems are estimated to account for approximately 75 percent of the nation's estimated 18 million animals (7 million cattle, 8 million sheep, and 3 million camels) (RoC, 2006). Meanwhile, a small but rapidly growing semi-commercial dairy and poultry sector is emerging to supply expanding demand in urban markets.

66. The livestock sector has been highlighted by the Chadian Government and other donors as both a potential catalyst for economic growth and as a means to ensure food security for vulnerable populations. The Government priority is to develop livestock systems that preserve and strengthen the sustainability of arid land systems. Better management of rural water could ensure sustainable pastoral systems as well as support small but growing intensive livestock systems, usually located around urban areas.

67. Livestock exports generate considerable foreign exchange earnings for the country. In 2007, livestock exports were valued at US\$ 300 million, second only to oil revenues, and three times higher than cotton revenues (IMF, 2009b). The reported value of livestock exports is widely considered an underestimate, with live animal exports informally reported at 600,000 to 800,000 head, compared to an official estimate of only 92,000 head in 2007 (FAOSTAT estimates). According to the National Plan for Livestock Development, 65 percent of the livestock trade, estimated at CFA 3 to 4 billion, is informal (RoC, 2006).

Constraints to livestock growth

68. Conflicts linked to access to pastures and water points are systemic. Extensive livestock systems are increasingly challenged by water availability and access to grazing lands, and serious conflicts arise when cropping activities are hampered by the arrival of pastoralists in search of water and pasture. Additionally, conflict is expected to increase due to growing animal numbers, a growing urban population, more sedentary agricultural communities, and climate change that reduces grazing lands and requires water augmentation. Conflict management projects are being progressively implemented by development organizations. Their approach focuses on: (i) supporting joint committees of citizens involving all parties (local, traditional, and administrative authorities, representatives of farmers and producers) in the prevention and management of conflicts (Ouaddai and Kanem); and (ii) support to the *Association de Médiation pour l'Entente entre Cultivateurs et Eleveurs au Tchad* (AMECET), a civil society group localized in the Sudanian zone that fosters development of "Committees of Understanding" (frameworks for cooperation, dialogue and negotiation), representing the two interest groups.

69. Another approach to deal with conflict used in neighboring Nigeria may also be of interest and may serve as a good example in the Chadian context. This approach seeks to foster dialogue between all potential water users in a given zone. The Nigeria program that aims at developing Fadama (lowland) areas, started by creating Fadama User Associations (FUA) made up of farmers and herders. The groups decide on the use of water and other resources in project

areas, and the access of each stakeholder to such resources. The overall socioeconomic impact analysis of the second phase of the Fadama program reported that resource conflicts have virtually been eliminated due to the rapid internalization of the principles and mechanisms of social inclusion (World Bank, 2008c).

70. Animal diseases limit livestock productivity and profitability and are a major burden for households and traders, increasing animal mortality and reducing livelihoods. According to the World Organisation for Animal Health (OIE), diseases present in the country are, among others, the *peste des petits ruminants*, anthrax, contagious bovine pleuropneumonia, foot and mouth disease, and *haemorrhagic* septicemia. Little information exists on zoonotic diseases such as bovine tuberculosis and brucellosis but they're known to be prevalent. All these diseases strongly undermine the sector's productivity and pose threats to public health. The ability to effectively manage the challenge of animal diseases is constrained by weak veterinary services, both public and private, staffed by 884 personnel, both veterinarians and general staff (in 2005), which is a workload of approximately 20,134 animals for each livestock 'agent'.

71. Livestock exports 'on the hoof' are challenged by limited infrastructure and institutions promoting cross-border trade. Live animal trade to the largest regional market, Nigeria, is constrained by lack of border markets, a means for traders to exchange currency, and effectively maintained livestock corridors that facilitate animal movement. The Government has investigated setting up an 'open border', i.e., border markets and a regional trade bank to facilitate border transactions, but to date, nothing has been agreed upon.

H. Cotton

72. The importance of the cotton sector in Chad is difficult to overstate. Three million people, representing one-quarter of the total population, depend on the cotton sector in one form or the other. The sector is currently under severe stress, and three out of four cotton producers live in poverty. In the past, Chad's cotton producers benefited from support provided by a state-supported *filière*, the centerpiece of which has been the extremely centralized public company Cotontchad. Today, Cotontchad is bankrupt, Chad's cotton producers have lost their competitiveness, and the sector is teetering on the brink of collapse. Over the past decade, cotton production has plummeted. The contribution of cotton – Chad's main export in the past - to the overall economy has declined over the last several years, with yearly production falling from a 1997 high of 270,000 metric tons to about 100,000 metric tons in 2005, and only an estimated 33,000 metric tons in 2009-2010 cropping season (Mangenot, 2009) (Figure 9).. In spite of declining production, the cotton sector remains important for Chad, cotton being the main source of cash income for around 350,000 rural families, or several million Chadians.

73. The cotton sector in Chad faces significant challenges:

- (i) **Climate shocks.** Unfavorable weather (droughts and floods) dramatically reduced yields and plunged hundreds of thousands of Chadian cotton farmers into financial trouble during the 2005, 2006, 2008, and 2009 cropping seasons (the distress was concentrated in Gounou-Gaya, Doba, and Sarh regions). Unlike in Burkina Faso, where the Government and donors declared a natural disaster and forgave farmers' debts, in Chad the Group Credit Lending (caution solidaire) couldn't cope with important financial arrears, so the debt was maintained.
- (ii) **Instability of cotton prices.** World cotton prices, over the last decade, have been well below historic averages, despite a recent rebound. According to the Global Commodity Markets study prepared by the World Bank, the monthly price of cotton increased from US\$ 1.20 per kilogram in January 2009 to US\$ 1.60 per

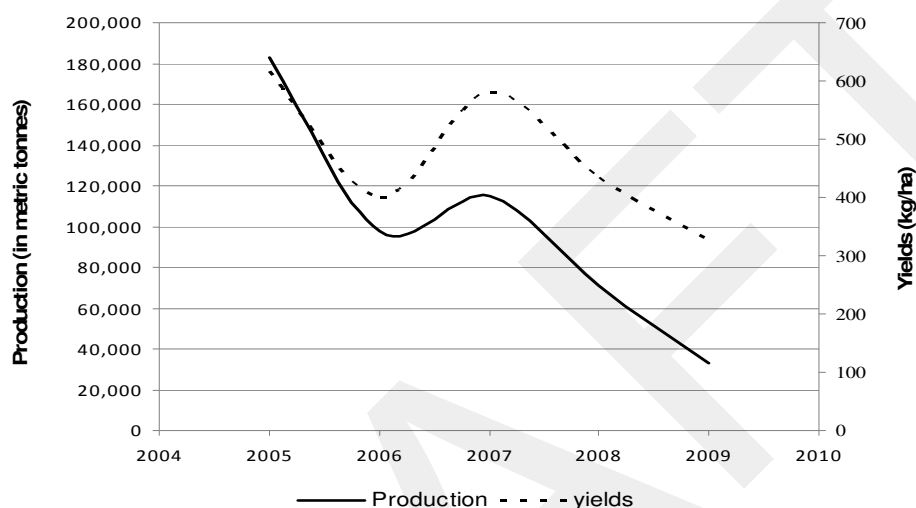
kilogram in January 2010. However this level is still well below those seen during the 1970s and 1980s.

- (iii) **Adverse exchange rate movements.** The appreciation of the CFA against the U.S. dollar during the last few years reduced the CFA value of Chadian cotton on world markets (the exchange rate increased from US\$ 1 = CFA 700 in 2002 to an average of about US\$ 1 = CFA 470 in 2009). More recently during the first 8 months of 2010, the CFA has depreciated somewhat against the U.S. dollar (CFA 502 = US\$1), even though this is still not enough to help cover the costs of the sector and increase the CFAF producer price to the farmer.
- (iv) **Evolution of the international market.** Many of Chad's competitors in the global cotton market have intensified agricultural practices through investments in research, irrigation (non-African producers) and uptake of biotechnology (as shown by the increasing use of Bt cotton seeds in the U.S., India, and recently in Burkina Faso). Slow adoption of improved seed and production technologies has left Chadian cotton producers the least productive (with yields averaging 220 kilograms per hectare) among the seven cotton-producing countries in West and Central Africa.
- (v) **Debt of producer organizations to Cotontchad.** In 2009, cotton producer organizations owed Cotontchad CFA 4.4 billion (compared to only 1.7 billion in 2000). In an effort to stop accumulating input debts, Cotontchad stopped extending new credit to producer groups that were in arrears, pushing many defaulting growers out of cotton. As a result of this, the number of farmers planting cotton in Chad decreased by 61 percent between 2004 and 2009. Many of these farmers sold part of their capital — live animals — and diversified to other crops such as cereals, groundnuts, sesame, and cowpea. As shown in Table 2, the diversification strategy out of cotton adopted by farmers depends on the typology of farms.
- (vi) **Unfavorable agronomic practices.** The low productivity of Chadian cotton is attributable in part to the very low use of organic and chemical fertilizers, together with the generally poor to modest quality of planting material provided by Cotontchad (mainly the outdated A51 variety that needs to be quickly replaced by STAM and A26 varieties).
- (vii) **Malfunctioning of the institutional structure of Cotontchad.** The most important factor contributing to reduced cotton production in Chad however is the multiple problems associated with Cotontchad: (i) long delays in removing cotton from farms (up to one year in the Sahr and Doba regions); (ii) collection schedules that are not respected despite a memorandum signed between Cotontchad and farmers, (iii) delays in payment for cotton (up to one-year late in Pala, Moundou, Sahr, and Pala regions), and (iv) poor communication between farmers and Cotontchad, as a result of which many producers receive low-quality seeds and inadequate quantities of fertilizer.

74. In spite of these issues, structural reforms in the cotton sector are still pending. Restructuring of the cotton sector has been on the agenda of the Government since 1999, but reforms have advanced slowly. In 2005, a road map was agreed between the Government and the donors for restructuring the industry and privatizing the sector. More specifically, the agreed road map included: (i) Government finalization of the reform design (proposals for the future organizational structure of the sector, setting up a high-level team to lead the reform process,

proposals on price setting mechanisms, etc.); (ii) definition of the role of the State in a privatized sub-sector; (iii) definition of the regulatory framework and enabling environment within which the private sector would operate; and (iv) recruitment of an investment bank to perform the financial analysis of Cotontchad and manage the invitation to tenders and the divestiture process. To date, the road map remains only very partly implemented. Meanwhile, the economic challenges confronting the sector are substantial (Cotontchad's debts now amount to about CFA 102 billion) and are likely to deepen.

Figure 9: Cotton production and yields, 2005-2009



Source: Mangenot (2009).

Table 2: Relative share of different crops in rotation depending on the type of farm (expressed as a percentage of farm's acreage), 2010

Type of farm	Cereals	Groundnuts	Sesame/cowpea	Cotton
Small farms (manual)	48.0	34.6	17.3	0
Partially equipped farms	35.6	28.7	8.0	27.6
Fully equipped farms	42.9	28.3	7.3	21.5
Fully equipped and large farms	49.6	24.1	7.3	19.0

Source: Reoungal and Djondang (2010).

75. With implementation of the Road Map lagging, a multi-sectoral technical team was appointed to formulate restructuring proposals. These recommendations were approved in 2008 by the Government, but to date they are still awaiting implementation. A new managing director was also appointed to address the slow pace of implementing the reforms and to reinforce the authority of Cotontchad.

Indebtedness of cotton producers and their organizations

76. Between the 2005-2006 and 2009-2010 cropping seasons, the number of cotton farmers associations (*Groupements Villageois*, GVs) declined by 34 percent (from 3,378 to 2,216), and the number of cotton growers declined by 61 percent (from 292,000 to 113,000, well under the 350,000 historic average). The number of GVs in financial trouble increased from 880 to 2,565

over the same period. Cotontchad pushed indebted farmers out of cotton by refusing to supply inputs to unsuccessful producers (Mangenot, 2009).

Cotton and poverty

77. Cotton is no longer profitable for a large share of the remaining producers (ECOSIT 2 survey). The poverty rate among cotton producers is 72.7 percent, compared to 55 percent for the larger population. In spite of these difficulties, cotton provides a livelihood for about one-third of the economically active population. Several reasons explain the continuing membership of farmers in the 'cotton club.' First, a guarantee of a minimum price allows farmers to reduce uncertainty and cover their cash needs for expenses such as health care or education. Second, cotton production guarantees access to credit and inputs, and farmers can use part of the inputs on other crops such as cereals, which enables them to improve food security for their households. There are virtually no other sources of financing for these inputs.

4. POTENTIAL DRIVERS OF RURAL GROWTH

A. Water resources development for crops and livestock

Irrigation for agriculture

78. For a country faced with the growing threat of climate change, meager and erratic rainfall, and increasing periods of drought, expanding the use of water for irrigation is of strategic relevance and the single most critical element to promote sustainability in rural areas. Expanding irrigation is considered a national priority and features in national policies, related strategies, and programs. Appropriate management of water resources is a strategic option to achieve development in Chad.

79. Irrigation projects in the Sahel in general have generated positive externalities, including: (i) reducing poverty; (ii) improving food security; and (iii) empowering women (World Bank, 2009c; World Bank, 2008c). The private irrigation promotion project (PIP2) in Niger was given a highly satisfactory rating upon completion for achieving its development objective of increasing smallholder productivity (World Bank, 2009c; Box 6). The project also yielded desirable economic returns by showing an excellent overall economic rate of return (ERR) of 27 percent. The Pilot Private Irrigation Development Project (DIPAC) in Burkina Faso was rated as satisfactory for achieving high benefit-cost ratios (from 79 to 235) (World Bank, 2005b). Furthermore, even if sub-projects under the Bank-financed ASPOP in Chad need to be assessed in more detail, irrigated rice in the area of Bangor (Mayo Kebbi) produced an economic return of 56 percent (however, this result was sensitive to changes in cost and revenue). These examples confirm the good performance of small-scale private irrigation investments in the Sahel.

80. Analytical work provides further support to the case for expanded irrigation. According to the simulation performed by Levy (2007), using a portion of oil revenue to finance irrigation would generate substantial economic benefits (GDP growth) and decrease risks of Dutch Disease (Box 4).

Water resources for livestock

81. Access to and management of rural water resources has been prioritized by the Government to ensure sustainable pastoral systems, as well as small but growing intensive livestock systems. It is estimated that water requirements for livestock will nearly double between

2000 and 2020, from 175.9 million cubic meters per year to 306.9 million cubic meters per year (RoC, 2006). With the supply of surface water unlikely to expand, most of these water requirements will need to be sourced from rural wells and pumps. Effective water management would reduce pressure on water resources while mitigating tension between transhumants and agro-pastoralists. Policies such as: (i) equipping migratory routes and traditional trading routes with water points, feed, and veterinary services; and (ii) strengthening the legal and regulatory framework by adding laws governing various pastoral and agro-pastoral uses to the Water Code are among the strategies proposed by the Integrated Plan for Water Development and Management 2003-2020 (RoC, 2003).

82. The sustainability of these pastoral systems linked to water access is particularly important from the perspective of food security and social dynamics. First, it has been estimated that food insecurity in households in livestock zones characterized as transhumant exceeds 50 percent and is surpassed by the vulnerability only of those households located in the zone of rainfed cereal production. Second, migratory routes are being pushed southward down to 200 millimeter and 600 millimeter isohyets in the Sahelian and Sudanian zones (CILSS and GTZ, 2009) due to the effects of climate change. As a result, increasing pressure and competition between transhumans and agro-pastoralists for scarce surface resources is growing. Sound investments in agricultural water can potentially tackle these social troubles and improve the enabling environment for rural activities.

Box 6: Niger Private Irrigation Promotion Project

The Niger Private Irrigation Promotion Project was a second phase project (US\$ 45.4 million) that built on a pilot phase. The objective was to increase production and profitability of high-value, irrigated crops by private, smallholder farmers with simple, low-cost technologies.

The project had four components:

1. *Develop Irrigated Agriculture and Institutional Capacity (US\$ 8.23 million)*. Develop, test, improve, and disseminate simple, low-cost irrigation and production technologies. Included participatory research and advisory services and capacity-building activities.
2. *Irrigation Investment Component (US\$ 28.72 million)*. A matching grant facility for irrigation investment (motor pumps, wells, California networks) and support to microfinance institutions and their umbrella organizations.
3. *Environmental Protection Component (US\$ 2.3million)*. Minimize adverse environmental and social impacts. Included protection and maintenance of irrigated perimeters, protection against negative environmental impacts, monitoring aquifers and pollution, and training stakeholders about environmental issues.
4. *Project Management Component (US\$ 8.5 million)*. Supported the Project Implementation Unit to provide demand-driven assistance to small-scale farmers and supported outreach by, and capacity building for, project staff.

Upon completion in June 2009, achievement of Project Development Objectives was rated highly satisfactory and was confirmed by the Independent Evaluation Group (IEG). The relevance of objectives and design, together with the efficacy and efficiency were rated as high. The overall borrower performance was rated as satisfactory.

The main lessons learned from the project — undertaken in a challenging institutional environment and harsh Sahelian context — are: (i) a relatively simple project design, a carefully crafted results framework, and measurable development objectives and indicators are particularly important for project success; (ii) success with a pilot project is a foundation for subsequent success in follow-on projects, although it is not a guarantee; (iii) outsourcing management of public funds to the private sector requires attention by all parties to transparency of fiduciary procedures; and (iv) in irrigation projects that support private small-scale farmers, attention to the means of ensuring maintenance of investments and equipment through quality assurance, rural finance services, and training is particularly important to sustain economic benefits and institutional processes in the longer term.

Source: World Bank (2009c).

B. Livestock value chain development

Strategic objectives in the short term

83. Developing a strategy that focuses on sustainably managing pastoral resources while empowering communities could provide a framework of interventions which support pastoral communities to enhance their access to resources and services. This strategy should be developed in collaboration with the Ministries of Livestock, Agriculture, Water, and Health, as well as development partners. Rural service programs for pastoralists should respond to priority community requirements for both animals (vaccination, pastures, water) and families (health and education) (Box 7). Given increasing vulnerability of pastoral communities to climate change, this should be supported by a disaster management policy that helps vulnerable communities by developing coping mechanisms, diversifying livelihoods, and outlining Government support in case of drought or other emergencies, such as disease outbreaks.

84. Strengthened veterinary services could significantly reduce livestock mortality rates and raise productivity. Needed investments have been described by the OIE, which focuses on the tripod, “public veterinary system, private veterinary network, and producers”. It should build on the evaluation of the performance of the Veterinary Services using the PVS tool that was carried out by the OIE and the subsequent gap analysis. This must specifically include access to

veterinary services and inputs (drugs, vaccines) for communities at the local level. Reinforcing the Veterinary Services will both decrease animal diseases and improve the food safety situation, positively affecting livestock productivity and reducing risks for public health.

85. The establishment of a pastoral code would provide some legal support for the rights of pastoralists while reinforcing pastoral associations would facilitate dialogue with other livestock stakeholders and potentially support opportunities to strengthen live animal trading routes, thus facilitating producer access to markets and remunerative economic opportunities.

86. Supporting higher value livestock product chains would respond to growing urban demands for more and better quality animal protein products. This initiative should be implemented under a broader rural development diversification initiative that aims to foster diversification through the provision of technical knowledge and access to credit.

Strategic objectives in the medium and long terms

87. Livestock development efforts should focus on gradually transforming traditional sustainable pastoral systems in the Northern zones to more commercially-focused systems characterized by increased animal off-take linked to trade of live animals. Diversification in the Central and Southern areas can support a more integrated crop/livestock sector, which could benefit from access to irrigated water, crop residues, and a more commercial orientation.

88. Increased marketing transparency at the major border crossings could lead to higher animal off-take, regional trade, and more sustainable management of pastoral resources. More privatized management of livestock markets, combined with effective means of price dissemination would facilitate trade. Regional trade links and harmonization could be supported by CEBEVIRHA,² which is based in Chad. It could also potentially provide innovative entry points for drought management that stimulate early marketing of animals through public-private partnerships using subsidized transport, exchanging grain for animals.

89. Improving transport facilities (roads and airports) could also benefit the livestock sector. The livestock value chain is weakened downstream by a lack of capacity for processing and conservation due to: (i) the prohibitive costs of energy (Chad has the highest kilowatt-hour price in the world and unpredictable blackouts) (World Bank, 2008a); (ii) competition from imports, particularly frozen poultry parts; and (iii) the cost of credit. The sector is challenged by: (i) poor transport conditions for animals; (ii) inadequate cold storage systems for animal products; and (iii) the lack of air connections to countries importing meat.

90. The private sector's adherence to standards would improve product quality, enhance competitiveness, and facilitate exports. Quality management fundamentals are, however, missing all along the value chain, jeopardizing trust with demanding clients. International standards include compliance with the sanitary requirements of the World Trade Organization (WTO). Requirements for live animals are based on OIE standards, while the requirements for animal products (meat, eggs, and milk) are based on FAO's *Codex Alimentarius* guidelines and standards.

2. The Economic Commission on Cattle, Meat and Fish resources in CEMAC.

Box 7: Rural services — an innovative way to jointly deliver human health and veterinary services

The mobility and dispersion of mobile livestock owners is a risk mitigation strategy in many arid and semi-arid ecosystems of sub-Saharan Africa, one which facilitates the use of otherwise unproductive lands but creates difficulty in providing health services, both to humans and animals. A program implemented from 2000-2005 in Chad demonstrated the benefits of institutional collaboration between public health and veterinary services to facilitate human health and veterinary services access to pastoralists.

In this cross-institutional pilot program, 10 vaccination campaigns for nomadic children and women were conducted among three ethnic groups and existing mobile veterinary infrastructures were extended to allow for simultaneous vaccination of people and animals (Schelling, 2005). The pilot program demonstrated that by doing together vaccination activities for humans and animals, pastoralist families were more inclined to have more comprehensive vaccination coverage for their livestock and children.

Supporting a common policy for vaccination of children and livestock in pastoralist communities could improve the health of the pastoral community, enhance the health of animals that support the livelihoods of a large percentage of the rural population, and reduce the costs of both animal health and human health interventions. By controlling costs and optimizing the logistical and human resources that support vaccination services, both public health and veterinary services will be strengthened, especially at the district level. This innovative cross-ministerial cost-sharing initiative enforces dialogue between public health and veterinary services, increases coverage of essential health services to populations in rural Chad, while providing an operational approach to respond to endemic and potentially epidemic diseases.

Source: Schelling et al. (2005).

C. Cotton sector strengthening and diversification

Cotton sector recovery

91. Improving the enabling environment of the cotton *filière* would enhance efficiency of the sub-sector. The reform and possible privatization of Cotontchad is not the only pre-requisite to bring productivity back on track. Substantial infrastructure, logistics, and energy issues are plaguing the sub-sector (such as the high cost of energy, a poor network of rural roads, under-optimized ginning plants and outdated vehicle fleets). In the short term discussions should focus on reforming the sector, including clarifying and cleaning up the farmer debt situation, setting up a program to discuss steps for state divestment from the sector, putting in place an enabling environment that would seek to set up a true partnership between farmers, the private sector, and Government and clearly define their respective roles.

92. As identified by Mangenot (2009), there are other top priorities that should start in the short to medium term, to support the recovery of the cotton sector such as: (i) helping farmers to equip or re-equip with agricultural production hardware; (ii) finance a cotton research program to introduce new cotton varieties (such as the STAM and A26 varieties) within three years in cooperation with external research institutes; (iii) forgive the debts of defaulting producer groups; and (iv) empower POs umbrella groups dealing with cotton issues to collect information (such as a sound evaluation of farmer input needs), monitor the delivery of inputs, and deal with the commercialization of outputs. How these would be done should be examined as part of the measures to be undertaken in the short term.

93. Increasing yields is another crucial factor to boost the recovery of the cotton sector. To increase yields, better access to inputs is fundamental. With Cotontchad having proved incapable of delivering adequate quantities of fertilizer to farmers (Mangenot, 2009), a private sector-led fertilizer distribution network is needed to facilitate farmer access to inputs. Cotton yields could

also benefit from the introduction of improved planting material and new varieties. These could include genetically-modified Bt varieties, although it should be recognized that the introduction of Bt cotton in Burkina Faso, India, and elsewhere has been politically and socially very sensitive (Gerard, 2009).

Diversification options for cotton

94. In spite of cotton's importance in the economy, Chad must diversify its agricultural sector to reduce dependence on cotton and also take advantage of new opportunities for high-value products for which the country may have a comparative advantage, and to address climate change through the introduction of shorter-cycle varieties.

95. The ECOSIT 2 survey reviewed various options if the production of seed cotton (industrial farming) falls by 25 percent and resources move to the production of other food crops or animal husbandry activities. The economic impact of reduced cotton production depends on substitution effects. Sensitivity analysis performed using Chad's Social Accounting Matrix (SAM) estimates that a reduction in cotton fiber production of about 25 percent could result in a reduction in GDP of about 2 percent, assuming that the fall in cotton production is not offset by a production increase in other agricultural sectors. The reduction in GDP increases slightly (negative 2.1 percent) if a simultaneous fall of 25 percent in seed cotton production is applied. The negative impact on GDP is reduced if the fall in cotton production is partly offset by an increase in food crop production and animal husbandry. A decline of 25 percent in seed cotton and cotton fiber, which is partially offset by a 4 percent increase in food crop production, would result in a fall in GDP of less than 1 percent. It is estimated that the effects would remain unchanged if a reallocation (proportional to GDP) of resources from seed cotton production to animal husbandry is assumed, or to a combination of animal husbandry and food crop production.

96. Promising alternative value chains may include:

- (i) **Sesame, cowpea, groundnuts, sorghum, and onions.** Because these crops have been identified as the crops chosen by farmers to diversify out of cotton (Table 2), and because these crops were recognized as having significant marketing potential, the Government has decided to implement long-term measures to improve their productivity. The Agriculture Master Plan (SDA) has established a 10-year program to enhance marketing in domestic and regional markets. The development objective is to increase farm household income through linking producers to markets, increase national reserves, and promote economic growth. These crops have strategic importance because of their: (i) short production cycle; (ii) reduced input requirements; (iii) susceptibility to few pests, (iv) predominant role of women in their cultivation; and (v) marketing possibility. Lessons from the diffusion of improved varieties of cowpea in Mali under the Bank-supported Agricultural Services and Producers' Organization Project (ASPOP) showed that cowpea can be successful³ and highly relevant in the challenging environment of the Sahel to tackle food insecurity and adapt to climate change.
- (ii) **Spirulina.** *Spirulina is a cyanobacterium*, also known as blue-green algae, that is traditionally grown in the Lake Chad basin and which is used worldwide as a food supplement. This food product has a significant potential to supply both domestic and regional demand. IFAD has identified spirulina production as a key value chain in its

3. Yield of cowpea increased on average from 250 to 650 kilograms per hectare under ASPOP auspices.

2010-2015 strategic frameworks, with tremendous potential for both commercialization and benefits for child nutrition. Strengths and opportunities for spirulina include: (i) a very low input demand for cultivation, which reduces production costs; (ii) a one-month development cycle that allows for rapid multiplication; (iii) traditional consumption; and (iv) the essential role of women in the cultivation process. If developed, the spirulina value chain could be an additional avenue of diversification, however, socioeconomic data about this sector are scarce, and knowledge gaps must be identified and addressed.

DRAFT

5. THE BANK'S RURAL SECTOR STRATEGY DURING THE ISN PERIOD

A. Strategic objectives

97. The Bank has recently adopted a two-year Interim strategy Note (ISN) where its assistance strategy to Chad would be to focus on the delivery of knowledge products and analytic and advisory services in various sectors. The strategy is to focus on areas of common ground between the Government and the Bank and seek to leverage the impact of public resources on the lives of the people of Chad - through work to strengthen both the design and operation of public financial management systems, by accompanying Government in its efforts to improve the provision of key social services (health, education, water), diversify its economy (agriculture), and better understand and address the needs of the rural poor. During this period also, one of the main objectives for the Bank will be to fully reengage and reestablish a productive dialogue and working relationship with Chad and will also support the Government in the implementation of its development agenda and sector strategies/policies.

98. The interim rural sector strategy going forward proposed in this Policy Note would support the ISN in three important areas. The first Pillar would involve deepening analytical work and improving knowledge in key strategic areas where the potential for payoff in terms of growth and poverty reduction are highest such as for water resources management (including irrigation and water supply for pastoral development) and the cotton sector, specifically areas of reform to improve productivity. The second pillar would analyze how well the various elements of Government's rural sector strategies are being implemented and especially the level of coordination between the different ministerial departments responsible for rural development and for implementing the different strategies that make up the rural development package. This should help Government implement and if necessary reorient its rural sector strategy (PIDR). The third pillar would involve productive dialogue on key reforms in the rural domain including better governance in the rural sector, immediate measures to improve management of the cotton and the livestock sectors; increasing the allocation of resources to the rural sector, the effectiveness and the impact of public expenditure in rural areas; and institutional reform for sustainable growth.

99. In view of the broader interest of the activities proposed here, it would be useful to involve other donors and development partners in the various studies and assessments. In addition to the value added that development partners and donors can bring to these discussions and studies, lessons drawn from activities that they have financed in the past, would be invaluable in helping us deepen our knowledge of conditions and implementation challenges in Chad's rural sector.

Pillar 1. Analytical work: Filling key knowledge gaps

100. It would be important during the next two years and as part of the ISN to deepen our knowledge of certain key issues and to try to fill knowledge gaps in key strategic areas, especially areas with potential for high payoff in terms of growth and/or poverty reduction. The potential areas in the short term in decreasing order of priority are: (i) irrigation opportunities and water resources management including review of pastoral water needs and how to manage these; (ii) putting in place a strategy for cotton sector reform; and (iii) agricultural diversification possibilities :

101. *An assessment of past and potential irrigation investments.* This assessment would help confirm the available water resources (both groundwater and surface) that can be tapped by Chad for irrigation as well as for pastoral and livestock development. The review should cover the experience with past irrigation programs including the effectiveness and efficiency of such

irrigation projects. More specifically, this assessment would: (i) further investigate why substantial irrigation investments have not been made in Chad in spite of the apparent largely untapped potential; (ii) identify in more depth, constraints to irrigation development including costs and benefits; (iii) assess more accurately the irrigation sub-projects carried out under ASPOP auspices (43 irrigation sub-projects were financed and only one sub-project was analyzed in economic terms); and (iv) assess the potential of vulnerable regions regarding food security. *Water for pastoral development.* In addition to assessing the irrigation potential, the review would pay particular attention to how water resources can be used for sustainable management of pastoral resources. Given that the extensive livestock systems are increasingly challenged by water availability and access to grazing lands, water resources need to be managed in such a way as to avoid serious conflicts between herders and farmers. Thus the assessment would take account of growing animal numbers, a growing urban population, more sedentary agricultural communities, and climate change that reduces grazing lands and requires water augmentation to make concrete proposals on how available water resources can be managed and shared by all interested parties.

102. ***Water resources development for crops and livestock.*** Focus of the review would be on sustainable land and water resources development within: (i) high irrigation potential areas such as the Chari-Logone and the Bahr Linia watersheds (Maps 3 and 4 in the Appendix) to raise agricultural productivity and profitability; and (ii) pastoral areas to enhance sustainable livestock production and ensure the sustainability of arid land systems surrounding these watersheds. An effort should also be made to examine how to strengthen the institutional and technical capacities of water users, producer organizations, Government institutions, and private sector support services.

103. Given the abundance of underground water, the review would pay particular attention to measures that would: (i) improve access to agricultural water through boreholes and pumps to enhance agricultural productivity and incomes in vulnerable regions regarding food security; (ii) enhance sustainable livestock production, reduce social conflicts between pastoralists and agro-pastoralists through the creation of rural water points supported by communal water management, and ensure sustainable pastures as a means to adopting to climate change; and (iii) strengthen both national and local capacity building to support investments in water access.

104. ***Cotton sector reform.*** While a lot of work has already been done over the last several years on the key elements of reform of the cotton sector in Chad as well as other West/Central African countries, it would be useful to update the knowledge base in the sector and identify the key elements necessary for cleaning up the sector and improving productivity. The review should help identify the main steps of a reform program that can be implemented in the short to medium term. Some of the key elements should include: a clear definition of the future organization of the cotton filière including the roles of the Government, the private sector, and farmers/ farmer organizations; what activities can be privatized, timetable for divestiture, what activities can be performed by producer organizations, and what activities should remain in the public domain; the extent of farmer indebtedness to Cotontchad and how this can be absorbed; the accompanying measures including actions to improve the performance of producer organizations, actions on how to improve productivity, and how to finance the critical functions (road maintenance, research, extension, seeds, etc.); who would have responsibility for input distribution and for input credit; pricing mechanisms for input and output prices; what are the productive zones for cotton production; etc.

105. ***Agricultural diversification strategies.*** This review could focus on key diversification commodity value chains and possible high value crops that could justify increased investments in irrigation. Some of the commodities identified include sesame, cowpea, groundnuts, onions, and possibly fruits and other vegetables. The study could also analyze the performance of agribusiness value chains such as the spirulina *filière* that was identified by IFAD as a key source of growth. The goal of these analyses is to: (i) inform policy dialogue on actions that are most critical to the development of the selected value chains; (ii) support farmers who have moved out or want to move out of cotton in order to strengthen their capacities; and (iii) set the stage for the formulation of new donor-supported operations on agricultural diversification. The study should also look at input markets for non-cotton crops since the primary supplier of fertilizer and seeds have been parastatals in the southern part of the country and the cotton sector. Such a study would help the Chadian authorities to operationalize a broad vision and plans for rural development, accompanied by concrete multi-year expenditure plans. It could help try to find solutions to improve food security, rural cash incomes, economic diversification, and activities that would draw people out of agriculture in the medium-term using oil resources.

Pillar 2. Diagnostic of Chad's rural development strategy

106. Government has four sets of strategies dealing with rural development in the form of a National Program for Food Security (1999), an Agricultural Master Plan (2006), a National Plan for Livestock Development (2006) and an Integrated Plan for Water Development Management (2003). While all these plans have in principle been operational for a while now, it is not clear from immediately available data, the level of implementation of the above different strategies and whether the budgeted resources have been available for their implementation. The existence of four separate sub-sectoral strategies within the agricultural sector, three of them each piloted by a different ministerial department would point to implementation and coordination challenges that can affect effective implementation of the different strategies and plans.

107. As part of our interim assistance strategy, it would be useful to analyze how well these strategies are being implemented and funded and review the level of expenditure devoted to each strategy as well as the level of coordination between the different ministerial departments responsible for implementing the different strategies that make up the rural development package. A quick implementation review including the annual expenditure levels accompanying each of them can help reorient these strategies, increase the resources available for their implementation, and/or reinforce the institutional framework for rural development. This exercise could also serve as an input for a long-term coordinated agricultural investment framework through CAADP-TF, and would help consolidate the different plans into a general rural development strategy that can be transformed into concrete multi-year expenditure plans with associated actions, modalities, and delivery channels. In particular, the Bank's regional and cross-country expertise and lessons on best practices would facilitate ensuring that public expenditures are effectively linked to development priorities. Given the enormous challenges facing Chad agriculture, one of the most valuable supports the Bank can provide to the Government would be to help the authorities consolidate and operationalize their development vision for the rural sector through a long-term investment plan for agriculture.

Pillar 3. Deepening the policy dialogue

108. A final part of the interim strategy would be to accompany the Country Team in its policy dialogue with the Government as we deepen our knowledge in some of the critical areas. It is important that dialogue be started immediately on the reform of the cotton sector including measures to prepare Cotontchad, farmers, and Government for a different role each in the near future. Dialogue can also start immediately on possible role for the private sector in input

distribution in order to make fertilizer and other inputs immediately available to farmers that do not have access to these from Cotontchad. Even though the exact level of farmer debt to Cotontchad will have to be established as part of the studies under Pillar I, it would be important to start discussions on how these debts would be covered once the exact amount is established. Other short term policy and institutional issues that should be tackled would include support for extension, research and rural road maintenance as well as how to ensure adequate pass through of world market prices for cotton farmers.

109. Given the importance of the Livestock sector and livestock trade, it would be useful to discuss private sector involvement in veterinary activities as well as measures to promote and enhance livestock trade with neighboring countries. Finally, discussions to ensure improved governance in the rural sector should be an integral part of our policy dialogue. This would include dialogue and work with the Government and donors to build capacity to ensure sound budget discipline for rural sector expenditures. The dialogue should seek to implement a program to strengthen budget accounting, implementation and control and improve public administration, transparency and anti-corruption in all the Ministries and agencies responsible for rural development. The program should be accompanied by increased expenditures for rural development. This is a critical element to renew confidence with the donor community and meet the goals targeted in the NPRS II.

ANNEX I

Main lessons from Bank operations in Chad

1. The main lessons learned from past Bank operations include:
 - (i) Simple and localized projects offer the best chances for success (project effectiveness is diluted when there are too many components, complex sub-components, and activities).
 - (ii) Community-driven development (CDD) projects can be successful. At the same time they may be challenging to organize with the extended network of actors needed at the provincial, district, and community levels. CDD projects can also yield benefits beyond those that are strictly economic (fight against HIV/AIDS, empowerment of women and youth, accountability of the sub-projects) and generate strong enthusiasm among stakeholders. This approach could be used when proposing rural operations in Chad.
 - (iii) Investments in small-scale irrigation managed by producer organizations or communities can yield good internal rates of return (IRR). ASPOP's agricultural surveys, together with ex-post economic and financial analysis, showed that the most economically desirable activities are irrigated rice.
 - (iv) Knowledge gaps about returns from various types of economic activities must be addressed to inform sound rural investments. ASPOP showed that potentially interesting activities could include poultry (under ASPOP, mortality rates decreased from 70 percent to 5 percent). Commodities such as sorghum and groundnuts also gave encouraging results (with yields increasing from 600 to 1,640 kilograms per hectare for sorghum and from 800 to 1,317 kilograms per hectare for groundnuts).
 - (v) An overall challenging country context hinders disbursement rates, achievement of project development objectives, and M&E operations. The Urban Development Project (PADUR) and the public financial management capacity-building project (PARCAFIP) suffer from lack of an enabling environment and institutional support (World Bank, 2010b) and suspended ISR missions. The lack of effective follow-up because there was no staff in the country hampered project implementation.
 - (vi) Counterpart funds from the Government are often slow to materialize and jeopardize project funding. Projects such as PROADEL (Box 8) (World Bank, 2009e), along with the Agricultural and Livestock Services Project (ALSP) (World Bank, 2003) and the Agricultural Services and Producer Organizations Project (ASPOP) (World Bank, 2009b), demonstrated that counterpart funds from the Government were inadequate to meet project needs. For example, the current disbursement rate for the PROADEL project was only 37.5 percent eight months before the project closing date.
 - (vii) Considerable efforts must be made in project financial management. PROADEL emphasized the need to improve accounting and financial management. The recently closed ASPOP project noted a lack of communication between financial activities and monitoring and evaluation activities (M&E). As a consequence, a significant number of sub-projects received only one or two tranches of the planned three tranches of financing. ASPOP

suggested linking M&E and project financial management. This highlights the need for more follow-up/monitoring in country.

Box 8: Local Development Program Support Project (PROADEL)

Since 2004, the US\$ 23 million Local Development Program Support Project (PROADEL) has been helping the Government to design and implement a decentralized and participatory financing mechanism to empower local communities and decentralized authorities to manage development funds by: (i) strengthening the capacity and responsibility of local communities and decentralized authorities, (ii) implementing demand-driven sub-projects, and (iii) supporting the emerging process of decentralization. The project is likely to be provided with additional financing for a second phase.

The project has four components:

1. *Financial support to local development sub-projects* (US\$ 10.12 million) provides matching grants to co-finance sub-projects proposed by community-based organizations.
2. *Capacity-building for local development stakeholders* (US\$ 4.48 million) strengthens technical and organizational capacity at the community level for participatory approaches, assessment needs, project management, and access to credit or new poverty reduction approaches.
3. *Support for decentralization* (US\$ 3.5 million) helps the Government with effective implementation of its decentralization policy.
4. *Management and information support* (US\$ 4.9 million) supports project coordination, evaluation, and monitoring.

The project is implemented mainly in the southern part of the country, although it has launched studies and pilot activities in other regions as well (Map 5). Through 285 sub-projects, the first component has financed activities in: (i) education (75 school buildings, each with three classrooms, benefiting more than 34,000 pupils); (ii) health (16 health posts benefiting more than 80,000 people, HIV/AIDS prevention and information, personnel training); and (iii) water and sanitation (176 water points/wells were built and more than 250,000 people have access to drinking water). Under capacity-building support for local development stakeholders, 2,200 civil society members in areas linked to decentralization were trained in 75 different sessions.

Main lessons learned from other donor operations

2. Donors active in Chad express considerable frustration about the dysfunctional institutional set-up, lack of visible development progress, and the inability to sustain initiatives (World Bank, 2009d). In addition, political instability makes operations unsafe and risky for development actors. The security situation often prevents development staff from working normally and traveling to project sites. The main difficulties encountered by IFAD — which conducted a recent assessment — when trying to implement projects arose from: (i) the overall low local capacity of service providers and project staff; (ii) procurement difficulties; and (iii) political instability. The lessons learned from IFAD's activities in the rural sector include the need to: (i) focus on a limited number of activities; (ii) use temporary international technical assistance because management and implementation capacity are limited; (iii) facilitate rapid delivery through mechanisms that simplify procurement arrangements; (iv) invest in cereal bank interventions which has substantially contributed to food security; and (v) ensure that agricultural water management is a priority. A snapshot of current activities is provided in the below table.

Indicative activities of major donors and technical agencies in rural sector, 2010

Donor	Programmatic focus rural development (excluding health/education)	Snapshot of major activities
AFD	Agricultural water use Environmental sustainability	Hydraulique Villageoise Potable Water Hydraulique Pastorale Hydraulique Agricole
WFP	Enhanced food security and nutrition	School feeding Ration supplementation for girls Nutritional programs Food for work
UNDP	Water Sustainable Environment	Supply chain analysis Restoration of Eco-system
AfDB (Funding 2010-2014 approximately \$42 million)	National projects Regional projects	Micro-barrages Rural roads (2,300 km) Livestock (infrastructure, abattoirs, lait) Fisheries (market construction) Natural Resources management project Rice mills Cereal storage Rural water (850 pumps) Regional Cotton (4 countries) Seed research, extension training Lake Chad: soil restoration Capacity building
EU (Proposed funding approximately \$300 million EUR through next FED)	Rural development Nutrition/health Water	Pumps 700 Hydraulique Villageoise Gum Arabic Pastoral projects Environmental projects Governance Capacity building
GTZ	Water Health Rural Development	Water points Pumps
IFAD	Agriculture Water	Proposed new operation currently under identification

APPENDIX

Table A1: Rural portfolio review, 1990-2010

Sector	Project reference and activity	IP (if applicable)	Performance rating by ICR (if applicable)	Region of implementation	Lessons learned
Multi-sectoral	Community-based development funds: Fund for the Support of Population Activities and AIDS control(FOSAP, credit 2692 CD, SDR 13,9 million) Local Initiatives Fund (FACIL, part of the Petroleum Sector Management Capacity Building Project, P044305, USD85million)	N/A	N/A	Nationwide	(i) Demand for community driven projects is extremely high (ii) If local groups are adequately trained and monitored, they are capable of managing the entire subproject cycle, from needs assessment through payment of service providers (iii) Disbursement efficiency is paramount in acquiring and maintaining local interests and dynamics, (iv) Communities will not accept the additional costs imposed by projects if they do not understand or observe the benefits
Gen. pub. admin (16%); Primary education (22%); Other social services (20%); Roads (22%); Water supply (20%)	Local Development Program, Phase 1 (PROADEL, P066998, USD25 million)	MS (as of 10/31/2009)	N/A	See main text, map "Chad: zones covered by PROADEL"	(i) Very strong enthusiasm from project's stakeholders, illustrated by the large amount of subprojects exceeding the initial target, (ii) Counterpart funds from the Government are pending and jeopardize the implementation of subprojects (the current rate of mobilization was only 37.5% at 8 months of the closing date of the project), (iii) Considerable efforts must be made in financial management, (iv) Very poor account management of the project (unpaid salaries, embezzlement)
Ag. ext and research (90%), Central govt.admin. (5%), Ag. marketing and trade (5%)	Agricultural and Livestock Services Project (PSAP, US\$24.53 million, PPFI-P6821; IDA-26850)	N/A	Outcome: S Bank performance: S Borrower performance: S Sustainability: Unlikely (UN) Institutional development impact: M (04/07/2003)	Nationwide	(i) NGOs can be more cost-effective than Government agencies to provide extension services. (ii) Using Producer Organizations as a basis for village-level investments gives benefits beyond those that are strictly economic (fight against HIV/AIDS, empowerment of women and youth, accountability of the sub-projects), (iii) The counterpart funds was inadequate to meet the needs of the project,

Table A1: Rural portfolio review, 1990-2010

Sector	Project reference and activity	IP (if applicable)	Performance rating by ICR (if applicable)	Region of implementation	Lessons learned
Agriculture (34%), Central govt.admin (27%), Sub-national govt. admin. (30%)	Global Environmental Facility, Community-based ecosystem Management Project (GEF, P078138, USD6 million)	MS (as of 10/31/2009)	MS (as of 10/31/2009)	Sudanian zone (Binder-Léré-Lac Weye and Moundou Basin); Sahelo-Sudanian Zone (Mandelia Fauna Reserve); Sahelian Zone/ Northern Chad (Bahr El Gazal, Ouaddai)	N/A
Ag. ext and research (20%), Ag. marketing and trade (30%), Crops (30%), Irrigation (20%), Cotton sector reform	Agricultural Services and Producer Organizations Project (ASPOP, US\$20 million, P074266)	N/A	Outcomes: MU, Bank performance: MU, Borrower performance: MU (as of 06/25/2009)	Areas around the cities of Bongor, Mongo, N'Djamena, Doba, Faya- Largeau, Abéché	(i) Participatory community-driven development can be successful and has gained many adherents, (ii) The subproject approach can yield successful results, (iii) Project design must be simple and the agenda manageable, (iv) Monitoring and evaluation activities must be linked to project financial management systems, (v) Privatization of agricultural extension is fraught with difficulties, (vi) In terms of IRR, the most profitable activities included poultry production, rice production, vegetable production, banana gardens and grain milling. Less profitable activities included sorghum, millet, beans, maize and small ruminants. (vii) The government has failed to honor fully its commitment to provide additional financing

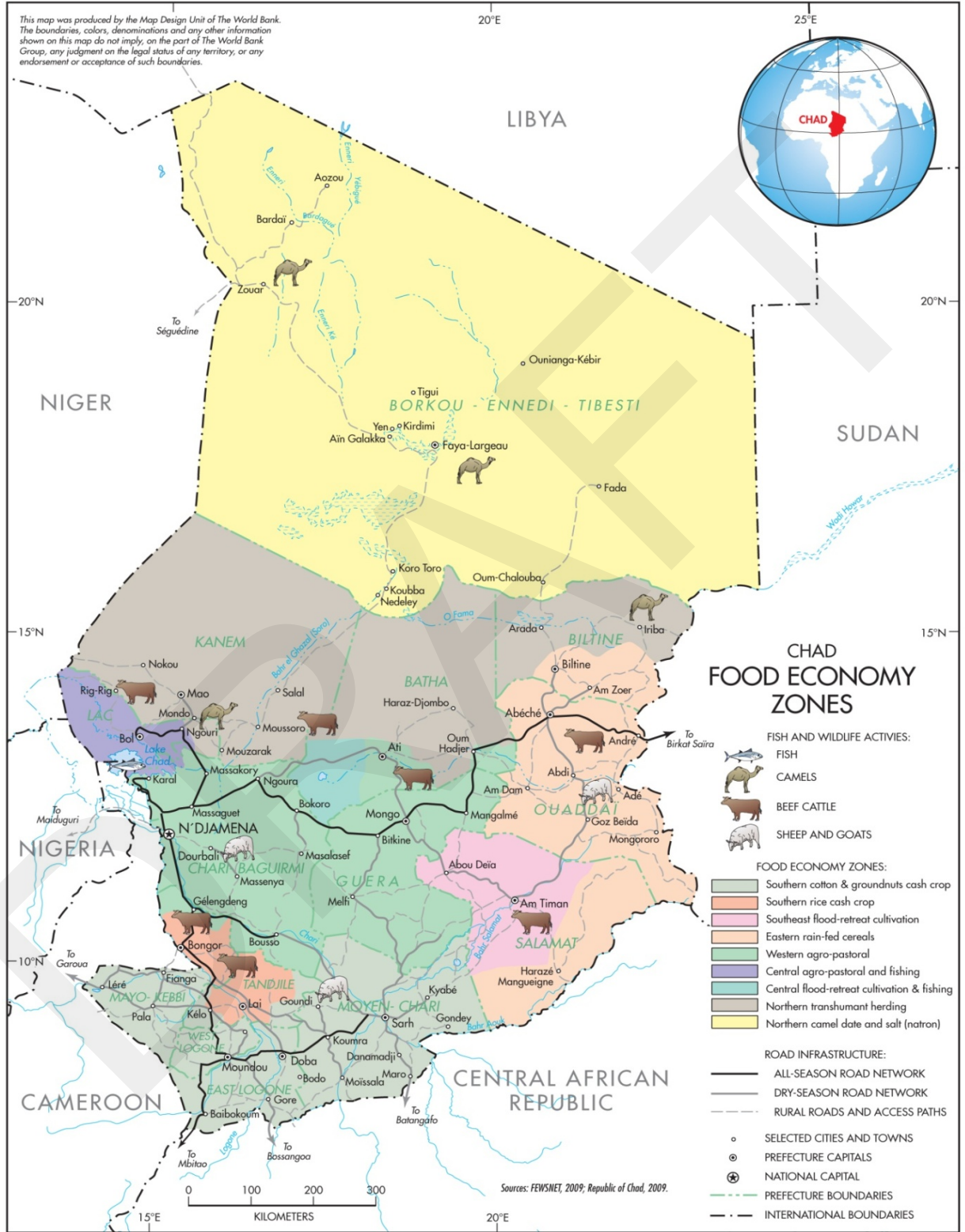
Table A2: Cereal balance sheet for Chad, 1999-2009

Marketing year	1999	2000	2005	2008	2009e
Population (1,000)	8,465	8,782	10,468	11,500	11,866
Cereal supply (1,000 tons)	1,550	1,375	2,062	2,472	2,160
Imports	55	118	119	159	181
Total supply	1,495	1,257	1,944	2,314	1,979
Domestic production	1,231	930	1,853	1,779	1,575
Cereal utilization (1,000 tons)	1,550	1,375	2,062	2,472	2,160
Total demand	1,164	1,175	1,512	1,707	1,709
Exports	30	0	130	320	181
Imports as share of domestic consumption	5%	10%	8%	9%	11%
Per capita food consumption (kg)	115.4	114.6	113.0	120.6	119.2

Source: Based on FAO estimates (Cereals are sorghum, millet, wheat rice, barley, and maize).

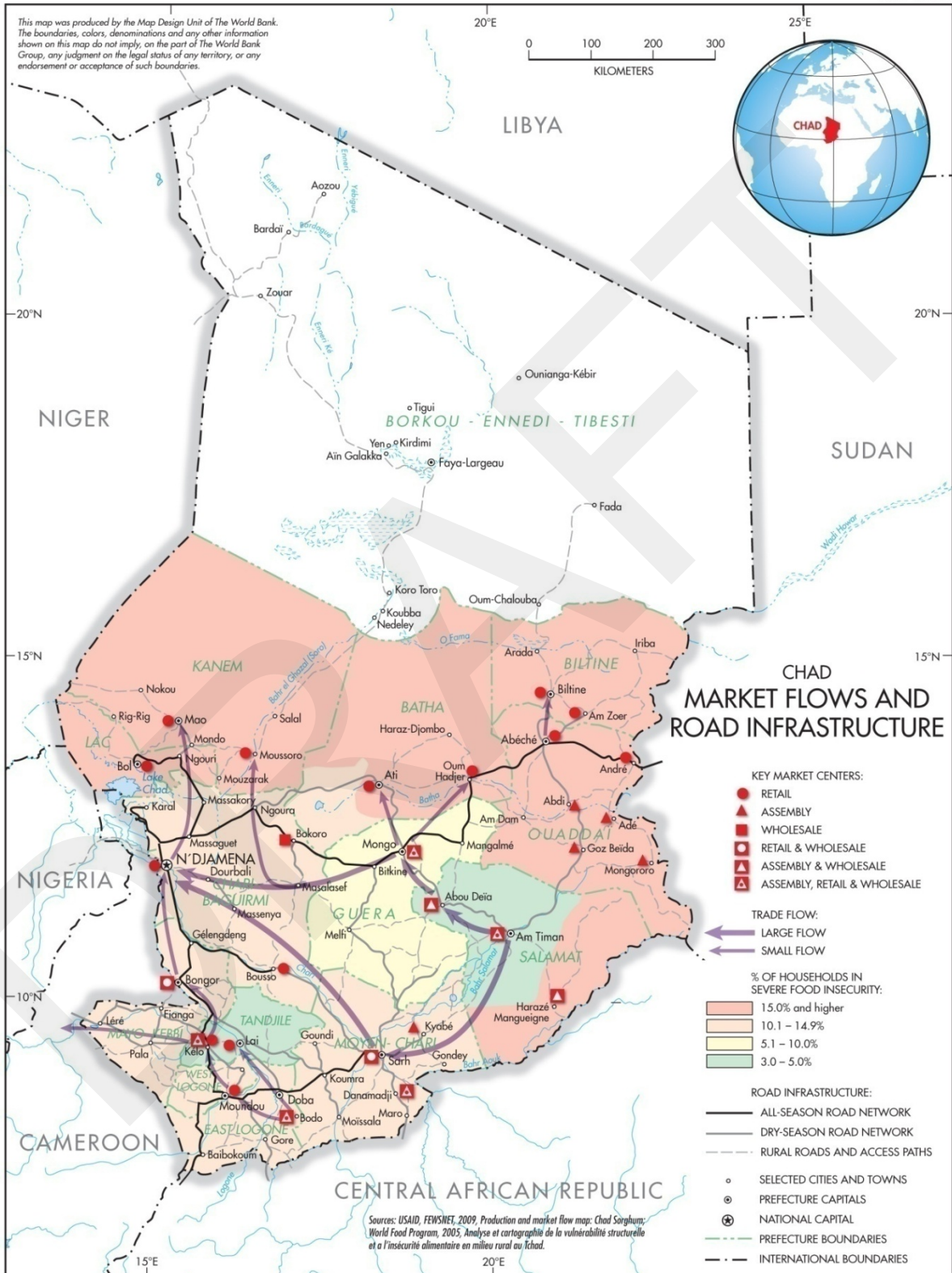
Map 1: Food economy zones

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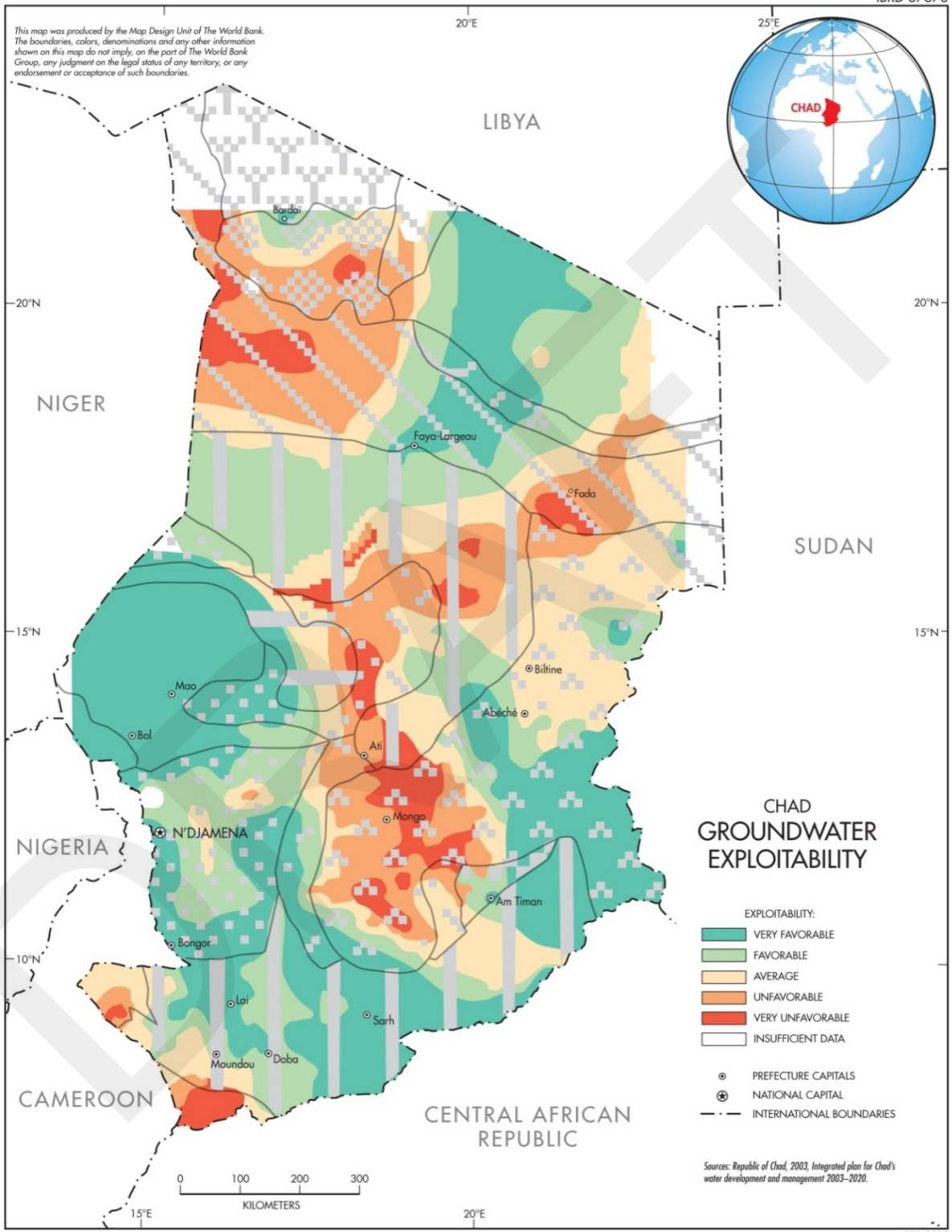
Map 2: Market flows and road infrastructure

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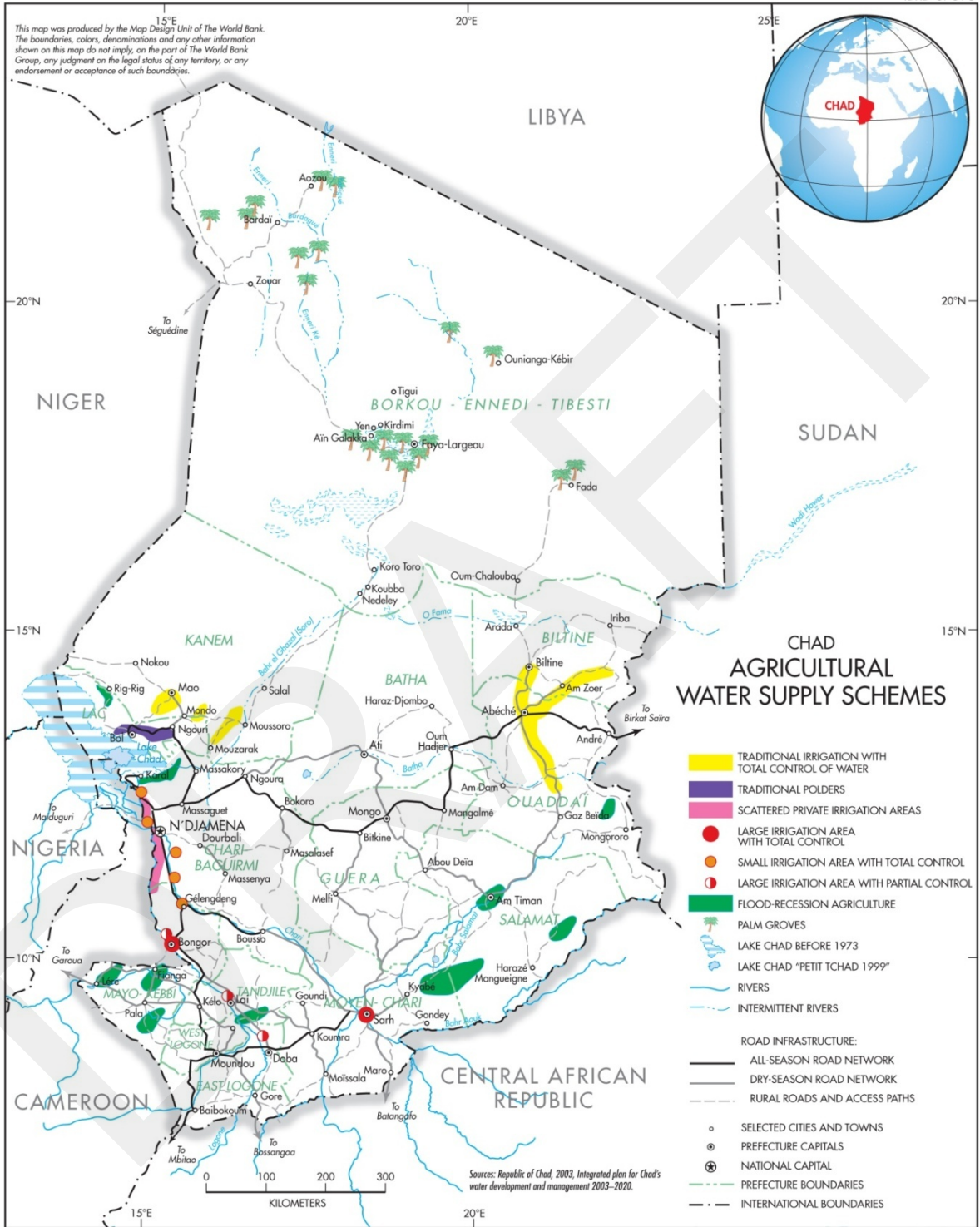
Map 3: Groundwater exploitability

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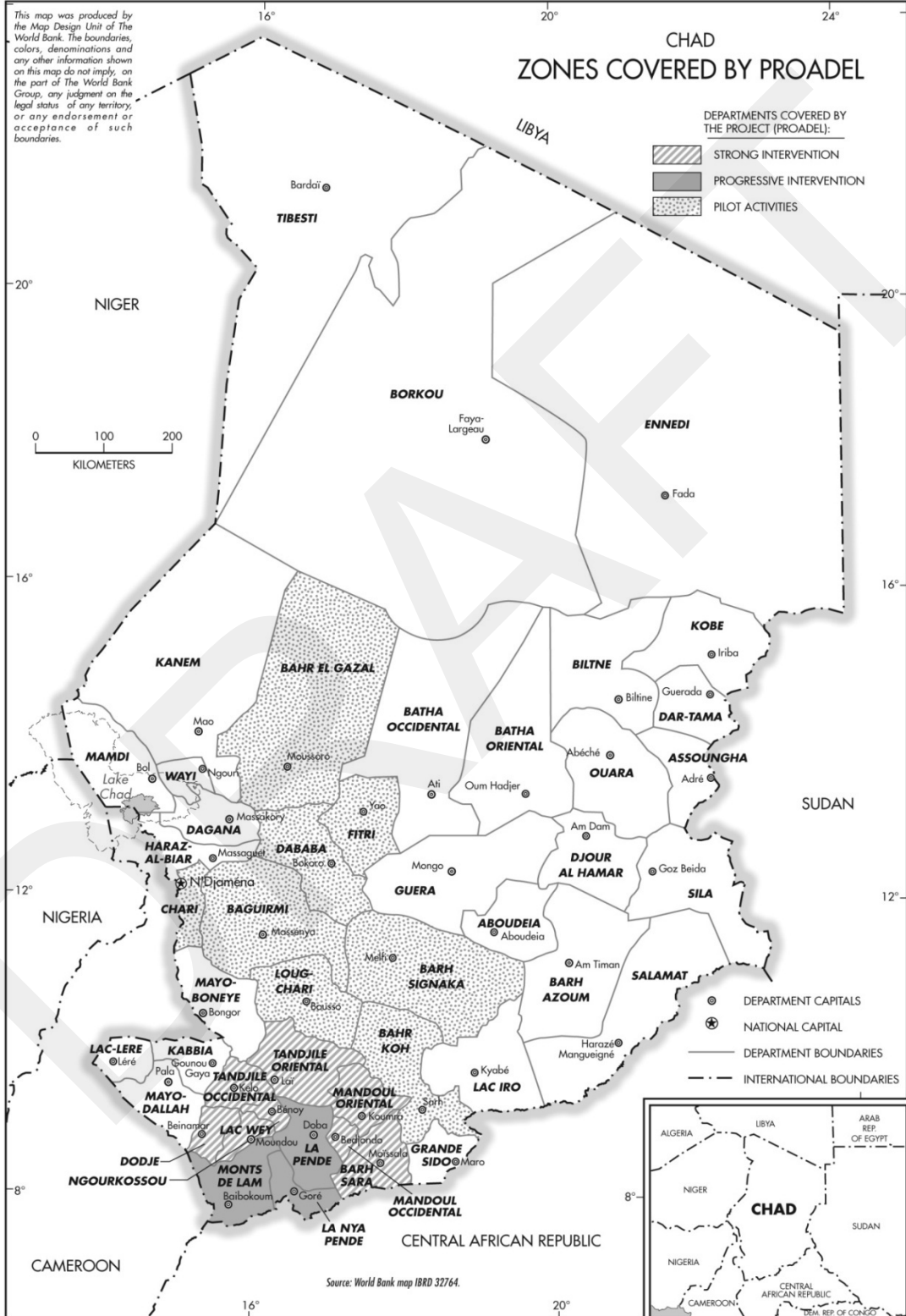
Map 4: Agricultural water supply schemes

IBRD 37595



Map 5: Coverage of PROADEL

IBRD 37592



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