Food and Agriculture Organization of the United Nations

The Islamic Republic of

AFGHANISTAN

LAND COVER ATLAS

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Introduction

The Land Cover Atlas of the Islamic Republic of Afghanistan for the year 2010 was initially prepared in the framework of the FAO Government Cooperative Programme under the auspices of the project on "Strengthening Agricultural Economics, Market Information and Statistics Services". The project was formulated upon the request from the Government of the Islamic Republic of Afghanistan and funded by the European Commission. The Food and Agriculture Organization of the United Nations (FAO) provided technical assistance as the executing agency in close cooperation with all parties.

The programme aims at strengthening the human, physical and institutional capacity for analyzing, designing, monitoring and evaluating food security policies and programmes. Its overall aim is to build sustainable food security in the country. The availability of up-to-date and reliable land cover database is identified as one of the main requirements for this programme as this information has multiple uses and benefits including strengthening the national capacity to undertake consistent land cover assessments using standards, cutting edge technology and tools.

The main applications of the updated land cover database include:

- Support for improving food security through the establishment of new institutional and operational frameworks for agricultural assessment and monitoring
- Strengthen government capacity in livelihoods and food security policy analysis and programming
- Agriculture and Rural Development planning
- Contribute to Agricultural Economics, Market Information and Statistics Services
- Crop and livestock market information systems
- Crop and livestock monitoring and forecasting systems
- Natural resources monitoring systems
- Nutrition information systems.

FAO has been working closely with the Government of the Islamic Republic of Afghanistan partners to:

- Build appropriate food security institutions;
- Assist the national institutes in formulation, design, implementation and monitoring of agriculture and rural development strategic plans;
- Collect, analyze and disseminate information on crop and livestock market prices, crop production and rangeland, nutrition, land cover, weather and its effects on crops;
- Promote capacity building activities contributing to food security by supporting the strengthening of policy and planning initiatives.

FAO, Land and Water Division (NRL) has recently completed a new land cover of the Islamic Republic of Afghanistan with the enrichment of the original 2010 database through the integral use of high resolution aerial photography supported under the auspicises of FAO's Technical Cooperation Programme. TCP/AFG/3501. The information derived from the consistent assessment of natural resources and land cover will be used as a decision support product to assist numerous government institutions.

The ultimate beneficiaries are the Afghan people which suffers from significant food insecurity. They will benefit from better targeted programmes and policies to rehabilitate and further develop the agricultural sector, and hence reduce poverty and vulnerability to food insecurity. Through the provision of better information, short-term emergency assistance needs, and also longer-term rehabilitation and development needs, will be fulfilled more efficiently and effectively, ultimately reducing food insecurity and vulnerability, and poverty.

The immediate benefits are the provision of improved, timely and reliable information for decision making in the Ministry of Agriculture, Irrigation and Livestock, Central Statistics Organization, Ministry of Rural Rehabilitation and Development and other national and multilateral organizations engaged in agricultural rehabilitation, poverty alleviation and food security programmes.

Foreword

Afghanistan is a landlocked, mountainous country with a total area of about 652.000 km^2 whose importance lies in its strategic position at the crossroads of Central Asia. Because of its borders with Iran, Turkmenistan, Uzbekistan, Tajikistan, China and Pakistan, it has a complex network of trade and culture. It has significant natural resources, yet very limited land and water resources.

The Afghan economy is predominantly an agricultural economy, where agriculture is practiced largely on a subsistence basis. About 80 percent of Afghans live in rural areas where only a fraction of households are headed by women. The Afghan diet mainly consists of grains, dominated by wheat. About one-third of the population however is below the minimum level of dietary energy consumption. The sector employs over two-thirds of the workforce and is the backbone of the economy: it is the main provider of income for more than 80 percent of the population.

Agriculture and rural development acts as an engine of economic growth in the country. The agriculture sector contributes the most to GDP, providing a bulk of employment opportunities, moreover, it has untapped potential for productivity/production increases and exerts profound and far reaching effect in other sectors as well, especially by enhancing their economic efficiency and providing more employment opportunities. However, the sector's productivity is low due to frequent droughts, poor infrastructure, limited research and extension services, poor access to input and output markets. The success in the future largely impinges upon heavy investment in agriculture, through coordination, advocacy, and increased regulatory and managerial capacity of Ministry of Agriculture, Irrigation and Livestock (MAIL).

The Strategy for National Agricultural Development Horizon 2010, which was formulated by FAO in 2004; recommended the following for reviving the agriculture sector of Afghanistan:

1. rapidly increase the output of cereals, especially wheat;
2. restore the number of livestock to the pre-war level and raise their productivity
3. raise the production of exportable commodities to the level of pre-war; and
4. accelerate the production of poplar and other fast growing trees to meet construction needs, especially for rural housing.

The National Agriculture Development Framework (NADF) states "Economic growth and food security depend upon natural resource management, increasing agricultural production and productivity, improved physical infrastructure and market development. This is the path to poverty reduction, licit crops and national security."

The Ministry of Agriculture, Irrigation and Livestock has identified four programme priorities in the NADF:

1. Natural Resource Management;
2. Agriculture Production and Productivity;
3. Economic Regeneration; and
4. Programme Support and Change Management.

Responding to these needs, FAO is working closely with the Government of the Islamic Republic of Afghanistan to build the capacities of key institutions including MAIL, CSO, MRRD.

One of the main objectives of the land cover mapping and the capacity development component of the project is to establish evidence based decision-making system that provides policy and strategic guidance to the rural sector on food security which directly contributes to the overall objective of strengthening agricultural economics, market information and statistics services in the country.

The outputs of these activities contribute to the key programme activities including:

1. overall policy framework for food security;
2. institutional set-up for food security established and functioning to enhance coordination and strengthen linkages;
3. relevant policies and programmes designed and updated for strengthening smallholders' livelihoods and protecting the vulnerable; and
4. relevant food security information accessed and used by relevant stakeholders.
5. strengthen the national capacity for collection, and use of the information on current agricultural production, weather and market;
6. agricultural and rural development planning using land evaluation and agro-ecological zoning methodology;
7. formulation, interventions, implementation, monitoring and evaluation of project and programs; and policy development.

The new land cover database (2012) provides reliable information on the current state of land cover and the

distribution of major land cover classes. The updated land cover information is instrumental to support agricultural statistical analysis as well natural resources assessment, monitoring and management.

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Abstract

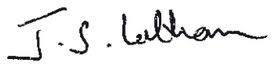
The Land Cover Atlas of the Islamic Republic of Afghanistan provides information on the land cover distribution by administrative and sub-basin divisions. It is based on the newly produced (2012) land cover database. The main data sources include medium resolution satellite imagery from SPOT-4 and Global Land Survey (GLS) Landsat Thematic Mapper, high resolution satellite imagery and air photographs and ancillary data.

The national legend was prepared using the Land Cover Classification System (LCCS): a FAO's comprehensive, standardized "a priori" classification system, designed to meet specific user requirements and created for mapping exercises, independent of the scale or means used to map. The classification uses a set of independent diagnostic criteria that allows the correlation with existing classifications and legends.

Satellite images were segmented into homogeneous polygons and interpreted according to the FAO land cover mapping methodology for the production of a seamless and detailed land cover database for the whole country.

The atlas is organized into three main sections: country, provinces and sub-basins. Each section provides information on the distribution of aggregated land cover in cartographic form as a map and tabular statistics. These products provide the user with valuable information on the availability and distribution of land resources through a multi-faceted approach.

The boundaries are in accordance with the Government of the Islamic Republic of Afghanistan.



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Executive Summary

Economic success of Afghanistan implies heavy investment in agriculture. The increased capacity of Ministry of Agriculture, Irrigation and Livestock (MAIL) in collecting, collating and using information on current agricultural production, weather and market is one of the essential elements in this regard.

Farm management data are very important for MAIL for the use in agricultural and rural development planning; formulation, interventions, implementation, monitoring and evaluation of project and programs; and policy development and pursuance. Hence, strengthening the capacity of MAIL in collecting, processing and using farm management data is equally important.

The requirements for establishing an agricultural statistics and market information system include an institutional framework in MAIL and Central Statistics Organization (CSO) and a provision of a pool of specialists trained on data collection, processing, analysis and reporting in them.

Since the beginning of the 1990s, FAO has been implementing two projects in Afghanistan aimed at bringing improvement regarding information on land cover and land use. Such information is needed by agricultural policy-makers and rural land use planners responsible for sustainable rehabilitation of agriculture sector, improvement of food security and reduction of rural poverty. These data are also rich sources for updating current crop and pasture statistics.

The land use data used by MAIL are based on satellite data and are of reasonably good quality. However, they are obsolete and needed to be updated. The current component of the project related to the task of creating the updated land cover database delivered the product that provides reliable information on current state of land cover over the whole country regardless of its remoteness, security situation or accessibility. The updated land cover information is available in standardized user-friendly digital format, ready to be integrated with other relevant geospatial data, such as political (administrative regions and their rural development priorities, security zoning including location of minefields), demographic (including resettlement plans for returning refugees), agronomic (including historical information on horticulture plantations and pastures), socio-economic (including poverty maps), topographic, pedologic, hydrologic, climatic, and natural disasters areas (including flood zones, areas affected by agricultural drought and pest infestations).

The 2012 land cover database is presented in this atlas. It serves as a standardized and harmonized input to land use. The new land cover database is planned to be used as one of the main inputs for the area frame estimates based on FAO methodology for more reliable crop yield and crop forecast assessments.

Acknowledgement

The publication of the Land Cover Atlas of the Islamic Republic of Afghanistan is the result of the outstanding efforts of many institutions and individuals working in close partnership. The following paragraphs attempt to acknowledge everyone who supported and contributed to this atlas.

The publication of the atlas was made possible by the contributions (financial and in-kind) of the partner organizations involved in the Afghanistan programme: the Government of the Islamic Republic of Afghanistan, the Food and Agriculture Organization of the United Nations (FAO) and the European Commission (EC), which funds the Programme. This activity was implemented in collaboration with the Ministry of Agriculture, Irrigation and Livestock (MAIL).

We especially acknowledge the cooperation of the following institutions and experts for their support in the process of the update of the national land cover (image interpretation and classification, field verification, dissemination and uptake): Yagyash Gautam (Chief Technical Advisor, FAO Afghanistan)

The efforts of the national staff, GIS, RS and IT experts in providing local knowledge and valuable inputs to the project activities cannot be underestimated. There include: Rabani Haqiqatpal, Noorullah Stanikzai (GIS/RS Specialist), Mohammad Omar, Hashmatullah Omid, Mohmmad Hussain Meri, Shafiullah Baryali and Moeen Ud Din Siraj (FAO staff).

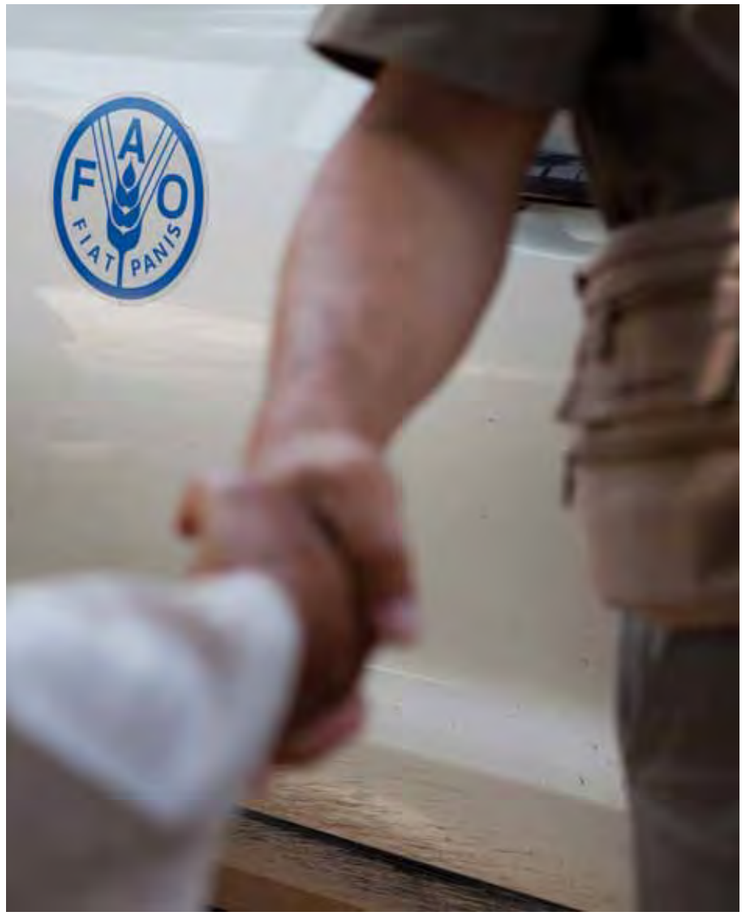
FAO: Lead Technical Unit Land and Water Divison (NRL). Overall Project Management: John Latham NRL UNFAO

Image processing photo-interpretation, database creation, map production: Bahman Jazayeri, Renato Cumani, Ilaria Rosati, Mario Bloise, Antonio Di Gregorio, Ugo Leonardi, Saverio Stoppioni, Lorenzo Vita, Emanuela Deleo, Shahrokh Farrokhi, Ms Azadeh Taheri-Tehrani, Ahmed Ayoub, Hossam Fawzy, Luigi Simeone. The contribution of all of the above, along with input from many other unnamed people has been vital for the success of this project.

Assistance in preparing the atlas for publication was received from Lucia Moro (graphic design), John Latham, Bahman Jazayeri, and Mario Bloise.

List of acronyms

CSO	Central Statistics Organization
EC	European Commission
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GIS	Geographic Information System
GLCN	Global Land Cover Network
GLS	Global Land Survey
LCCS	Land Cover Classification System
MADCAT	Mapping Device Change Analysis Tools
MAIL	Ministry of Agriculture, Irrigation and Livestock
MRRD	Ministry of Rural Rehabilitation and Development
NADF	National Agriculture Development Framework
NDVI	Normalized Difference Vegetation Index
NRL	Natural Resources - Land and Water division
RS	Remote sensing of the Earth's surface by Earth observation satellites
UN	United Nations
USGS	United States Geological Survey
UTM	Universal Transverse Mercator



1. Background

FAO & partners created the new land cover database (2010) of Afghanistan

In the 1990's, the FAO project AFG/90/002A promoted the development of the land cover dataset of the Islamic Republic of Afghanistan with the objective to produce land cover related statistical information for the agricultural sector and assist the international rehabilitation effort being undertaken at that time. This dataset was generated using Landsat TM[1] satellite imagery (30m resolution) with emphasis on agricultural lands, orchards and forests. Ten land cover types were used:

1. Urban Areas
2. Orchards/Fruit Trees
3. Irrigated Agricultural land
4. Rain Fed Agricultural Lands
5. Pistachio Forests
6. Natural Forests
7. Rangeland
8. Barren lands,
9. Marsh/Swamp Areas
10. Water Bodies

In addition to the digital database, hard copy land cover maps at national level and as individual map sheets, satellite photo maps and a land cover atlas comprising provincial maps and related statistics were produced. For many years, this 1990-93 land cover dataset has been a valuable source of land cover and agricultural coverage information for Afghanistan. It served the Afghan and international user community as a reliable reference for natural resources management.

After 20 years, however, the need for updating this historical dataset is evident. In the absence of an updated land cover dataset and up-to-date coverage statistics, the ability to undertake sustainable land management and planning for Afghanistan's natural resources and agricultural sector would be significantly impaired. In response to this requirement and since early 2010 within the framework of GCP/AFG/063/EC ("Strengthening Agricultural Economics, Market Information and Statistics Services") and subsequently within the framework of the FAO project TCP/AFG/3501; FAO has been engaged in the task of updating the 1990-93 land cover dataset with higher resolution satellite imagery and using modern state-of-the-art tools and techniques developed by FAO.

The description of the main elements of the project, namely, the satellite imagery and aerial photography utilized, the methodology used for the generation of the land cover database and finally the statistics of main land cover classes derived from the updated 2012 database, are hereby presented.

1 - Landsat Thematic Mapper

2. Integrated Imagery Coverage

The creation of the new land cover database was undertaken using a number of remote sensing imagery, including multispectral SPOT-4[2] satellite imagery mainly acquired during year 2010. To complement the SPOT dataset, Landsat TM imagery dated 2011 was also used primarily to better delineate more expansive and seasonally sensitive land cover classes. In addition, the Ministry of Agriculture, Irrigation & Livestock made available recently acquired very high resolution air photos, which were used during image interpretation, and validation, as well as for the enrichment of the land cover database. Details on the remote sensing imagery datasets are provided below.

2.1 SPOT-4 Remote Sensing Imagery

An acquisition programme for country-wide coverage of SPOT-4 imagery was implemented through the regional receiving station (SUPARCO). Diversity and seasonal variations of agricultural practices in Afghanistan was also taken into consideration for the selection of the new images. The complete coverage is made by 280 scenes, most of which are around year 2010, while others were selected from the existing archives or newly acquired to fill gaps or replace unacceptable images due to high snow or cloud coverage.

240 SPOT scenes (accounting for nearly 90% of the coverage of the country) were acquired in 2009, 2010 and 2011 through SUPARCO; the remaining were obtained from the 2007 and 2008 archives with few fill-in scenes from 2005 and 2006. The SPOT coverage color composite imagery at 10m resolution used for the land cover mapping was prepared by merging SPOT-4 4-band multispectral data (20m) with the panchromatic band (10m). The average ground coverage of each scene was 60 km x 60 km. Due to the morphological characteristic of the country a further geometric correction with an error of less than one pixel was performed. The final coverage of SPOT 10m color composite scenes over Afghanistan is shown in **Figure 1.**

2 - Systeme Pour l'Observation de la Terre satellite

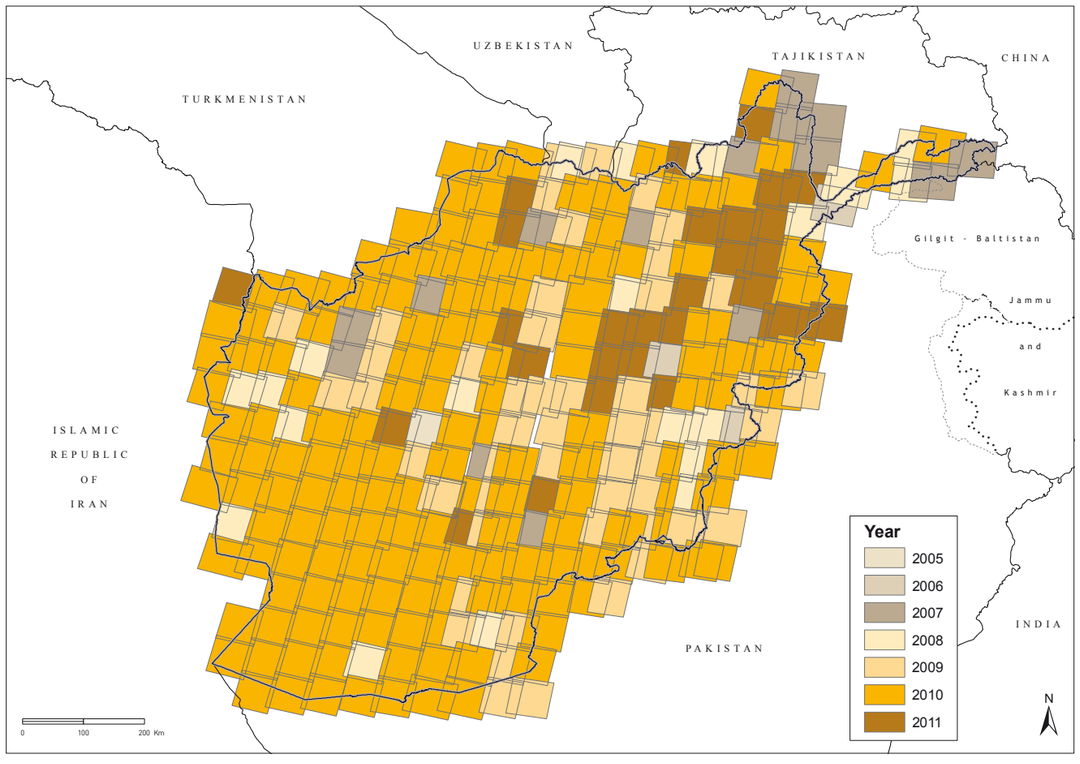


Figure 1:

Ground coverage of SPOT 10m color scenes employed in the generation of the Afghanistan 2010 land cover map

2.2 LANDSAT TM Remote Sensing Imagery

Landsat 30m 7-band Thematic Mapper (TM) imagery acquired in 2011 and available at the USGS via its Earth Explorer data distribution portal (http://earthexplorer.usgs.gov). The Landsat TM imagery was used to complement the SPOT coverage.

As commonly noted in acquisition over large regions, in many areas of Afghanistan contiguous SPOT scenes was acquired in different months of the year with the result of preventing mapping and harmonization of some land cover classes across those scenes, such as seasonally sensitive land cover classes such as barren and range lands as well as unique coverage like permanent snow. In these cases, Normalized Difference Vegetation Index (NDVI) datasets derived from TM scenes were used for better recognition and mapping of such land cover classes. The selection of Landsat TM scenes for this purpose was primarily based on seasonal considerations. As a consequence, cloud free Landsat TM data swaths in the western part of the country were selected with acquisition dates starting in April 2011, with the selection progressively continuing eastwards towards eastern regions of Afghanistan with Landsat TM imagery acquired in the later months of May and June for the central part and July and August for the elevated Hindu Kush areas of eastern part of the country.

The coverage of Landsat TM scenes selected for this purpose is shown in **Figures 2.**

Figure 2: Landsat TM scenes

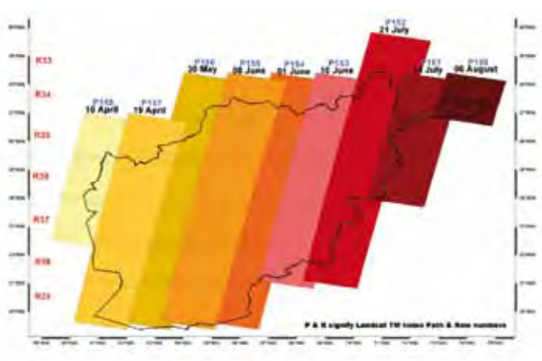
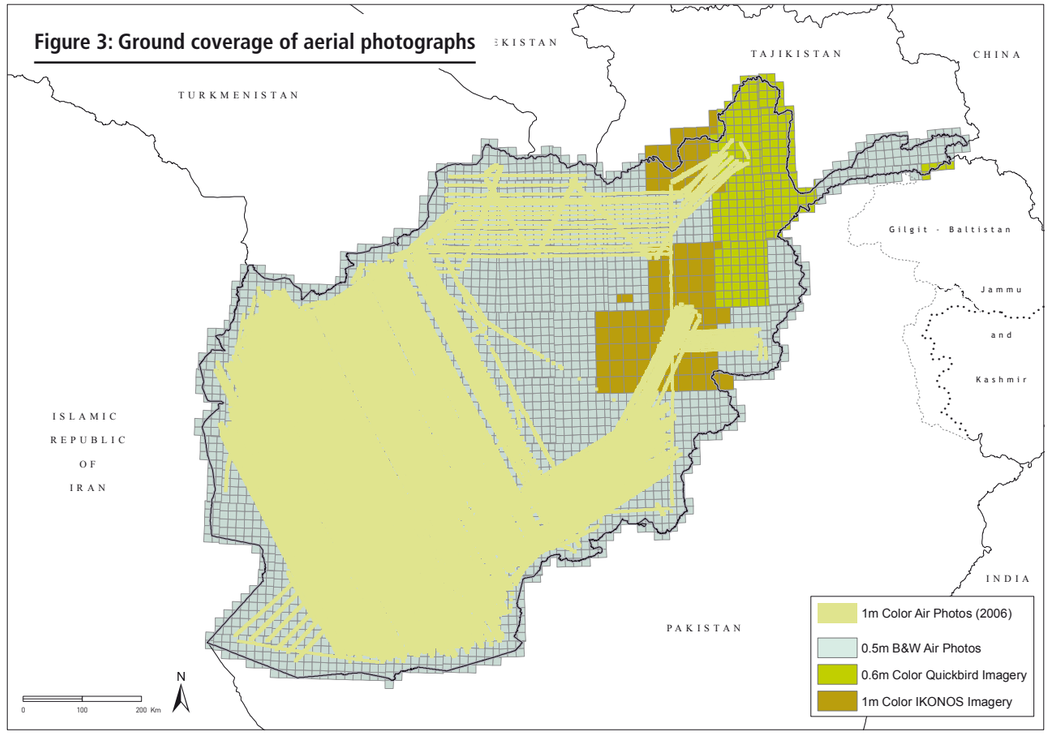


Figure 3: Ground coverage of aerial photographs



2.3 Aerial Photographs & High Resolution Satellite Imagery

The availability of recently acquired aerial photographs of Afghanistan was beneficial for high resolution mapping and validation, particularly in areas where the resolution of the SPOT imagery was inadequate. The aerial photographs were very effective for mapping and validation of land cover classes related to smaller cultivated areas such as the irrigated agricultural lands, tree crops and vineyards, the Karez irrigated land cover class and the tree and shrub crop classes; the identification of small settlements was also significantly improved.

In this respect, two sets of aerial photographs and very high resolution satellite imagery were made available to the project. The first, supplied in 2010, contains medium quality 1m resolution color aerial photographs acquired in April 2006. This dataset consisted of over 30,000 air photos covering approximately 60% of the country, primarily in the West, South and North of Afghanistan.

The second dataset, which became available in late 2011, consisted of air photos and high resolution satellite images. About 70% of these images are 50 cm resolution B&W aerial photographs of excellent quality, covering most of Afghanistan, with dates ranging from 2003 to 2010 (majority 2008). The remaining 30% consisted of IKONOS 1m and QuickBird 0.6m satellite imagery predominantly covering the north-eastern provinces of the country.

The fact that the air photos and satellite images in both datasets were orthorectified greatly facilitates their use. The coverage of the air photographs and high resolution satellite imagery is shown in **Figure 3**.

3. Land Cover Mapping

While the 1990-93 land cover database adopted techniques of visual interpretation of photomaps and subjective identification of land cover classes which are currently considered outdated, FAO has recently developed advanced methodologies and tools for land cover mapping in response to the need for standardization of land cover classification schemes and superior techniques for rapid land cover mapping of large geographic regions. It incorporates the globally accepted Land Cover Classification System (LCCS), and modern image analysis techniques implemented in the Mapping Device - Change Analysis Tool software suite (MADCAT) of FAO.

Advanced digital image analysis techniques such as object based classification, provided to the remote sensing interpreters, the ability to generate reliable and more precise land cover database in relatively short periods of time.

3.1 The Land Cover Legend

The Afghanistan 2010 land cover legend, was prepared using the Land Cover Classification System, which is a comprehensive, standardized *a priori* classification system that enables comparison and correlation of land cover classes regardless of mapping scale, land cover type, data collection method or geographical location.

LCCS's inherent flexibility, its applicability in all climatic zones and environmental conditions, and in particular, its built-in compatibility with other classification systems, makes this system of classification ideal for national land cover mapping including the creation of the national land cover database, in which comparison with previously created land cover datasets (such as the 1990-93 dataset) is very relevant.

The LCCS legend was compiled for the creation of the 2010 national land cover database. It comprises the following 25 classes:

CODE	LAND COVER CLASS
1A	**Settelments/Urban areas** This class includes urban areas with gardens.
1B	**Non Urban Built up Areas** This class includes airports, industrial areas and vegetated areas within large non-urban zones. It also includes parks and large green areas in urban zones.
2A	**Fruit Trees** Tree Crops (Orchards) with surface irrigation.
2B	**Vineyards** Vineyards with surface irrigation.
3A	**Intesively cultivated area** Irrigated Herbaceous Crops inside a very intensively cultivated area. The environmental conditions where this class in found is such that it accommodates two Crops per year.
3A1	**Irrigated Herbaceous Crop(s)** Irrigated Herbaceous Crops. This class can be found in most regions, including dry areas and where the surface water supply is not persistent throughout the year. It can yield one or two Crops per year depending on seasonal variations of water supply.
3B	**Marginal Irrigated Crop** Agricultural lands in a marginal agricultural area, usually devoid of active fields. It also represents the non-active portion of a karez system. The fields, when in use, are predominantly Irrigated Herbaceous Crops.
3C	**Karez System** Herbaceous Crops with surface irrigation derived from an active karez system. Only the active fields, detected in an area where the evidence of karez is present, belong to this class.
4A	**Rainfed cultivation in flat areas** Rainfed cultivation of Herbaceous Crops (Graminoids) in flat (to almost flat) regions.
4B	**Rainfed cultivation in sloping land** Rainfed cultivation of Herbaceous Crops (Graminoids) in sloping/rolling regions.
6A	**Closed Trees** Closed (> 65 %) Needle leaved Evergreen Trees.
6B	**Open Trees** Open (65-15 %) Needle leaved Evergreen Trees.

CODE	LAND COVER CLASS
6B1	**Open Trees Undifferentiated** Undifferentiated Trees/Woodland with Open (65-15%) cover.
6C	**Closed to Open Shrubland** Shrubland composed of closed to open (100-15 %) Shrubs.
7	**Rangeland** Natural Sparse (15-1 %) dwarf Shrubs OR Open (65-15 %) short Herbaceous vegetation OR Sparse (15-1 %) short Herbaceous vegetation.
8A	**Bare Soil OR Rock outcrops** Bare Soil OR Rock outcrops.
8B	**Sandy areas** Loose And Shifting Sands. This class may be mixed with natural vegetation for very short periods in the rainy season.
8C	**Dunes** Sand Dunes. This class may be mixed with natural vegetation for very short periods in the rainy season.
9A	**Marsh (permanently inundated)** Closed to Open (100-45 %) natural Herbaceous vegetation on a Permanently flooded area.
9B	**Seasonally inundated vegetation** Closed to Open (100-15 %) natural Herbaceous vegetation on a temporarily flooded area OR Closed to Open (100-15 %) natural Shrubs on a temporarily flooded area.
10A	**Artificial & Natural Waterbodies** Perennial standing fresh water bodies, either natural or artificial.
10B	**Seasonal Lakes** Non Perennial Standing Water bodies with duration of water presence less than 4 months. Bare soil surfaces are observed when water is not present.
11	**River** Perennial Rivers. Fresh water flowing more than 9 months/year.
12	**River Banks** This class describes both the area of maximum expansion of a perennial river and the beds of seasonal streams.
13	**Perennial snow** Perennial snow (more than 9 months/year) and glaciers.

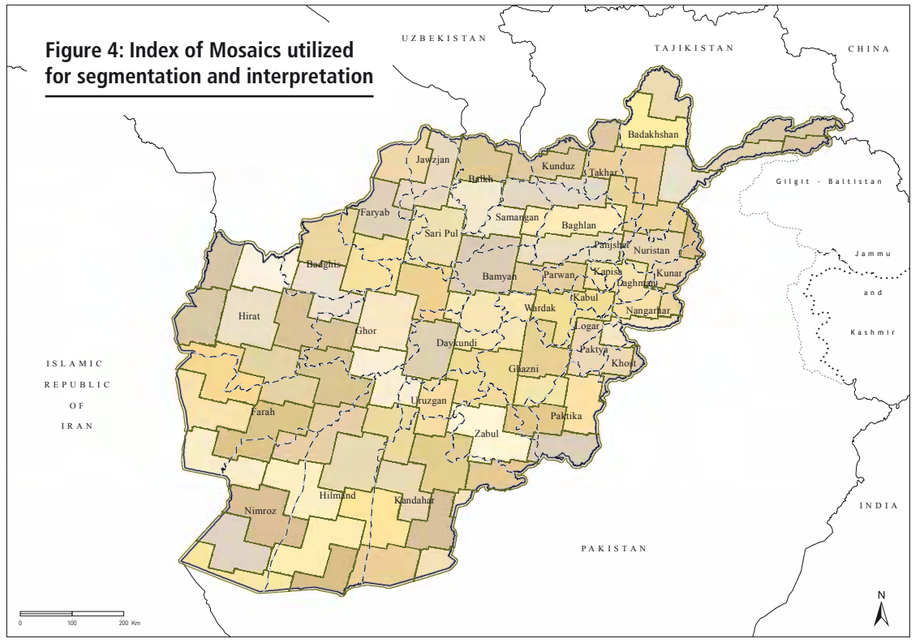


Figure 4: Index of Mosaics utilized for segmentation and interpretation

For more details regarding the LCCS based land cover legend, please refer to **Appendix A.**

The final land cover legend is the result of several iterations and adjustments introduced as the project progressed. E.g. agricultural classes 3C, Karez irrigated agricultural land and 3A1, a variation of class intensively cultivated area 3A, were all added, expanding the legend scope for agricultural areas. A new tree class, 6B1 was added to cater for cases where the differentiation of needle leaved and broad leaved trees was not previously possible. Moreover the Pistachio forest class, which was initially included in the legend, was removed as it could not be properly mapped without field verification. Pistachio forest are now considered to be included in class 6B1, Undifferentiated Trees.

3.2 Image Segmentation

Image segmentation is the technique of partitioning digital images into spatially continuous and spectrally homogeneous regions or objects. The segmentation produces a vector layer of objects that represent regions with similar pixel values with respect to some characteristic or computed property such color, intensity or texture. For the land cover mapping, the segmentation of the available images was performed by using dedicated commercial software.

To facilitate the segmentation process and subsequent image interpretation, mosaics of SPOT imagery (usually 4 scenes) were prepared: 240 SPOT scenes covering the whole of Afghanistan were reconstructed into 74 mosaics as shown in **Figure 4.**

The number of the output polygons and the quality of the image segments in the vector layer are strictly linked to the segmentation parameters which were defined during the pilot phase.

A specific procedure was implemented to reduce polygon redundancy in bare and rangeland areas, merging similar objects while at the same time mantaining an high level of detail in agricultural and built up areas. The land cover database and NDVI values were used as a source for the delimitation of such areas.

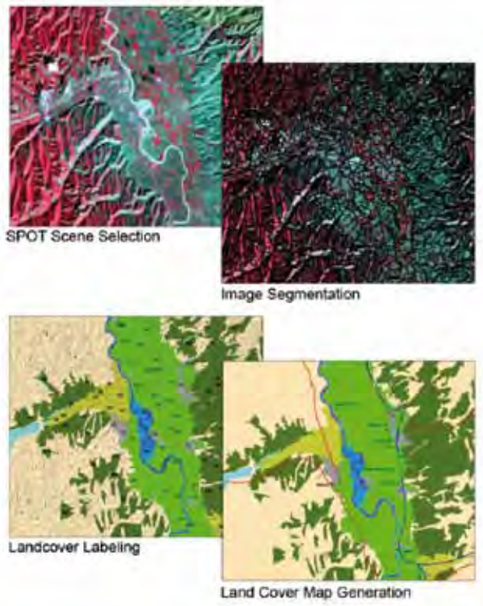


Figure 5: Sequence of activities in land cover mapping

3.3 Image Interpretation

The image interpretation task can be briefly described as the application of the LCCS derived land cover legend in the MADCAT software, to affect labeling of the vector polygons of the segmentation datasets using the satellite imagery or air photos with the use of the various polygon selection tools provided. The MADCAT software and its affiliated software packages, such as the RADEX[3] suite, allows handling of large image mosaics using pyramiding techniques, permitting image analysis of these large numbers of segments, simultaneously with the multi-scene mosaiced imagery. Examples of photokeys that were prepared during the preparatory phase are presented in **Appendix B**.

The land cover datasets created for each mosaic were combined with appropriate considerations to harmonization and edge matching) to form an integrated land cover database. **Figure 5** demonstrates the steps undertaken in the image interpretation for creation of the land cover database.

3 - An image compression data format that optimizes the display of raster datasets for use in the FAO Land Cover Mapping Toolbox

3.4 Validation

Due to the nature of the task at hand, i.e mapping of land cover classes from remotely acquired satellite imagery, it is vital to undertake validation of all preliminary image interpretations to ensure integrity of the land cover database. The validation process is normally undertaken through extensive field work (so-called "ground-truthing") after completion of the preliminary interpretation phase.

For the Afghanistan Land Cover Mapping, a comprehensive field verification program was foreseen as one of the final activities of the creation of the land cover database. This activity is generally undertaken by experts from the counterpart agencies with FAO coordination. However, as a result of the deteriorating security situation in Afghanistan, the field verification program was not deemed to be viable. As a result, it was decided to compensate the inability of undertaking field verification by maximizing the use of available high resolution datasets, to the extent possible with due consideration to project resources and schedules.

In this respect, recently acquired aerial photographs and available high resolution satellite imagery such as imagery from IKONOS and QuickBird satellites, coupled with Google Earth imagery on the Internet, were found to be effective in reducing interpretation errors and increasing land cover accuracy, in particular for small-extent land covers which would not lend themselves easily to image interpretation and land cover mapping using the 10m resolution SPOT imagery. An example of aerial photos used for complementing and improving the initial satellite image interpretations are shown in **Figure 6**, clearly demonstrating the value of these datasets in the validation process.

In addition, interaction with Afghan experts during the training courses and the workshops held in Italy in October 2011 and in Iran in June 2012 and 2015 provided an opportunity to clarify many aspects related to agricultural practices and land cover characteristics in Afghanistan and as such resulted in improved land cover mapping.

3.5 Enrichment

Following the initial validation of the preliminary image interpretation, and extraction of statistics for various land covers, the Counterpart National Agency (MAIL) conveyed a desire to have the land cover database refined to the extent possible within available time and resources. Following interaction with the Ministry of Agriculture, Irrigation and Livestock of Afghanistan, it was decided to undertake a systematic "enrichment" of the land cover database using available aerial photographs and satellite imagery, concentrating in regions of irrigated agriculture and orchards.

The Land Cover Enrichment task entails the upgrading and so-called "enrichment" of the 2010 land cover database with a view to attaining better recognition and delineation of land covers. Such enrichment resulted in significantly more accurate mapping of land cover types and consequently more reliable land cover statistics in particular for tree crops, vineyards, irrigated agricultural lands and built up areas and settlements.

In this enrichment process, boundaries of land cover types originally delineated by polygons defined in the SPOT 10m segmentation were manually modified and refined by image analysts using recently acquired 0.5m to 1 meter resolution air photos and high resolution satellite imagery. Google Earth imagery was also used as a complementary image dataset, in particular for areas where the quality of the aerial photography and/or satellite imagery was found to be inadequate such as in cases of excessive cloud cover or substantial radiometric deficiencies.

In addition to the adjustment and refinement of the small-extent land cover types mentioned above, the enrichment process also provided the image analysts the opportunity to review the designation of other land covers using details observable on the higher resolution aerial photos.

As a result, the detail in the aerial photos resulted not only in better definition of small-extent land covers mentioned above, but also in a significant reduction of the amount of mixed class being mapped in the database, in particular in relation to irrigated agriculture, fruit trees and vineyards.

The primary software mapping tool utilized in this enrichment process was, as in the original image

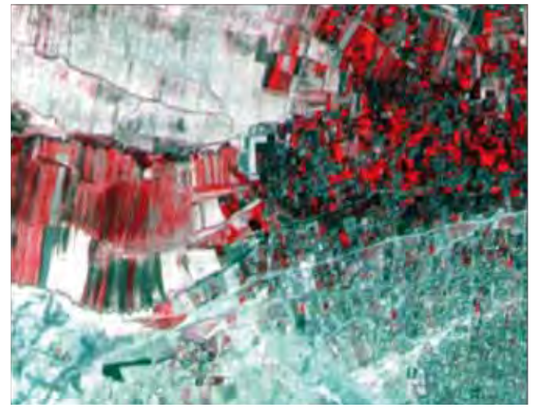


Figure 6:
Enrichment Examples: SPOT-4 Aerial photographs

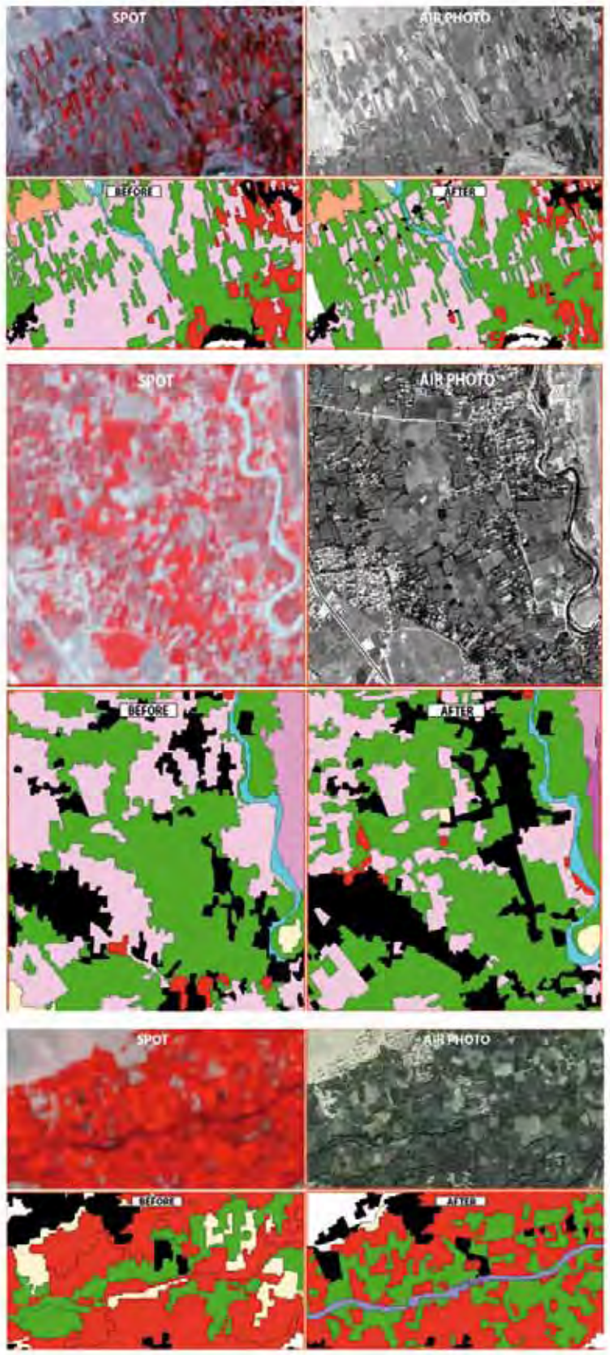


Figure 7: Examples of land cover "enrichment" with "before & after" scenarios:

a. Kandahar Province: Vineyards, Orchads and Settlements in Agricultural lands

b. Parwan Province: Vineyards, Orchads and Settlements in Agricultural lands

c. Wardak Province: Agricultural land and Settlements within a predominantly Orchads region

interpretation, the FAO-developed MadCat software of the Terra Nova GeoVis software suite.

Examples of the improvement in the land cover mapping as a result of affecting such enrichment can be seen in **Figure 7**, in which the effect of enrichment can be clearly seen in the "before and after" land cover scenarios from different locations.

The enrichment of the 2010 land cover database clearly resulted in improved land cover statistics at the national and provincial level, especially for Builtup, Fruit Trees and Vineyard land cover classes.

A detailed comparative review of available statistics, carried out in the 2015 Workshop with Afghan experts familiar with the country's agricultural statistics, in effect confirmed that the land cover statistics emanating from the post-enrichment 2010 LCDB are, at the present time, most likely the most reliable set of national land cover statistics available[4]. Notwithstanding, it is fully understood by all that the continuation of the enrichment process by Afghan experts (who are now fully familiar with the enrichment process and fully capable of undertaking this task in the newly-commissioned Remote Sensing and GIS Laboratory at MAIL), will play an important role in continued improvement and future updating of the Afghanistan LCDB.

4 - With due consideration to the nature of the mapping of the rainfed agriculture in hilly and mountainous regions, it was agreed that the statistics for this class (4B) would be better considered as the potential area rather than the actual area in 2010.

3.6 Ancillary Datasets

In addition to the land cover database, other complimentary datasets were also employed in the generation of the Afghanistan 2010 land cover database, including:

A. ADMINISTRATIVE DATASET

An initial Administrative Dataset, comprising shapefiles of the international, provincial and district boundaries, as well as province capitals and district centers was provided by the Counterpart Agency in February 2012.

In October 2014, a modified Administrative Dataset in which some changes had been affected to certain district and province boundaries was received from the Counterpart Agency.

This dataset was utilized for the final extraction of land cover statistics.

B. HYDROLOGICAL DATASET

RIVERS NETWORK

This Rivers Network utilized in this Atlas was originally received from the Counterpart Agency in Feb 2010. This dataset was modified and refined with the use of the 10m resolution SPOT imagery employed in the land cover mapping.

The modification and upgrading of the dataset was undertaken with view to attaining a more accurate representation of the rivers, commensurate with the scale of the land cover mapping.

This modified dataset consists of three classes of rivers: Major Rivers, Main Rivers and Rivers. The upgrading undertaken was primarily restricted to Major and Main rivers, with most of the remaining rivers in this layer remaining unchanged.

KAREZ, SPRING & WELL DATASET

This dataset was created by digitizing all karez, spring and well locations in the country as found on 1:100,000 scale topographical maps. This dataset was heavily utilized in the mapping of agricultural land cover classes; in particular for land cover class 3C,

4. Database Compilation

the Karez irrigated agricultural land. **Figure 8** shows the location of karezes, wells and springs as digitized from the 1:100,000 scale topographic maps.

WATERSHED AND SUB-BASIN DATASET

Based on the Integrated Water Resources Management (IWRM) division of Afghanistan's River Basins and Watersheds, Afghanistan is covered by 5 major Hydrological Basins with 34 Watersheds as follows (see **Figure 9**):

1. Harirod-Morghab Basin,with 4 watersheds
2. Northern Basin, with 4 watersheds
3. Panj Amu Basin, with 7 watersheds
4. Kabul-Indus Basin, with 10 watersheds
5. Hilmand Basin, with 9 watersheds

Basin land cover maps and related land cover statistics for each of Afghanistan's river basin and watersheds have been presented in this Atlas in the section entitled Land Cover by Basin.

C. ROADS NETWORK

The roads network included in the 2010 land cover database was received from the Counterpart Agency in February 2012. Other than generalization of the 5-road dataset into three Main, Secondary and Tertiary Roads, no other modifications were made to this dataset.

Following the completion of the land cover interpretation, the resulting database was spatially verified and harmonized. Procedures for edge-matching and topology check were applied. The Land Cover Database of Afghanistan at the country level is being submitted in three parts, with separate LCDBs for Eastern, Central and Western Afghanistan.

This manner of presentation has been selected with due consideration to size and data handling parameters. The regional coverage of the three LCDBs is described below (**Figure 10**):

- **Eastern Afghanistan LCDB**: Badakhshan, Takhar, Kunduz, Baghlan, Panjsher, Nuristan, Parwan, Kapisa, Kunar, Wardak, Kabul, Laghman, Nangarhar, Ghazni, Logar, Paktya, Khost, Paktika
- **Central Afghanistan LCDB:** Balkh, Jawzjan, Sari Pul, Samangan, Bamyan, Ghor, Daykundi, Uruzgan, Zabul, Kandahar
- **Western Afghanistan LCDB:** Faryab, Badghis, Hirat, Farah, Nimroz, Hilmand.

Figure 10: Regional Land Cover Databases for Afghanistan

Figure 8: Location map of wells, springs and karezes extracted from 1:100,000 Topo Maps

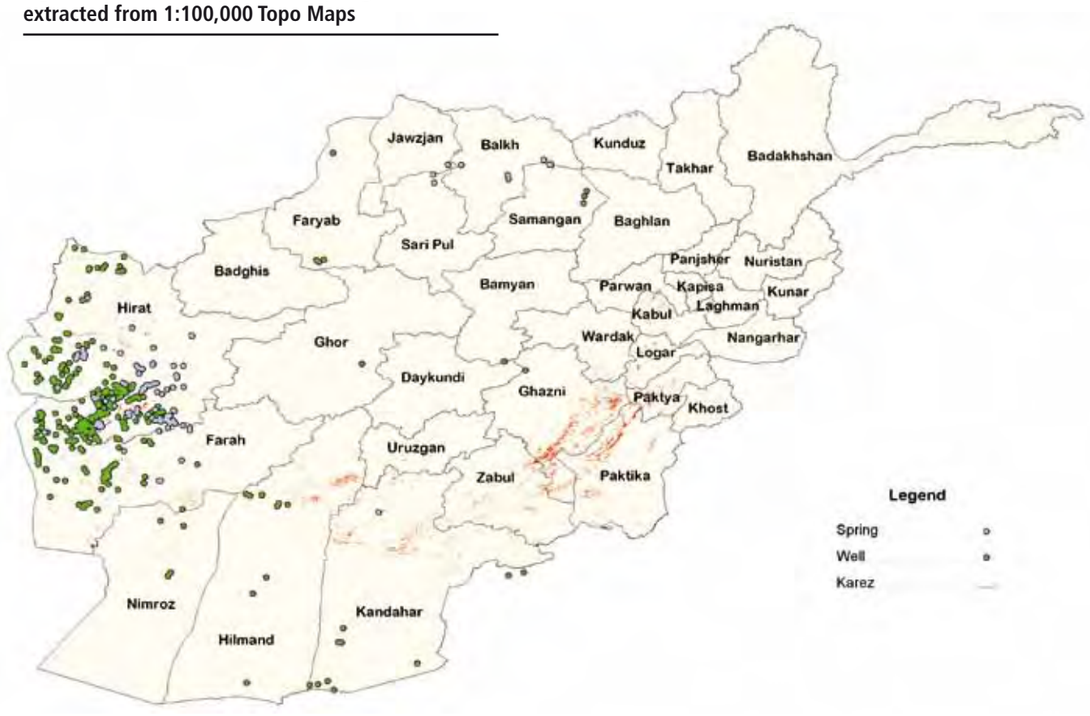


Figure 9: Hydrological Basins of Afghanistan (based on IWRM basin and watershed maps)

5. Aggregation & Land Cover Statistics

The 25 original land cover classes were aggregated into 11 generalized and self-explicative classes. The aim of the aggregation of the land cover classes is to provide an appropriate basis for provision of statistical data for the agriculturally important land covers, without going into unnecessary detail in respect of other land cover classes.

The following table describes the aggregation of the 25 separate land cover classes into 11 aggregated land cover classes:

AGGREGATED LAND COVER CLASSES		CLASS COMPONENTS
Irrigated Ag. Land	**AGI**	3A, 3A1, 3B, 3C
Rainfed Ag. Land	**AGR**	4A, 4B
Fruit Trees	**AGT**	2A
Vineyards	**AGV**	2B
Barren Land	**BRS**	8A
Sand Cover	**BSD**	8B, 8C
Forest & Shrubs	**NFS**	6A, 6B, 6B1, 6C
Rangeland	**NHS**	7
Permanent Snow	**SNW**	13
Built-up	**URB**	1A, 1B
Water Body and Marshland	**WAT**	9A, 9B, 10A 10B 11, 12

The aggregated land cover statistics for Afghanistan, at the country and provincial level, are presented in the following pages. Land cover statistics for individual land covers are of course extractable from the above mentioned Country and Provincial Land Cover Databases.

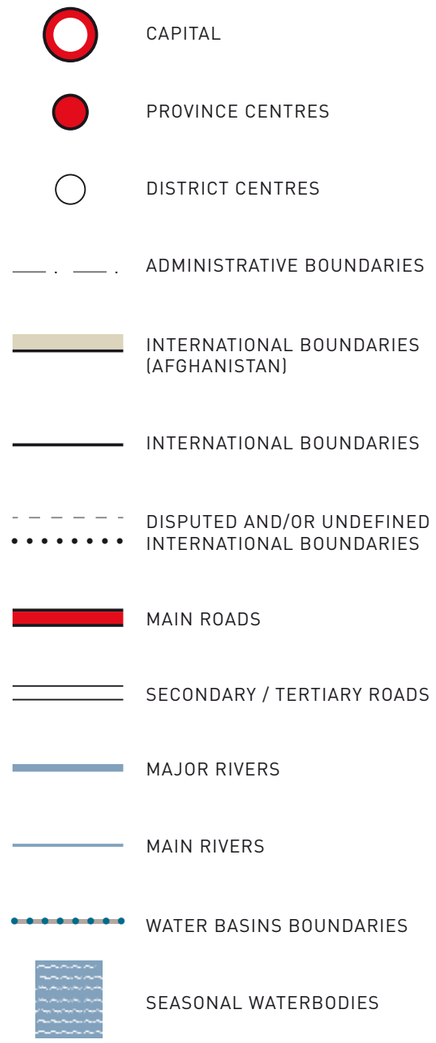
A summary of the hectarages of the various land covers and their respective percentage coverage of Afghanistan is shown in **Figure 11**.

Lastly, the aggregated land cover coverage and statistics for the various IWRM-defined Hydrological River Basins of Afghanistan, are presented in the last section of this Atlas, entitled Land Cover by Basin.

2010 LAND COVER LEGEND	HECTARAGE	% OF AFGHANISTAN
BUILTUP	**306,855**	**0.48**
1A: Urban	280,478	0.44
1B: Non-Urban	26,377	0.04
2A: FRUIT TREES	**117,642**	**0.18**
2B: VINEYARD	**82,450**	**0.13**
IRRIGATED AGRICULTURAL LAND	**2,490,480**	**3.87**
3A: Intensively cultivated (2 Crops/Year)	349,618	0.54
3A1: Intensively Cultivated (1 or 2 Crops/Year)	1,887,106	2.93
3C: Active Karez System Agriculture	253,756	0.39
MARGINAL AGRICULTURAL LAND	**1,109,730**	**1.72**
3B: Poorly irrigated / Non active Karez		
RAINFED	**3,734,494**	**5.80**
4A: Flat lying Areas	906,273	1.41
4B: Sloping Areas	2,828,221	4.39
NATURAL NEEDLE LEAVED FORESTS	**975,041**	**1.51**
6A: Closed Needleaved Trees	83,277	0.13
6B: Open Needleaved Trees	891,764	1.38
6B1: Closed to Open Undifferenciated Trees	**234,399**	**0.36**
6C: High Shrubs	**571,605**	**0.89**
7: RANGELAND	**30,243,985**	**46.97**
BARE AREAS	**22,183,289**	**34.45**
8A: Bare Soil / Rock Outcrops	17,404,540	27.03
8B: Sand Covered Areas	2,008,008	3.12
8C: Sand Dunes	2,770,741	4.30
MARSHLAND	**410,796**	**0.64**
9A: Permanent Marsh	98,552	0.15
9B: Seasonally Inundated Vegetation	312,244	0.48
WATER BODIES	**408,835**	**0.63**
10A: Permanent Lake	96,426	0.15
9B: Seasonal Lake	312,409	0.49
11: RIVER	**128,438**	**0.20**
12: RIVER BANK	**897,906**	**1.39**
13: SNOW COVERED AREA	**497,236**	**0.77**

Figure 11: Summary of land cover statistics extracted from the 2010 Land Cover Database

6. Legend



*All the maps are in UTM projection WGS-84 datum

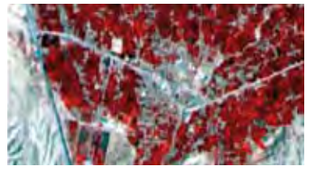
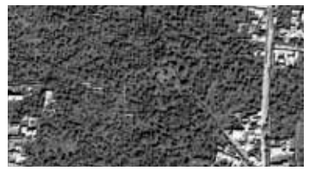
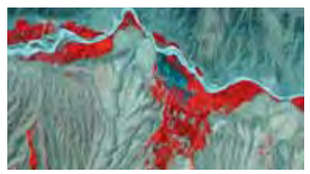
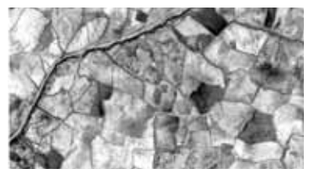
APPENDIX A: Detailed land cover legend

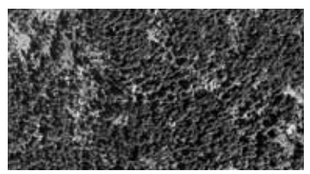
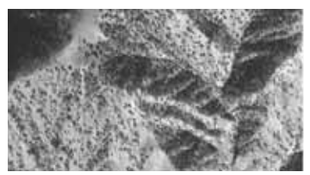
CLASS USER NAME LCCS CLASS NAME	MAP CODE	LCCS CLASSIFIERS
B15 - Artificial surfaces and associates area(s)		
Settelments/Urban areas Urban Area(s)	1A	■ A4 = Non-Linear (Feature) ■ - ■ A13 = Urban Area(s)
Non Urban Built up Areas Industrial And/Or Other Area(s)	1B	■ A4 = Non-Linear (Feature) ■ A12 = Industrial And/Or Other Area(s)
A11 - Cultivated and managed terrestrial areas		
Fruit Trees Permanently Cropped Area With Surface Irrigated Tree Crop(s) Crop Cover: Orchard(s)	2A	■ A1 = Tree Crops ■ XXXX = ■ C1 = Monoculture ■ D3 = Irrigated (General) ■ D9 = Permanently Cropped Area ■ - ■ D4 = Surface Irrigated ■ - ■ W8 = Orchard(s)
Vineyards Permanently Cropped Area With Surface Irrigated Broadleaved Deciduous Shrub Crop(s) Dominant Crop: Fruits & Nuts Grapes (Vitis vinifera) Crop Cover: Orchard(s)	2B	■ A2 = Shrub Crops ■ XXXX = ■ C1 = Monoculture ■ D3 = Irrigated (General) ■ D9 = Permanently Cropped Area ■ - ■ A7 = Broadleaved ■ A10 = Deciduous ■ D4 = Surface Irrigated ■ - ■ S0610 = Grapes (Vitis vinifera) ■ W8 = Orchard(s)
Intensively cultivated area Surface Irrigated Herbaceous Crop(s) (One Additional Crop) (Herbaceous Terrestrial Crop Sequentially) . Major Landclass: Level Land // Surface Irrigated Herbaceous Crop(s) (One Additional Crop) (Herbaceous Aquatic Crop Sequentially) . Major Landclass: Level Land	3A	■ A3 = Herbaceous Crops ■ XXXX = ■ C2 = Intercropped (Second Crop) ■ D3 = Irrigated (General) ■ - ■ C3 = One Additional Crop ■ C7 = Herbaceous Terrestrial Crop (Additional Crop) ■ C19 = Sequential Period ■ D4 = Surface Irrigated ■ - ■ L1 = Level Land ■ // ■ A3 = Herbaceous Crops ■ XXXX = ■ C2 = Intercropped (Second Crop) ■ D3 = Irrigated (General) ■ - ■ C3 = One Additional Crop ■ C8 = Herbaceous Aquatic Crop (Additional Crop) ■ C19 = Sequential Period ■ D4 = Surface Irrigated ■ - ■ L1 = Level Land
Irrigated Herbaceous Crop(s) Surface Irrigated Herbaceous Crop(s) // Surface Irrigated Herbaceous Crop(s) (One Additional Crop) (Herbaceous Terrestrial Crop Sequentially).	3A1	■ A3 = Herbaceous Crops ■ XXXX = ■ C1 = Monoculture ■ D3 = Irrigated (General) ■ - ■ D4 = Surface Irrigated ■ // ■ A3 = Herbaceous Crops ■ XXXX = ■ C2 = Intercropped (Second Crop) ■ D3 = Irrigated (General) ■ - ■ C3 = One Additional Crop ■ C7 = Herbaceous Terrestrial Crop (Additional Crop) ■ C19 = Sequential Period ■ D4 = Surface Irrigated
Marginal Irrigated Crop Surface Irrigated Herbaceous Crop(s) /// Monoculture Of Field(s) Of Herbaceous Crop(s)	3B	■ A3 = Herbaceous Crops ■ XXXX = ■ C1 = Monoculture ■ D3 = Irrigated (General) ■ - ■ D4 = Surface Irrigated ■ /// ■ A3 = Herbaceous Crops ■ XXXX = ■ C1 = Monoculture ■ Z11 = Not in use
Karez System Surface Irrigated Herbaceous Crop(s)	3C	■ A3 = Herbaceous Crops ■ XXXX = ■ C1 = Monoculture ■ D3 = Irrigated (General) ■ - ■ D4 = Surface Irrigated ■ - ■ - ■ Z12 = Karez irrigation system
Rainfed cultivation in flat areas Rainfed Graminoid Crop(s) Major Landclass: Level Land, Plain, Slope Class: Flat To Almost Flat	4A	■ A4 = Graminoid Crops ■ XXXX = ■ C1 = Monoculture ■ D1 = Rainfed Cultivation ■ - ■ - ■ L11 = Plain ■ L5 = Flat To Almost Flat Terrain
Rainfed cultivation in flat areas Rainfed Graminoid Crop(s) Major Landclass: Sloping Land	4B	■ A4 = Graminoid Crops ■ XXXX = ■ C1 = Monoculture ■ D1 = Rainfed Cultivation ■ - ■ - ■ L2 = Sloping Land

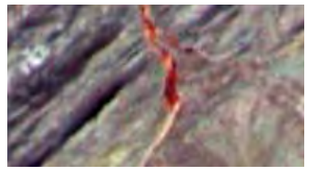
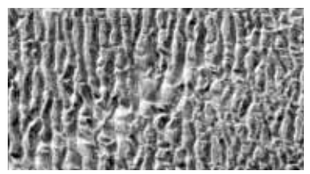
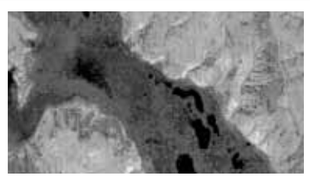
CLASS USER NAME LCCS CLASS NAME	MAP CODE	LCCS CLASSIFIERS
A12 – Natural or semi-natural terrestrial vegetation		
Closed Trees Needleleaved Evergreen Trees	6A	■ A3 = Trees (Main Layer) ■ A10 = Closed → (70-60)% (Main Layer) ■ B2 = → 30 - 3m (Trees Height Main Layer) ■ XX = ■ D2 = Needleleaved ■ E1 = Evergreen
Open Trees Needleleaved Evergreen Woodland	6B	■ A3 = Trees (Main Layer) ■ A11 = Open General (70-60) - (20-10)% (Main Layer) ■ B2 = → 30 - 3m (Trees Height Main Layer) ■ XX = ■ D2 = Needleleaved ■ E1 = Evergreen
Open Trees Undifferentiated Open Trees (Woodland)	6B1	■ A3 = Trees (Main Layer) ■ A11 = Open General (70-60) - (20-10)% (Main Layer) ■ B2 = → 30 - 3m (Trees Height Main Layer)
Closed to Open Shrubland Closed to Open Shrubland (Thicket)	6C	■ A4 = Shrubs (Main Layer) ■ A20 = Closed to Open (100-15)% ■ B3 = 5 - 0.3m (Shrubs Height Main Layer) ■ - ■ B9 = Medium High 3-0.5m (Shrubs Height Main Layer)
Rangeland Sparse Dwarf Shrubs // Open Short Herbaceous Vegetation // Sparse Short Herbaceous Vegetation	7	■ A4 = Shrubs (Main Layer) ■ ■ A14 = Sparse (20-10) - 1% (Main Layer) ■ B3 = 5 - 0.3m (Shrubs Height Main Layer) ■ - ■ B10 = Dwarf - ← 0.5m (Shrub Height Main Layer) ■ // ■ A2 = Herbaceous Vegetation (Main Layer) ■ A11 = Open General (70-60) - (20-10)% (Main Layer) ■ B4 = 3 - 0.03m (Herbaceous Height Main Layer) ■ - ■ B13 = Short ■ // ■ A2 = Herbaceous Vegetation (Main Layer) ■ A14 = Sparse (20-10) - 1% (Main Layer) ■ B4 = 3 - 0.03m (Herbaceous Height Main Layer) ■ - ■ B13 = Short
B16 – Bare area(s)		
Bare Soil OR Rock outcrops Bare Soil And/Or Other Unconsolidated Material(s) // Bare Rock And/Or Coarse Fragments	8A	■ A5 = Bare Soil And/Or Other Unconsolidated Material(s) ■ // ■ A3 = Bare Rock And/Or Coarse Fragments
Sandy areas Loose And Shifting Sands	8B	■ A6 = Loose and Shifting Sands
Dunes Shifting Sands / Dune(s)	8C	■ A6 = Loose and Shifting Sands ■ B1 = Dune(s)

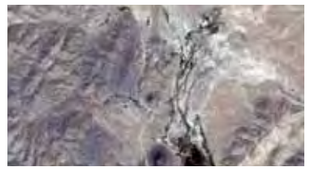
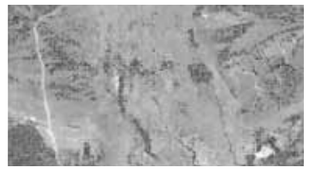
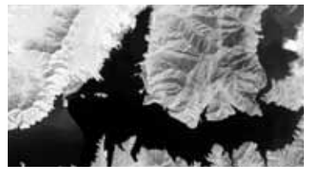
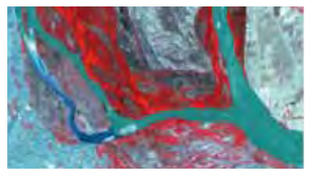
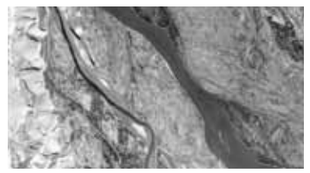
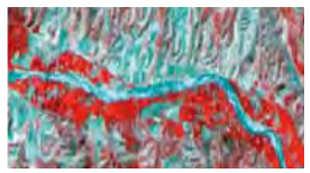
CLASS USER NAME LCCS CLASS NAME	MAP CODE	LCCS CLASSIFIERS
A24 – Natural or semi-natural aquatic vegetation		
Marsh (permanently inundated) Closed to Open Medium Tall Herbaceous Vegetation On Permanently Flooded Land	9A	■ A2 = Herbaceous Vegetation (Main Layer) ■ A20 = Closed to Open (100-15)% ■ B4 = 3 - 0.03m (Herbaceous Height Main Layer) ■ C1 = On Permanently Flooded Land ■ - ■ A21 = Closed to Open (100-40)% ■ B11 = Tall 3-0.8m (Herbaceous Height Main Layer)
Seasonally inundated vegetation Closed to Open Medium Tall Herbaceous Vegetation On Temporarily Flooded Land // Closed to Open Medium High Shrubs On Temporarily Flooded Land.	9B	■ A2 = Herbaceous Vegetation (Main Layer) ■ A20 = Closed to Open (100-15)% ■ B4 = 3 - 0.03m (Herbaceous Height Main Layer) ■ C2 = On Temporarily Flooded Land ■ - ■ B12 = Medium Tall 0.8-0.3m (Herbaceous Height Main Layer) ■ // ■ A4 = Shrubs (Main Layer) ■ A20 = Closed to Open (100-15)% ■ B3 = 5 - 0.3m (Shrubs Height Main Layer) ■ C2 = On Temporarily Flooded Land ■ B9 = Medium High 3-0.5m (Shrubs Height Main Layer)
B28 – Natural water bodies, snow and ice		
Artificial & Natural Waterbodies Perennial Natural Waterbodies (Standing) Salinity: Fresh, ← 1.000 ppm of TDS // Artificial Perennial Waterbodies (Standing) Salinity: Fresh, ← 1.000 ppm of TDS	10A	■ A1 = Inland Water ■ B1 = Perennial ■ - ■ A5 = (Standing) ■ - ■ V1 = Fresh ■ // ■ A1 = Artificial Waterbodies ■ B1 = Perennial ■ - ■ A5 = (Standing) ■ - ■ V1 = Fresh
Seasonal Lakes Non-Perennial Natural Waterbodies (Standing) (Surface Aspect: Bare Soil)	10B	■ A1 = Inland Water ■ B2 = Non-Perennial Or Seasonal ■ - ■ A5 = (Standing) ■ B5 = (Surface Aspect: Bare Soil)
River Perennial Natural Waterbodies (Flowing) Salinity: Fresh, ← 1.000 ppm of TDS	11	■ A1 = Inland Water ■ B1 = Perennial ■ - ■ A4 = (Flowing) ■ - ■ V1 = Fresh
River Banks Non-Perennial Natural Waterbodies (Flowing)	12	■ A1 = Inland Water ■ B2 = Non-Perennial Or Seasonal ■ - ■ A4 = (Flowing)
Perennial snow Perennial Snow	13	■ A2 = Snow ■ B1 = Perennial

APPENDIX B: Photokeys

CLASS CODE	CLASS DESCRIPTION	SPOT (10m Color)	GOOGLE EARTH (2,5m / 1m / 0,6m Color)	AERIAL PHOTOGRAPHS (1m Color / 0,5m B&W)
1A	**Settlements/ Urban Areas** This class includes urban areas with gardens			
1B	**Non Urban Built-up Areas** This class includes airports, industrial areas and vegetated areas within large non-urban zones. it also includes parks and large green areas in urban zones			
2A	**Fruit Trees** Tree Crops (Orchads) with surface irrigation			
2B	**Vineyards** Vineyards with surface irrigation			
3A	**Intensively Cultivated area** Irrigated Herbaceous Crops inside a very intensively cultivated area. The environmental conditions where this class in found is such that it accomodates two Crops per year			
3A1	**Irrigated Herbaceous Crop(s)** Irrigated Herbaceous Crops. This class can be found in most regions, including dry areas and where the surface water supply is not persistent throughout the year. It can yield one or two Crops per year depending on seasonal variations of water supply			

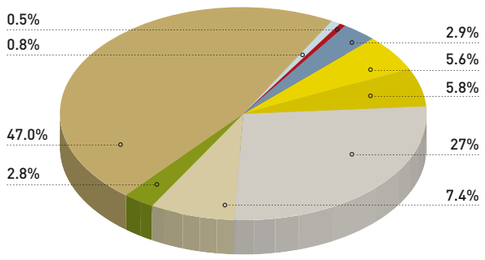
CLASS CODE	CLASS DESCRIPTION	SPOT (10m Color)	GOOGLE EARTH (2,5m / 1m / 0,6m Color)	AERIAL PHOTOGRAPHS (1m Color / 0,5m B&W)
3B	**Marginal Irrigated Crop** Agricultural lands in a marginal agricultural area, usually devoid of active fields. It also represents the non-active portion of a karez system. The fields, when in use, are predominantly Irrigated Herbaceous Crops			
3C	**Karez System** Herbaceous Crops with surface irrigation derived from an active karez system. Only the active fields, detected in an area where the evidence of karez is present, belong to this class			
4A	**Rainfed cultivation in flat areas** Rainfed cultivation of Herbaceous Crops (Graminoids) in flat (to almost flat) regions			
4B	**Rainfed cultivation in sloping land** Rainfed cultivation of Herbaceous Crops (Graminoids) in sloping / rolling regions			
6A	**Closed Trees** Closed (>65%) Needle leaved Evergreen Trees			
6B	**Open Trees** Open (65-15%) Needle leaved Evergreen Trees			

CLASS CODE	CLASS DESCRIPTION	SPOT (10m Color)	GOOGLE EARTH (2,5m / 1m / 0,6m Color)	AERIAL PHOTOGRAPHS (1m Color / 0,5m B&W)
6B1	**Open Trees Undifferentiated** Undifferentiated Trees / Woodland with open (65-15%) cover			
6C	**Closed to Open Shrubland** Shrubland composed of closed to open (100-15%) Shrubs			
7	**Rangeland** Natural Sparse (15-1%) dwarf Shrubs or Open (65-15%) short Herbaceous vegetation or Sparse (15-1%) short Herbaceous vegetation			
8A	**Bare Soil or Rock outcrops** Base Soil or Rock outcrops			
8B	**Sandy areas** Loose and Shifting Sands. This class may be mixed with natural vegetation for very short periods in the rainy season			
8C	**Dunes** Sand Dunes. This class may be mixed with natural vegetation for very short periods in the rainy season			
9A	**Marsh (permanently inundated)** Closed to Open (100-45%) natural Herbaceous vegetation on a Permanently flooded area			

CLASS CODE	CLASS DESCRIPTION	SPOT (10m Color)	GOOGLE EARTH (2,5m / 1m / 0,6m Color)	AERIAL PHOTOGRAPHS (1m Color / 0,5m B&W)
9B	**Seasonally inundated vegetation** Closed to Open (100-15%) natural Herbaceous vegetation on a temporarily flooded area or Closed to Open (100-15%) natural Shrubs on a contemporarily flooded area			
10A	**Artificial and Natural Water bodies** Perennial standing fresh water bodies, either natural or artificial			
10B	**Seasonal Lakes** Non Perennial Standing Water bodies with duration of water presence less than 4 months. Bare soil surfaces are observed when water is not present			
11	**River** Perennial Rivers. Fresh water flowing more than 9 months / year			
12	**River Banks** This class describes both the area of maximum expansion of a perennial river and the beds of seasonal streams			
13	**Perennial Snow** Perennial snow (more than 9 months / year) and glaciers			

Land Cover of AFGHANISTAN

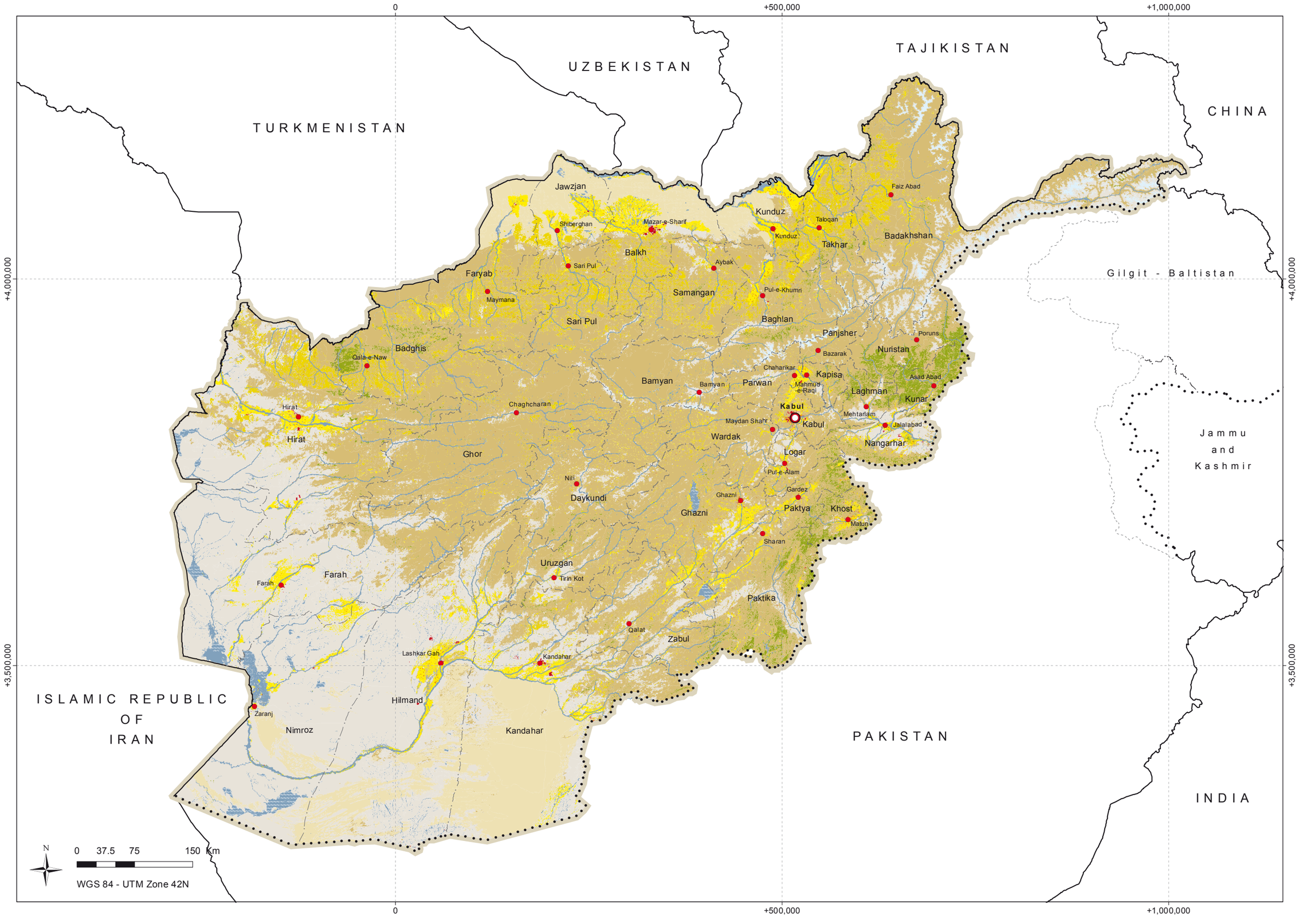
INDEX MAP



Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.

PROVINCE	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Badakhshan	55,957	310,786	8,741	0	840,425	79	30,384	2,687,860	324,823	4,961	81,993	**4,346,008**
Badghis	42,470	368,567	907	73	16,535	0	157,052	1,468,428	0	5,909	10,983	**2,070,924**
Baghlan	97,164	177,866	3,945	0	135,419	1,328	64,375	1,202,761	66,034	10,550	20,887	**1,780,331**
Balkh	266,006	271,690	4,222	585	74,062	480.806	6,820	484,356	0	22,838	65,536	**1,676,921**
Bamyan	59,343	15,984	1,946	0	137,354	0	323	1,544,152	17,265	2,208	10,635	**1,789,211**
Daykundi	49,026	10,007	6,291	5	168,852	0	16,402	1,316,777	49	1,762	8,685	**1,577,856**
Farah	241,479	52	420	1,032	3,532,202	7	9,489	876,531	0	8,699	289,165	**4,959,077**
Faryab	112,683	439,651	1,327	7,124	22,541	300.442	6,634	1,148,068	0	13,411	19,968	**2,071,848**
Ghazni	267,357	50,714	8,146	10,173	171,571	0	10,380	1,548,219	0	16,506	83,722	**2,166,787**
Ghor	66,349	98,514	1,280	0	193,797	0	6,204	3,307,506	2,356	4,550	32,593	**3,713,149**
Hilmand	342,172	555	1,957	949	3,436,966	954,091	3,534	1,003,204	0	25,828	231,595	**6,000,851**
Hirat	259,975	559,141	1,717	7,561	2,390,020	2,903	53,595	2,028,430	0	24,808	165,637	**5,493,787**
Jawzjan	186,258	139,448	339	557	12,904	508,624	1,009	217,708	0	9,179	35,970	**1,111,996**
Kabul	66,748	4,340	4,000	10,600	47,998	0	9,244	288,908	0	26,350	7,340	**465,528**
Kandahar	312,465	82,892	8,599	19,840	1,402,853	1,839,000	32,258	1,566,255	0	21,237	131,091	**5,416,490**
Kapisa	22,594	1,323	4,208	930	6,949	0	15,143	131,640	130	2,735	2,500	**188,152**
Khost	54,519	374	203	2	11,453	0	120,088	224,536	0	8,114	9,145	**428,434**
Kunar	29,013	57	308	4	12,775	0	316,258	116,808	0	2,231	7,371	**484,824**
Kunduz	151,136	94,096	1,521	213	65,344	223,210	3,006	191,670	0	11,384	48,775	**790,355**
Laghman	21,876	32	700	4	68,803	0	97,619	183,915	2	2,444	8,156	**383,550**
Logar	46,540	12,153	861	1,053	82,870	0	16,646	270,151	0	5,717	3,509	**439,500**
Nangarhar	106,079	13	4,286	281	244,879	0	70,594	271,049	0	13,576	28,962	**739,720**
Nimroz	95,037	2	13	385	3,157,980	466,487	784	9,792	0	4,339	369,069	**4,103,889**
Nuristan	8,931	405	424	1	55,423	0	231,907	579,163	16,854	169	5,394	**898,671**
Paktika	149,147	9,645	2,022	732	223,281	1,672	305,640	1,173,886	0	8,643	32,032	**1,906,700**
Paktya	70,119	4,651	732	285	18,927	0	107,220	316,615	0	4,666	4,271	**527,486**
Panjsher	9,302	795	1,450	0	8,634	0	3,110	319,797	25,474	465	3,959	**372,987**
Parwan	38,226	8,165	7,121	6,373	63,146	0	991	411,924	12,235	6,075	4,176	**558,971**
Samangan	27,190	284,410	1,459	561	78,593	0	11,906	877,603	0	4,505	5,032	**1,291,259**
Sari Pul	44,245	322,067	2,037	7,398	45,658	0	5,432	1,085,825	0	6,809	7,297	**1,526,768**
Takhar	85,655	418,657	3,815	105	79,416	0	26,953	530,743	23,506	12,319	53,780	**1,231,949**
Uruzgan	51,127	1,647	10,560	23	158,827	0	15,727	826,184	0	4,175	17,931	**1,086,200**
Wardak	67,110	24,402	8,727	72	70,788	0	931	868,185	8,508	4,906	4,357	**1,057,985**
Zabul	99,913	21,392	13,358	5,529	367,294	99	23,385	1,165,336	0	4,790	33,922	**1,735,018**
TOTAL (ha)	**3,600,210**	**3,734,494**	**117,642**	**82,450**	**17,404,540**	**4,778,750**	**1,781,045**	**30,243,985**	**497,236**	**306,855**	**1,845,976**	
TOTAL (%)	**5.6**	**5.8**	**0.2**	**0.1**	**27.0**	**7.4**	**2.8**	**47.0**	**0.8**	**0.5**	**2.9**	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+3,500,000
TURKMENISTAN
UZBEKISTAN
TAJIKISTAN
CHINA
Gilgit - Baltistan
Jammu and Kashmir
ISLAMIC REPUBLIC OF IRAN
PAKISTAN
INDIA
Jawzjan
Shiberghan
Mazar-e-Sharif
Balkh
Sari Pul
Faryab
Maymana
Samangan
Aybak
Kunduz
Taloqan
Faiz Abad
Badakhshan
Takhar
Pul-e-Khumri
Baghlan
Panjsher
Bazarak
Poruns
Nuristan
Badghis
Qala-e-Naw
Chaharikar
Kapisa
Asad Abad
Mahmud-e-Raqi
Laghman
Kunar
Bamyan
Parwan
Hirat
Chaghcharan
Kabul
Mehtarlam
Jalalabad
Maydan Shahr
Wardak
Nangarhar
Ghor
Logar
Pul-e-Alam
Nili
Daykundi
Gardez
Ghazni
Paktya
Khost
Matun
Sharan
Uruzgan
Tirin Kot
Farah
Paktika
Qalat
Zabul
Lashkar Gah
Kandahar
Hilmand
Zaranj
Nimroz
N
0 37.5 75 150 Km
WGS 84 - UTM Zone 42N

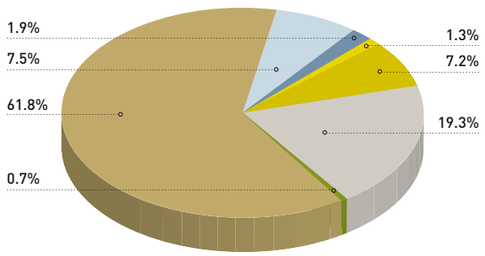
LAND COVER by **Province**

Land cover maps and statistics are compiled for the whole country and for each Afghan province.

The land cover distribution is reported in the tables as disaggregated at the second administrative level (district).

BADAKHSHAN

INDEX MAP

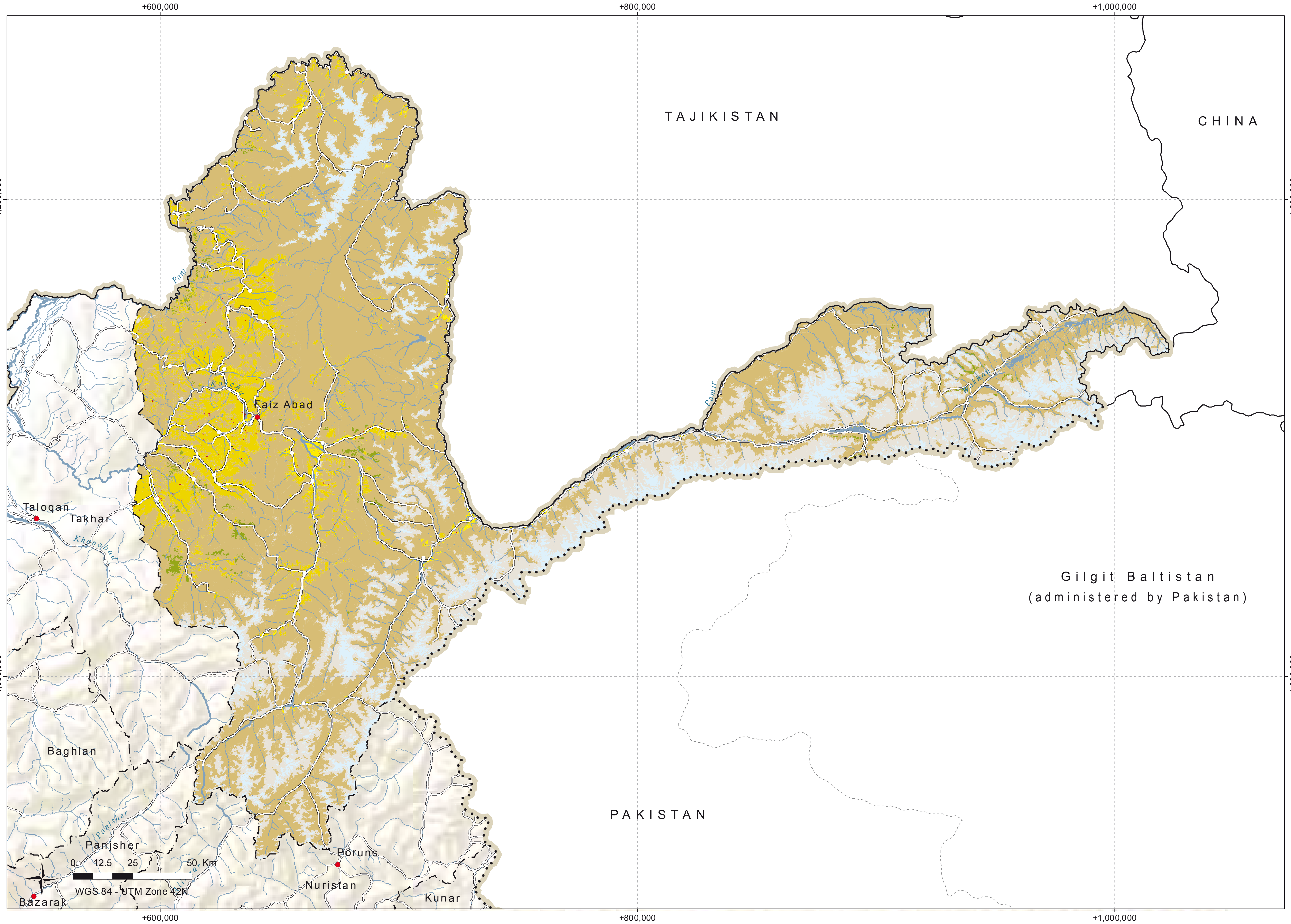


Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Arghanj Khwa	244	4,591	56	0	0	0	78	67,174	0	32	911	**73,087**
Argo	2,526	52,438	232	0	728	0	83	47,403	0	1,019	976	**105,405**
Baharak	5,770	2,755	591	0	440	0	594	21,486	0	144	572	**32,352**
Darayem	1,995	23,794	172	0	7	0	3	29,155	4	330	595	**56,057**
Darwaz	1,979	6,386	526	0	8,713	0	82	86,492	16,907	78	1,238	**122,400**
Darwaz-e-Balla	2,319	2,458	783	0	6,736	0	169	102,662	17,337	44	1,134	**133,641**
Eshkashem	5,082	603	92	0	20,250	0	13	78,050	5,881	71	3,390	**113,431**
Fayz Abad	912	18,015	283	0	0	0	221	29,072	0	439	440	**49,383**
Jorm	3,884	11,987	753	0	3,012	0	0	101,774	493	267	535	**122,705**
Keshem	3,776	30,542	507	0	502	0	1,312	38,647	0	770	921	**76,977**
Khash	2,076	4,290	56	0	1	0	0	18,785	0	98	214	**25,519**
Khwahan	89	8,648	236	0	2	0	1,408	60,666	0	78	2,385	**73,512**
Kof Ab	810	4,911	234	0	4,539	0	369	117,312	8,131	33	5,499	**141,838**
Kohestan	17	15,603	38	0	0	0	0	33,300	0	74	190	**49,222**
Koran wa Monjan	2,520	50	51	0	187,897	0	415	276,109	49,439	22	5,331	**521,834**
Raghestan	452	24,971	44	0	700	0	910	99,475	1,194	110	1,883	**129,739**
Shahr-e-Buzorg	344	20,581	240	0	1,451	0	359	73,473	0	173	1,116	**97,738**
Shaki	983	2,366	342	0	2,156	0	872	51,914	2,803	50	589	**62,074**
Shighnan	3,976	2,984	670	0	22,464	79	62	293,790	21,971	80	6,823	**352,899**
Shuhada	2,354	5,490	975	0	8,208	0	2,448	130,948	2,785	86	2,467	**155,761**
Tagab	1,218	6,538	277	0	16,054	0	5,352	104,900	4,883	113	653	**139,988**
Teshkan	156	14,741	337	0	1,231	0	4,564	62,715	0	176	379	**84,300**
Wakhan	4,768	17	27	0	457,645	0	7,168	415,137	174,340	140	35,550	**1,094,792**
Warduj	2,719	2,627	389	0	12,277	0	1,738	66,097	1,924	124	782	**88,678**
Yaftal-e-Sufla	374	22,438	230	0	752	0	409	34,565	0	125	1,396	**60,289**
Yamgan	2,599	10,802	352	0	21,472	0	78	135,755	4.071	78	896	**176,105**
Yawan	61	10,075	234	0	4	0	1,664	31,138	0	175	839	**44,190**
Zebak	1.951	85	13	0	63,182	0	13	79,868	12,659	31	4,289	**162,092**
TOTAL (ha)	**55,957**	**310,786**	**8,741**	**0**	**840,425**	**79**	**30,384**	**2,687,860**	**324,823**	**4,961**	**81,993**	**4,346,008**
TOTAL (%)	**1.3**	**7.2**	**0.2**	**0.0**	**19.3**	**0.0**	**0.7**	**61.8**	**7.5**	**0.1**	**1.9**	**100**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+800,000
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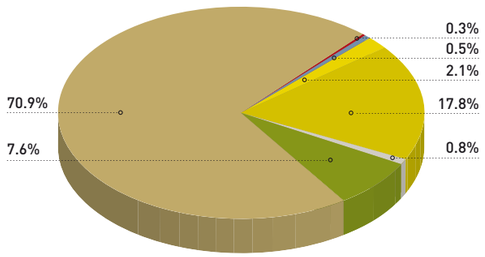
TAJIKISTAN
CHINA
Gilgit Baltistan
(administered by Pakistan)
PAKISTAN
Faiz Abad
Taloqan
Takhar
Baghlan
Panjsher
Poruns
Nuristan
Kunar
Bazarak
0 12.5 25 50 Km
WGS 84 - UTM Zone 42N

BADGHIS

INDEX MAP

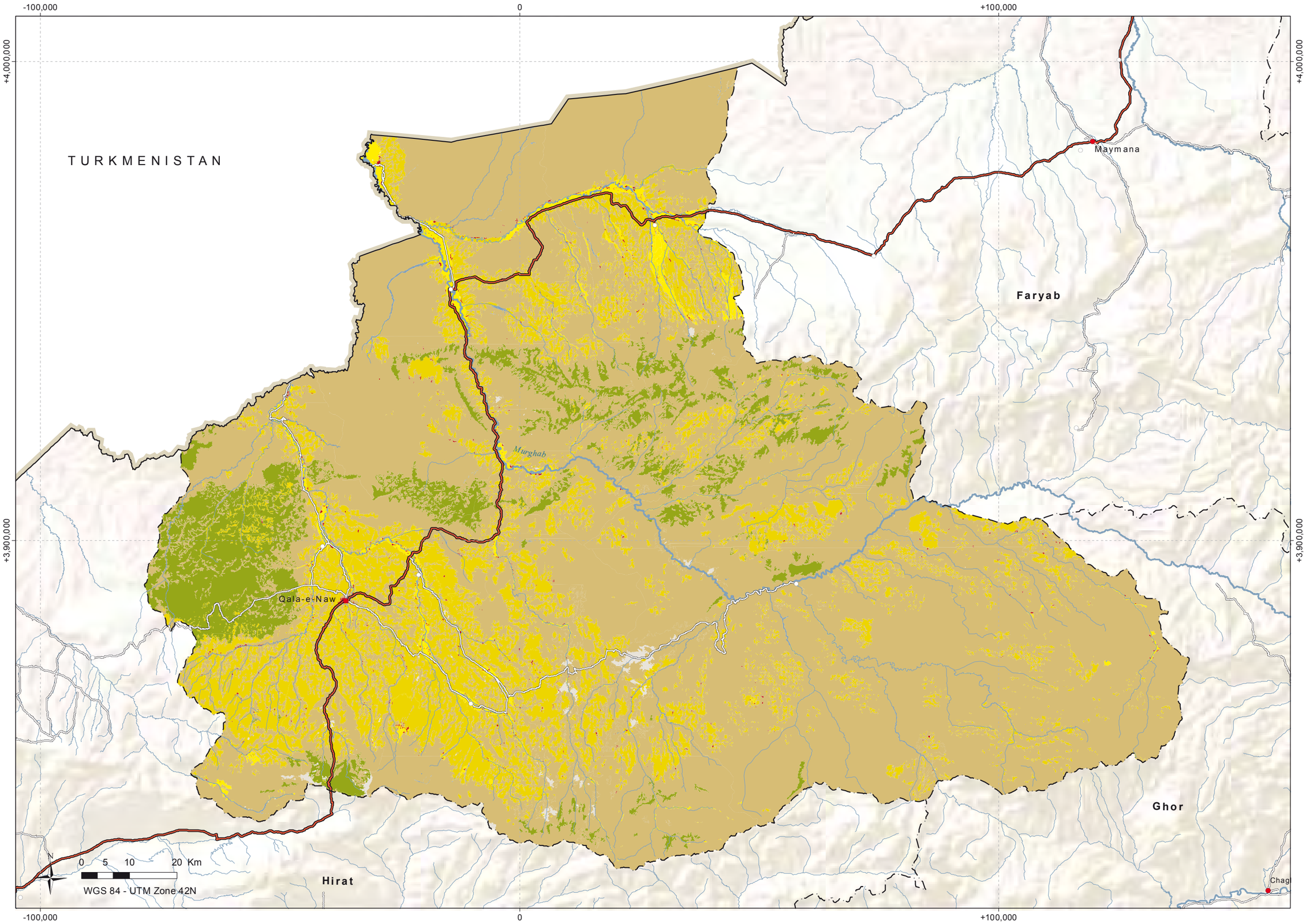
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI	Rainfed Ag. Land AGR	Fruit Trees AGT	Vineyards AGV	Barren Land BRS	Sand Cover BSD	Forest & Shrubs NFS	Rangeland NHS	Permanent Snow SNW	Built-up URB	Water Body & Marshland WAT	TOTAL LAND
	3A, 3A1 3B, 3C	4A, 4B	2A	2B	8A	8B, 8C	6A, 6B 6B1, 6C	7	13	1A, 1B	9A, 9B, 10A 10B, 11, 12	
Ab Kamari	2,874	46,077	22	1	292	0	69,331	60,679	0	515	661	**180,451**
Bala Murghab	11,419	53,501	78	36	457	0	39,892	334,786	0	1,364	3,874	**445,407**
Ghormach	12,284	29,753	30	28	373	0	7,162	142,633	0	851	2,117	**195,229**
Jawand	2,827	64,769	536	0	8,001	0	17,883	617,002	0	553	1,480	**713,051**
Muqur	4,475	37,364	22	0	2	0	10,467	71,471	0	732	1,322	**125,856**
Qadis	7,113	107,110	178	4	6,375	0	6,241	215,713	0	1,224	1,292	**345,249**
Qala-e-Naw	1,479	29,994	40	5	1,035	0	6,076	26,144	0	670	237	**65,679**
TOTAL (ha)	**42,470**	**368,567**	**907**	**73**	**16,535**	**0**	**157,052**	**1,468,428**	**0**	**5,909**	**10,983**	**2,070,924**
TOTAL (%)	**2.1**	**17.8**	**0.0**	**0.0**	**0.8**	**0.0**	**7.6**	**70.9**	**0.0**	**0.3**	**0.5**	**100**



Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.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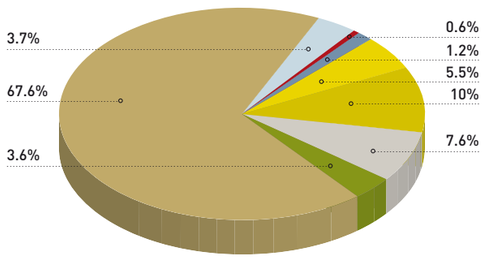
TURKMENISTAN
Maymana
Faryab
Murghab
Qala-e-Naw
Ghor
Hirat
Chag
0 5 10 20 Km
WGS 84 - UTM Zone 42N

BAGHLAN

INDEX MAP

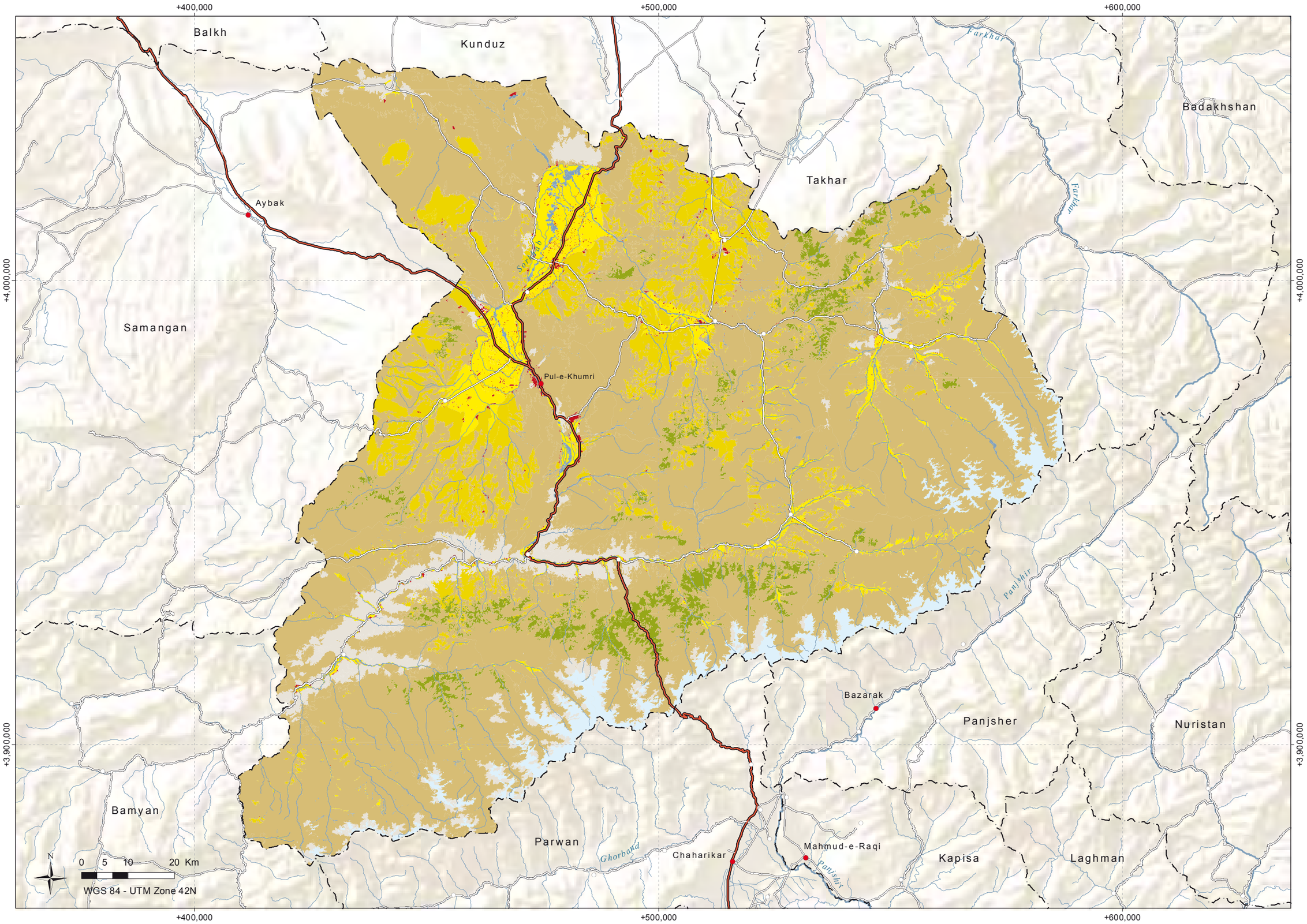


Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Andarab	2,560	6,194	312	0	2,121	0	9.539	75,037	5,280	172	772	**101,988**
Baghlan-e-Jadid	27,589	26,804	220	0	36,958	1,328	1,252	159,156	0	2,573	3,765	**259,644**
Burka	1,583	35,857	100	0	875	0	2,887	40,415	0	874	981	**83,572**
Dahana-e-Ghori	13,449	49,843	228	0	660	0	2,451	76,878	0	858	976	**145,344**
Deh Salah	3,631	4,094	467	0	88	0	0	36,096	0	232	709	**45,316**
Doshi	6,461	13,812	183	0	29,122	0	10,024	129,561	152	1,391	3,543	**194,249**
Fereng Wa Gharu	2,268	1,923	123	0	877	0	0	18,425	212	97	124	**24,049**
Guzargah-e-Nur	631	1,457	190	0	2,807	0	4,562	31,579	38	29	423	**41,715**
Khenjan	2,061	258	618	0	9,394	0	15,942	61,520	10,808	273	784	**101,658**
Khost Wa Fereng	8,967	1,161	623	0	5,657	0	2,133	151,464	16,103	475	2,427	**189,010**
Khwaja Hejran	2,060	5,147	238	0	189	0	5,225	51,457	0	131	875	**65,322**
Nahrin	6,308	24,997	154	0	636	0	3,453	60,292	1	763	1,780	**98,383**
Pul-e-Hesar	3,749	1,013	220	0	653	0	1,502	66,580	14,600	86	460	**88,864**
Pul-e-Khumri	12,699	2,548	144	0	7,615	0	713	26,379	0	2,185	982	**53,263**
Tala Wa Barfak	3,147	2,758	126	0	37,768	0	4,693	217,922	18,839	412	2,288	**287,954**
TOTAL (ha)	**97,164**	**177,866**	**3,945**	**0**	**135,419**	**1,328**	**64,375**	**1,202,761**	**66,034**	**10,550**	**20,887**	**1,780,331**
TOTAL (%)	**5.5**	**10.0**	**0.2**	**0.0**	**7.6**	**0.1**	**3.6**	**67.6**	**3.7**	**0.6**	**1.2**	**100**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Aybak
Pul-e-Khumri
Farkhar
Farkhar
Sorkh Ab
Panjshir
Bazarak
Panjsher
Nuristan
Bamyan
Parwan
Ghorband
Chaharikar
Mahmud-e-Raqi
Panjshir
Kapisa
Laghman
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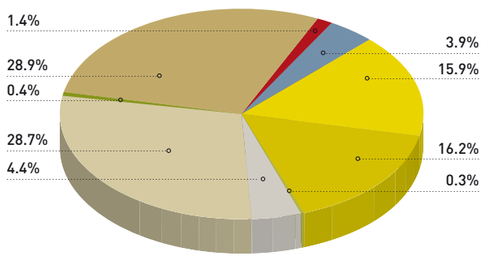
0 5 10 20 Km
WGS 84 - UTM Zone 42N

BALKH

INDEX MAP

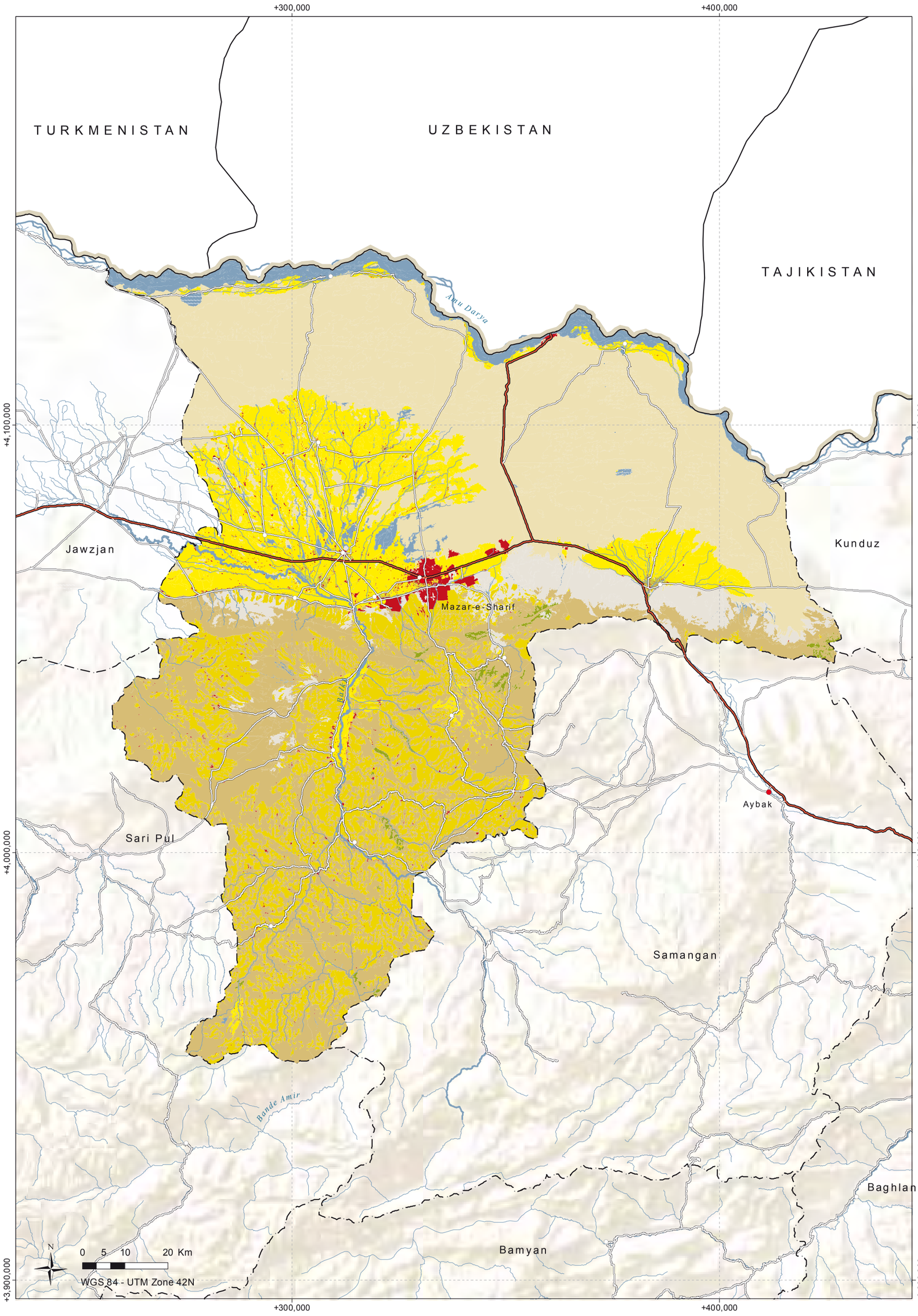


Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land	Rainfed Ag. Land	Fruit Trees	Vineyards	Barren Land	Sand Cover	Forest & Shrubs	Rangeland	Permanent Snow	Built-up	Water Body & Marshland	TOTAL LAND
	AGI	AGR	AGT	AGV	BRS	BSD	NFS	NHS	SNW	URB	WAT	
	3A, 3A1 3B, 3C	4A, 4B	2A	2B	8A	8B, 8C	6A, 6B 6B1, 6C	7	13	1A, 1B	9A, 9B, 10A 10B, 11, 12	
Balkh	38,466	0	893	4	120	5,020	0	3,347	0	1,449	4,759	**54,059**
Char Bulak	41,778	0	75	0	88	4,092	0	2,166	0	1,189	2,186	**51,573**
Char Kent	3,401	45,870	66	0	1,085	0	1,168	55,277	0	406	372	**107,645**
Chemtal	22,719	44,408	189	1	14,766	585	0	94,206	0	1,720	2,359	**180,953**
Dawlat Abad	63,212	0	384	513	131	87,627	0	8,312	0	1,433	2,687	**164,300**
Deh Dadi	8,814	7,639	236	2	1,254	0	27	5,216	0	2,263	423	**25,873**
Kaldar	4,999	0	0	0	0	66,876	0	1,810	0	64	9,476	**83,225**
Keshendeh	516	48,054	90	0	1,327	0	1,166	65,184	0	662	1,172	**118,170**
Khulm	33,152	978	1,334	0	28,921	168,307	1,111	62,825	0	567	3,867	**301,062**
Marmul	1,509	9,638	159	0	14,702	250	2,610	25,684	0	916	619	**56,086**
Mazar-e-Sharif	224	0	131	0	57	0	0	0	0	2,395	0	**2,807**
Nahr-e-Shahi	28,858	7,749	153	3	2,329	38,916	6	25,005	0	6,938	4,504	**114,460**
Sharak-e-Hayratan	1,066	0	3	0	0	3,947	0	218	0	347	2,647	**8,228**
Sholgareh	6,866	77,283	166	62	9,277	0	570	81,153	0	1,728	1,977	**179,084**
Shortepa	8,396	0	171	0	6	105,185	0	4,115	0	261	27,915	**146,049**
Zari	2,031	30,073	173	0	0	0	161	49,837	0	500	574	**83,348**
TOTAL (ha)	**266,006**	**271,690**	**4,222**	**585**	**74,062**	**480,806**	**6,820**	**484,356**	**0**	**22,838**	**65,536**	**1,676,921**
TOTAL (%)	**15.9**	**16.2**	**0.3**	**0.0**	**4.4**	**28.7**	**0.4**	**28.9**	**0.0**	**1.4**	**3.9**	**100**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TAJIKISTAN
Amu Darya
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Jawzjan
Mazar-e-Sharif
Kunduz
Aybak
Sari Pul
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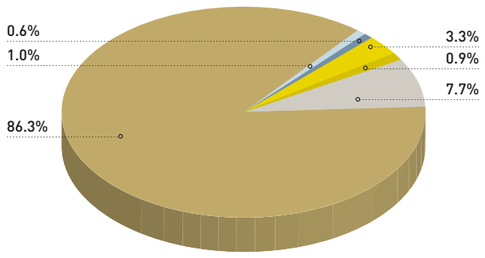
Samangan
Bande Amir
Baghlan
Bamyan
+3,900,000
N
0 5 10 20 Km
WGS 84 - UTM Zone 42N

BAMYAN

INDEX MAP

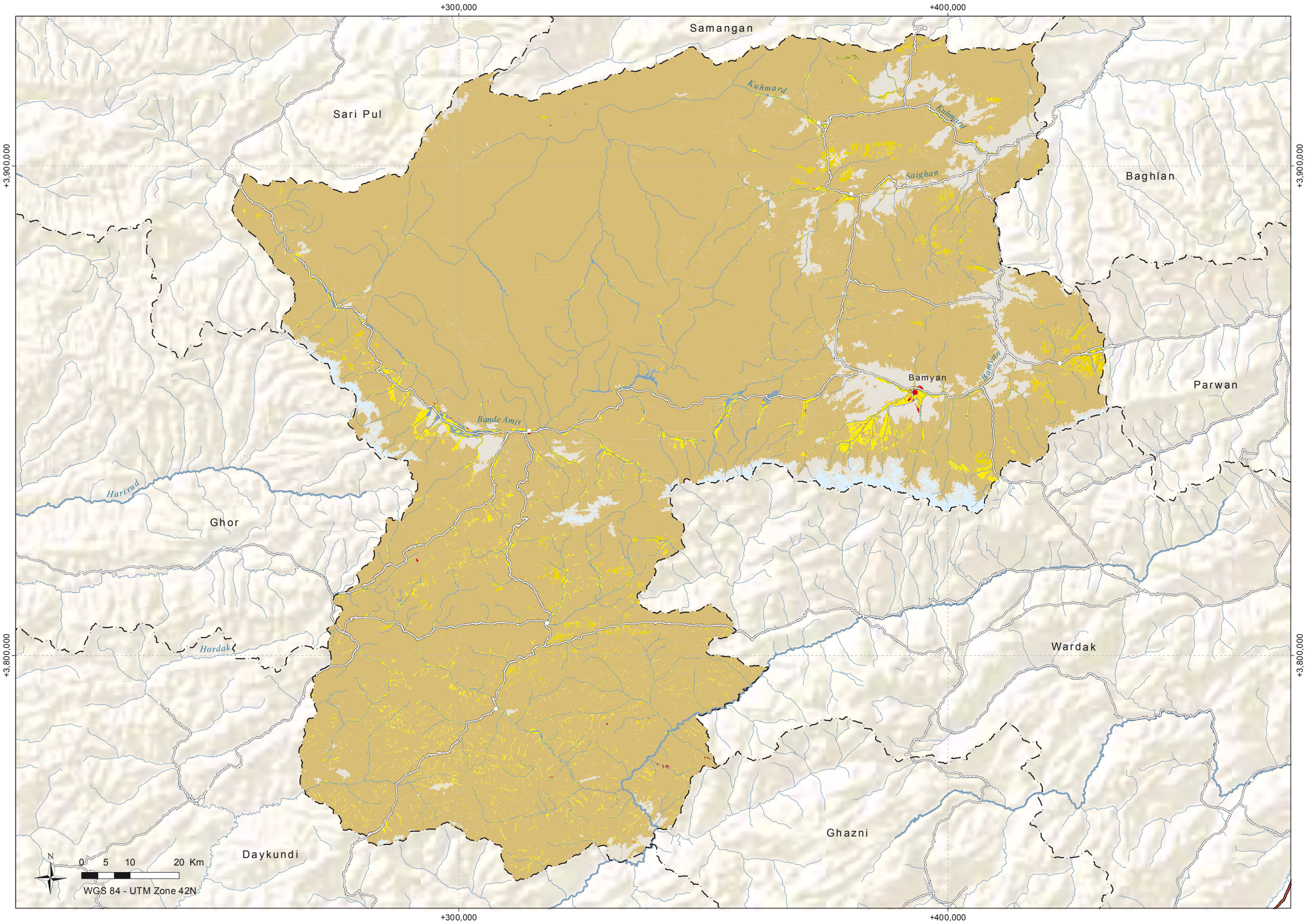
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Bamyan	10,849	119	469	0	31,768	0	0	123,509	10,185	648	2,186	**179,731**
Kahmard	2,989	1,104	936	0	25,543	0	252	109,436	0	274	200	**140,733**
Panjab	8,345	3,733	16	0	544	0	0	173,892	267	159	1,211	**188,167**
Sayghan	3,072	4,198	219	0	26,688	0	9	138,270	0	201	556	**173,213**
Shibar	3,536	5,235	176	0	17,913	0	4	100,692	1,509	161	613	**129,839**
Waras	16,958	670	100	0	5,558	0	59	274,844	362	238	878	**299,669**
Yakawlang	13,594	925	30	0	29,341	0	0	623,509	4,941	527	4,991	**677,858**
TOTAL (ha)	**59,343**	**15,984**	**1,946**	**0**	**137,354**	**0**	**323**	**1,544,152**	**17,265**	**2,208**	**10,635**	**1,789,211**
TOTAL (%)	**3.3**	**0.9**	**0.1**	**0.0**	**7.7**	**0.0**	**0.0**	**86.3**	**1.0**	**0.1**	**0.6**	**100**



Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.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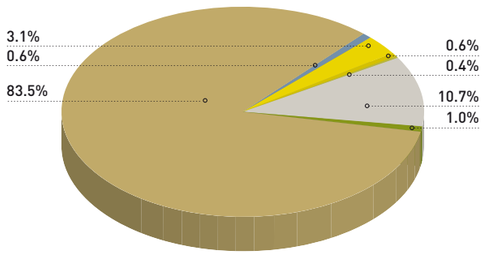
Daykundi
Kuhmard
Saighan
Bande Amir
Harirud
Hordak
Bamyan
N
0 5 10 20 Km
WGS 84 - UTM Zone 42N

DAYKUNDI

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land	Rainfed Ag. Land	Fruit Trees	Vineyards	Barren Land	Sand Cover	Forest & Shrubs	Rangeland	Permanent Snow	Built-up	Water Body & Marshland	TOTAL LAND
	AGI	AGR	AGT	AGV	BRS	BSD	NFS	NHS	SNW	URB	WAT	
	3A, 3A1 3B, 3C	4A, 4B	2A	2B	8A	8B, 8C	6A, 6B 6B1, 6C	7	13	1A, 1B	9A, 9B, 10A 10B, 11, 12	
Ashtarlay	5,648	466	84	3	8,771	0	46	141,022	0	38	546	**156,623**
Gizab	5,360	23	2,898	0	28,666	0	11,109	323,147	0	487	3,459	**375,150**
Kajran	2,836	17	333	0	22,047	0	2,820	104,323	0	224	1,085	**133,685**
Khadir	4,100	850	77	0	7,221	0	558	151,238	0	11	584	**164,638**
Kiti	5,941	0	417	0	23,306	0	883	64,532	0	196	484	**95,759**
Miramor	8,351	24	866	2	33,557	0	344	185,151	49	343	470	**229,156**
Nili	3,892	0	657	0	8,262	0	0	47,029	0	143	161	**60,144**
Sang-e-Takht	5,284	8,420	28	0	1,719	0	14	162,792	0	184	977	**179,417**
Shahrestan	7,613	208	932	0	35,303	0	628	137,544	0	136	918	**183,283**
TOTAL (ha)	**49,026**	**10,007**	**6,291**	**5**	**168,852**	**0**	**16,402**	**1,316,777**	**49**	**1,762**	**8,685**	**1,577,856**
TOTAL (%)	**3.1**	**0.6**	**0.4**	**0.0**	**10.7**	**0.0**	**1.0**	**83.5**	**0.0**	**0.1**	**0.6**	**100**



Land Cover in percentage

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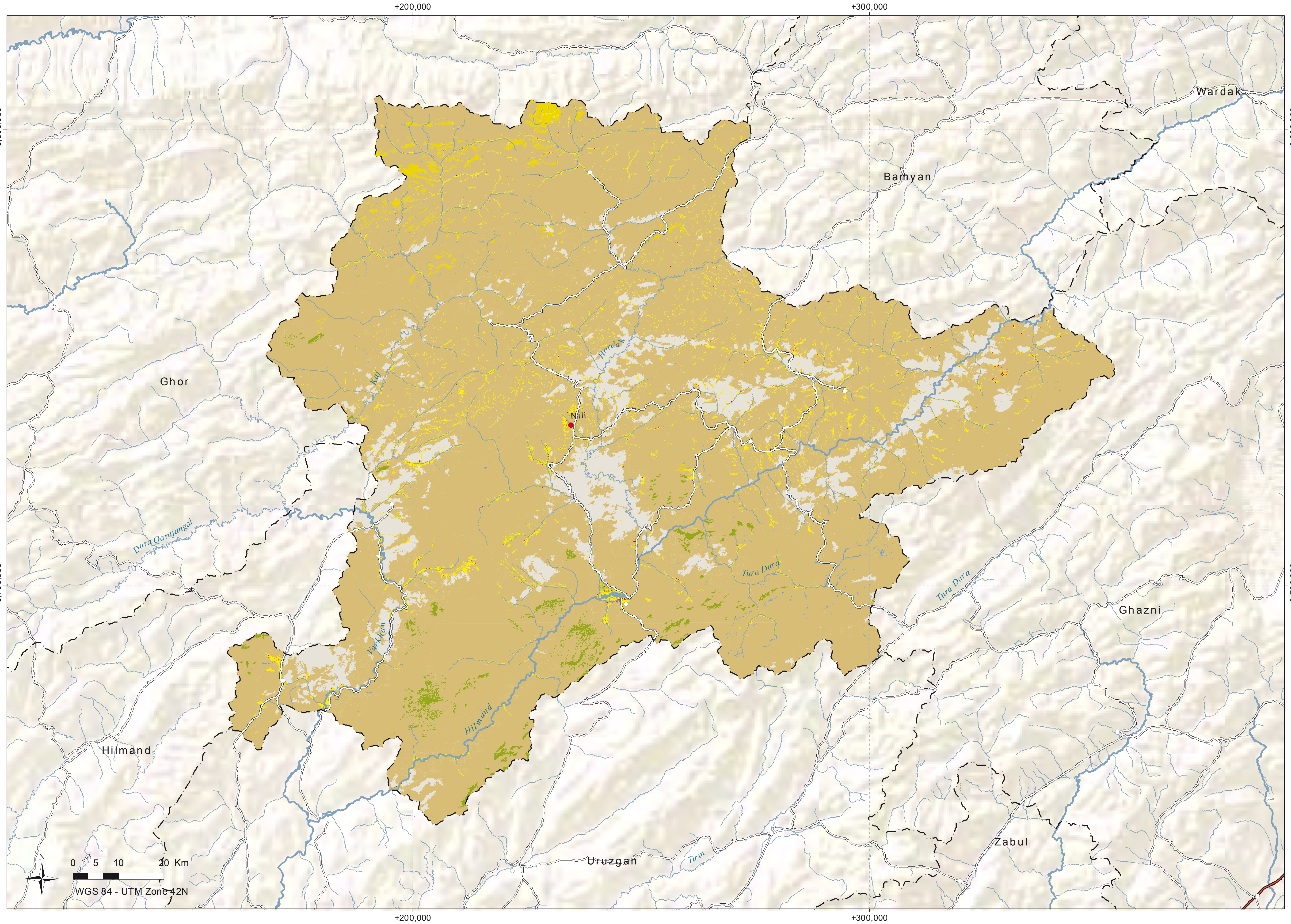

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Wardak
Bamyan
Ghor
Nili
Dara Qarajangal
Tura Dara
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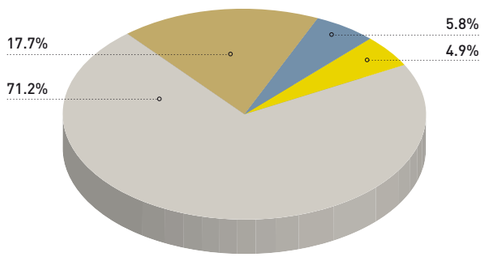
Hilmand
Zabul
Uruzgan
Tirin
0 5 10 20 Km
WGS 84 - UTM Zone 42N

FARAH

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land	Rainfed Ag. Land	Fruit Trees	Vineyards	Barren Land	Sand Cover	Forest & Shrubs	Rangeland	Permanent Snow	Built-up	Water Body & Marshland	TOTAL LAND
	AGI	AGR	AGT	AGV	BRS	BSD	NFS	NHS	SNW	URB	WAT	
	3A, 3A1 3B, 3C	4A, 4B	2A	2B	8A	8B, 8C	6A, 6B 6B1, 6C	7	13	1A, 1B	9A, 9B, 10A 10B, 11, 12	
Anar Dara	6,304	0	88	1	1,001,303	0	0	4,611	0	503	51,975	**1,064,784**
Bakwa	59,536	0	3	55	164,449	0	0	7,831	0	712	10,985	**243,570**
Bala Buluk	22,089	0	12	147	417,523	0	1,529	94,726	0	919	16,219	**553,163**
Farah	44,497	0	88	638	274,231	0	0	1,797	0	3,053	20,076	**344,380**
Gulestan	8,621	7	36	0	389,320	0	3,027	285,827	0	611	17,712	**705,160**
Khak-e-Safed	17,621	0	10	12	146,245	0	0	15,016	0	520	4,773	**184,198**
Lash-e-Juwayn	14,989	0	4	1	418,147	7	0	112	0	467	107,773	**541,499**
Purchaman	8,428	45	159	2	166,268	0	4,933	461,282	0	400	2,606	**644,123**
Phusht Rod	26,887	0	10	129	12,122	0	0	218	0	574	3,395	**43,334**
Qala-e-Kah	21,650	0	9	41	287,100	0	0	3,432	0	521	42,861	**355,615**
Shib Koh	10,857	0	1	8	255,496	0	0	1,680	0	419	10,791	**279,251**
TOTAL (ha)	**241,479**	**52**	**420**	**1,032**	**3,532,202**	**7**	**9,489**	**876,531**	**0**	**8,699**	**289,165**	**4,959,077**
TOTAL (%)	**4.9**	**0.0**	**0.0**	**0.0**	**71.2**	**0.0**	**0.2**	**17.7**	**0.0**	**0.2**	**5.8**	**100**



Land Cover in percentage

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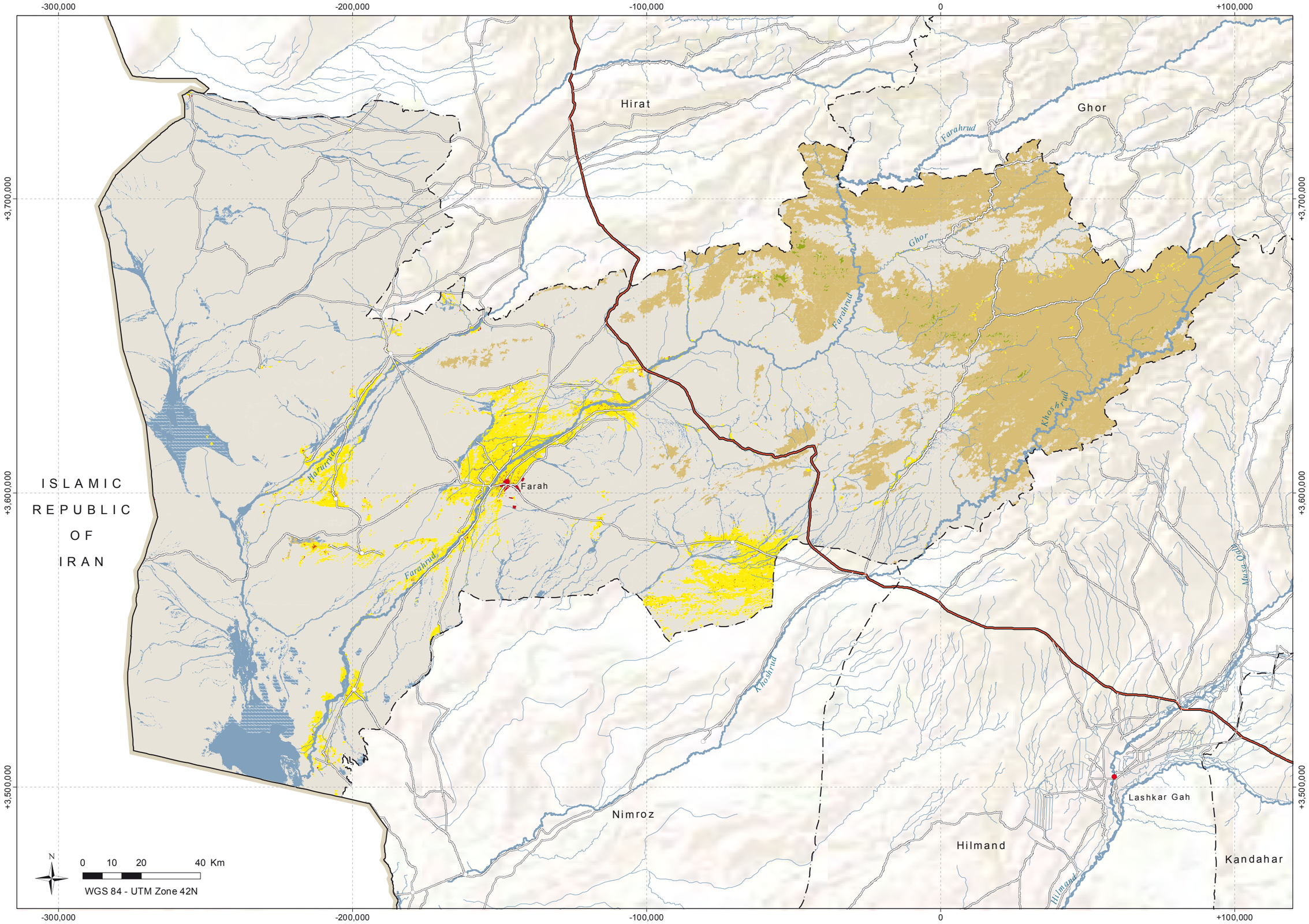
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Lashkar Gah
Farahrud
Ghor
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Harirud
Musa Qala
Hilmand
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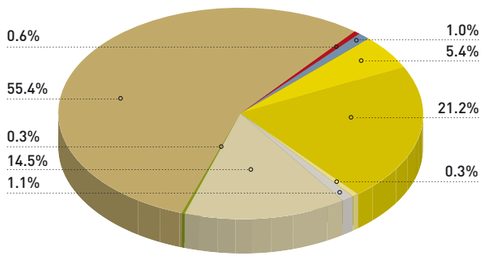
0 10 20 40 Km
WGS 84 - UTM Zone 42N

FARYAB

INDEX MAP

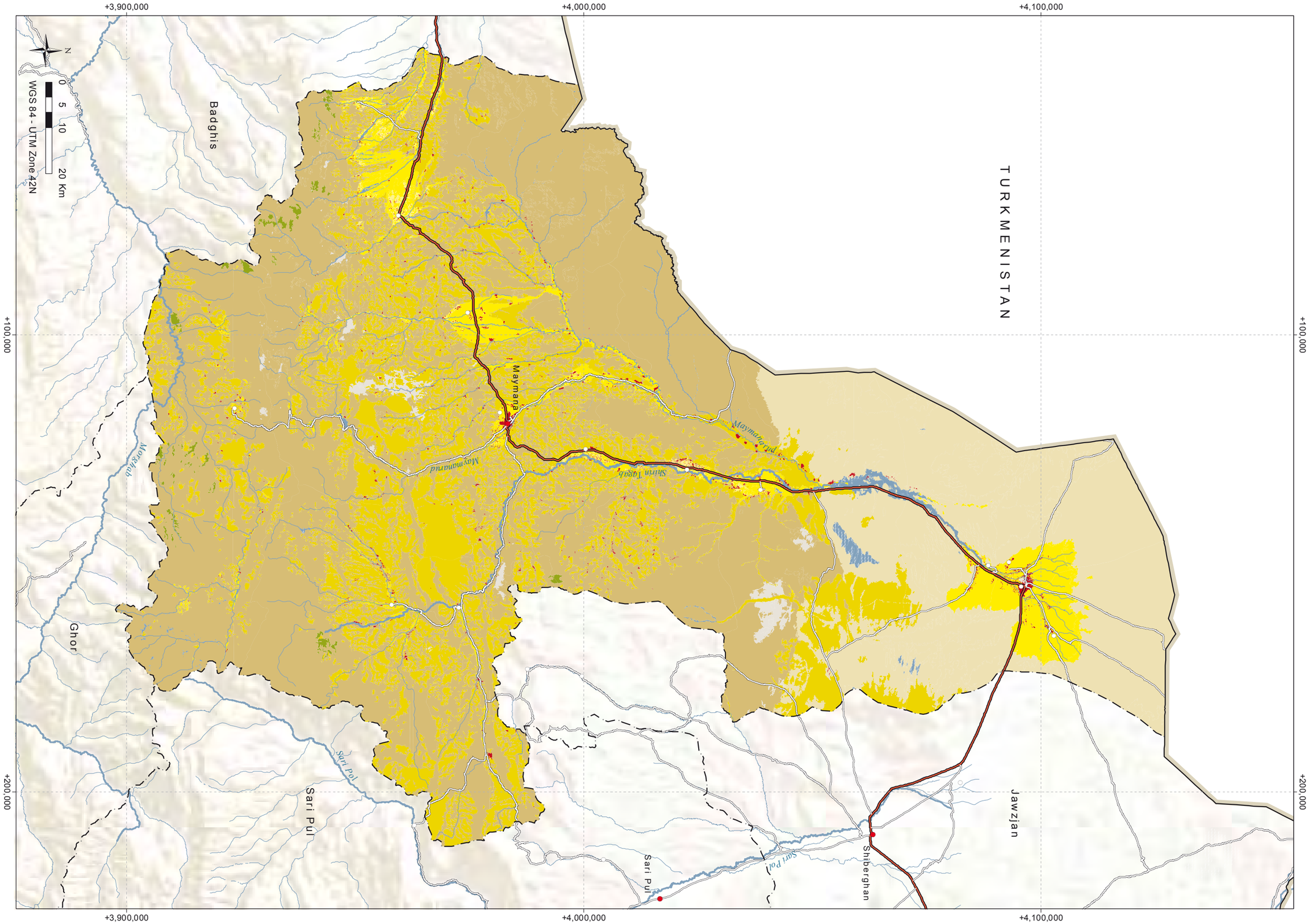


Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Almar	11,784	21,538	23	263	3,860	0	0	118,674	0	1,027	1,775	**158,944**
Andkhoy	5,648	3,757	14	29	131	20,864	0	5,960	0	1,178	102	**37,682**
Bil Cheragh	1,692	48,574	94	3	465	0	145	60,922	0	511	233	**112,639**
Dawlat Abad	6,368	58,095	18	421	4,934	73,775	0	120,497	0	1,100	7,606	**272,813**
Garziwan	3,534	55,747	191	0	99	0	843	125,363	0	747	302	**186,827**
Khan-e Char Bagh	21,695	0	11	9	0	69,915	0	2,044	0	468	122	**94,264**
Khwaja Sabzposh	2,455	18,710	59	746	36	0	226	32,406	0	713	298	**55,649**
Kohestan	2,802	31,499	117	0	235	0	2,872	192,014	0	439	900	**230,877**
Maymana	2,205	5,942	75	90	63	0	0	5,117	0	1,073	186	**14,750**
Pashtun Kot	9,605	106,156	357	336	6,749	0	0	141,777	0	1,913	2,050	**268,942**
Qaram Qol	8,335	1,666	9	4	0	70,779	0	24,179	0	399	1,427	**106,799**
Qaysar	23,612	56,794	303	3,807	5,876	0	2,549	156,857	0	1,727	2,980	**254,504**
Qorghan	9,875	0	15	18	11	65,040	0	5,671	0	420	49	**81,098**
Shirin Tagab	3,075	31,173	42	1,399	79	70	0	156,586	0	1,696	1,938	**196,059**
TOTAL (ha)	**112,683**	**439,651**	**1,327**	**7,124**	**22,541**	**300,442**	**6,634**	**1,148,068**	**0**	**13,411**	**19,968**	**2,071,848**
TOTAL (%)	**5.4**	**21.2**	**0.1**	**0.3**	**1.1**	**14.5**	**0.3**	**55.4**	**0.0**	**0.6**	**1.0**	**100**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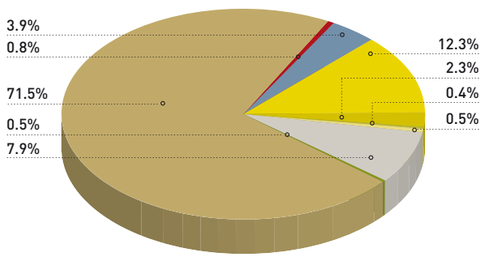
WGS 84 - UTM Zone 42N
Badghis
Ghor
Sari Pul
Jawzjan
Shibirghan
TURKMENISTAN
Maymana
Murghab
Maymana rud
Shirin Tagab
Sari Pol

GHAZNI

INDEX MAP



Land Cover in percentage

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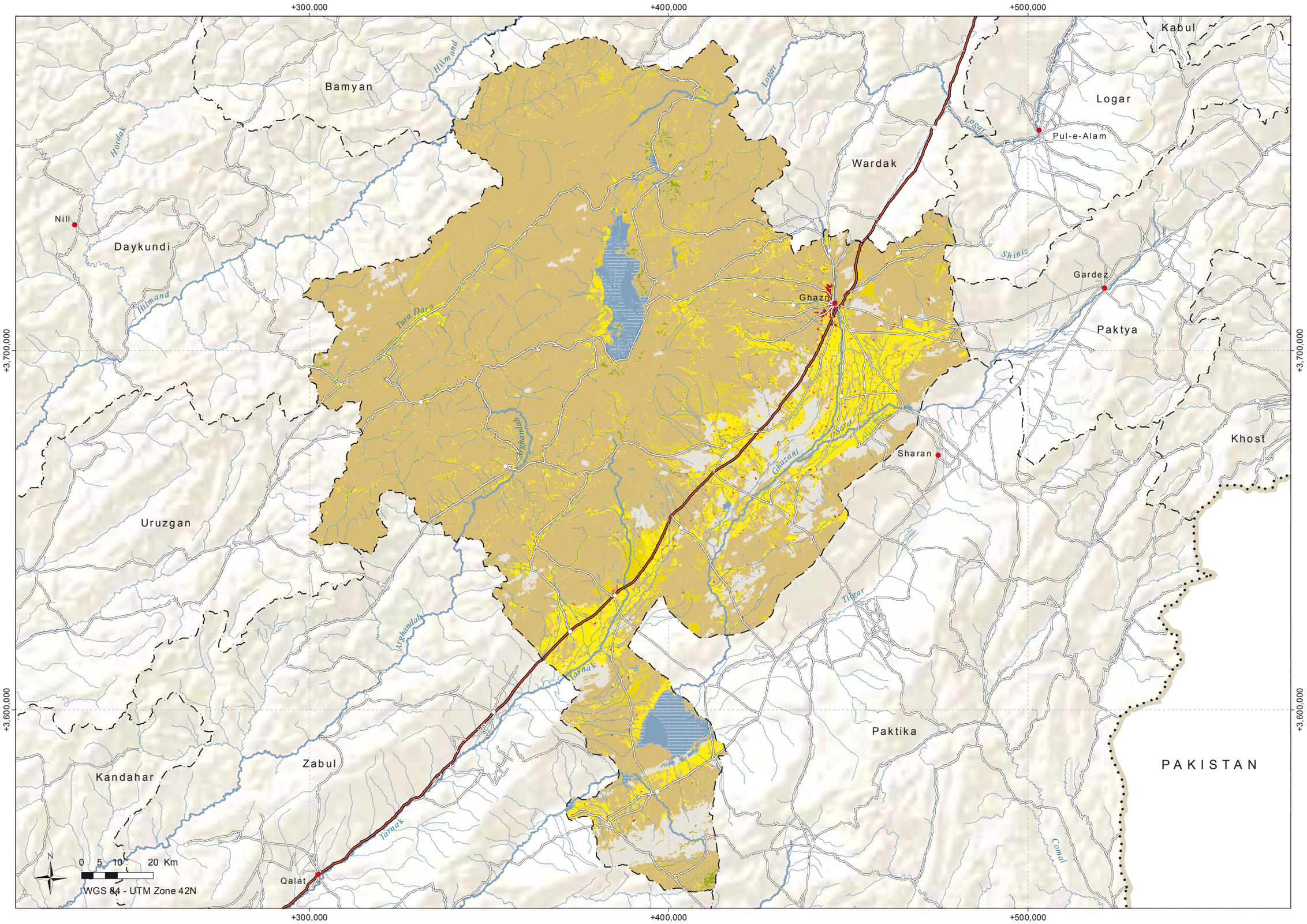
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Ab Band	13,996	3,802	79	406	15,746	0	180	63,460	0	739	2,132	**100,539**
Ajrestan	7,202	1,001	80	0	8,147	0	776	132,662	0	170	2,245	**152,283**
Andar	36,837	16	402	2,029	12,855	0	80	15,257	0	1,864	1,533	**70,874**
Deh Yak	20,706	782	506	373	8,537	0	231	40,352	0	822	47	**72,357**
Gelan	29,662	3,728	608	2,673	14,680	0	242	55,877	0	1,056	2,550	**111,075**
Ghazni	10,539	1,882	634	1,522	3,987	0	27	13,534	0	3,066	770	**35,963**
Giro	19,488	1,037	45	478	19,021	0	58	45,577	0	861	1,942	**88,508**
Jaghatu	9,681	1,746	133	8	57	0	281	52,776	0	294	399	**65,375**
Jaghuri	15,831	341	2,585	1	2,173	0	36	185,542	0	1,045	1,721	**209,274**
Khwaja Umari	1,904	741	499	0	2,524	0	28	14,832	0	239	141	**20,906**
Malestan	7,665	296	334	0	273	0	35	166,967	0	650	1,796	**178,016**
Muqur	12,264	9,058	150	675	8,640	0	119	52,348	0	740	2,647	**86,641**
Nawa	19,935	42	668	399	37,049	0	2,732	78,498	0	875	26,364	**166,562**
Nawur	19,121	16,929	103	1	5,192	0	5,017	439,074	0	550	35,572	**521,559**
Qarabagh	26,853	7,384	807	1,276	25,406	0	476	97,576	0	2,211	2,654	**164,643**
Rashidan	4,746	206	52	0	1,223	0	9	31,794	0	408	355	**38,794**
Waghaz	7,129	354	272	249	4,758	0	23	25,363	0	531	486	**39,166**
Wali Muhammad-e-Shahid	2,207	0	129	83	458	0	0	10,926	0	204	70	**14,078**
Zana Khan	1,589	1,368	58	0	846	0	29	25,804	0	182	296	**30,173**
TOTAL (ha)	**267,357**	**50,714**	**8,146**	**10,173**	**171,571**	**0**	**10,380**	**1,548,219**	**0**	**16,506**	**83,722**	**2,166,787**
TOTAL (%)	**12.3**	**2.3**	**0.4**	**0.5**	**7.9**	**0.0**	**0.5**	**71.5**	**0.0**	**0.8**	**3.9**	**100**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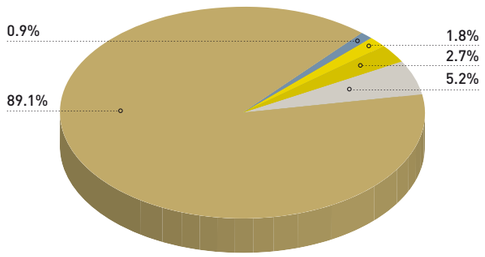
Kabul
Logar
Pul-e-Alam
Wardak
Bamyan
Hilmand
Logar
Horduk
Nili
Daykundi
Hilmand
Shiniz
Gardez
Ghazni
Tura Dara
Paktya
Arghandab
Sard
Ghuzani
Sharan
Khost
Uruzgan
Tilgar
Arghandab
Tarnak
Paktika
Zabul
Kandahar
PAKISTAN
Comal
Tarnak
N
0 5 10 20 Km
WGS 84 - UTM Zone 42N
Qalat

GHOR

INDEX MAP

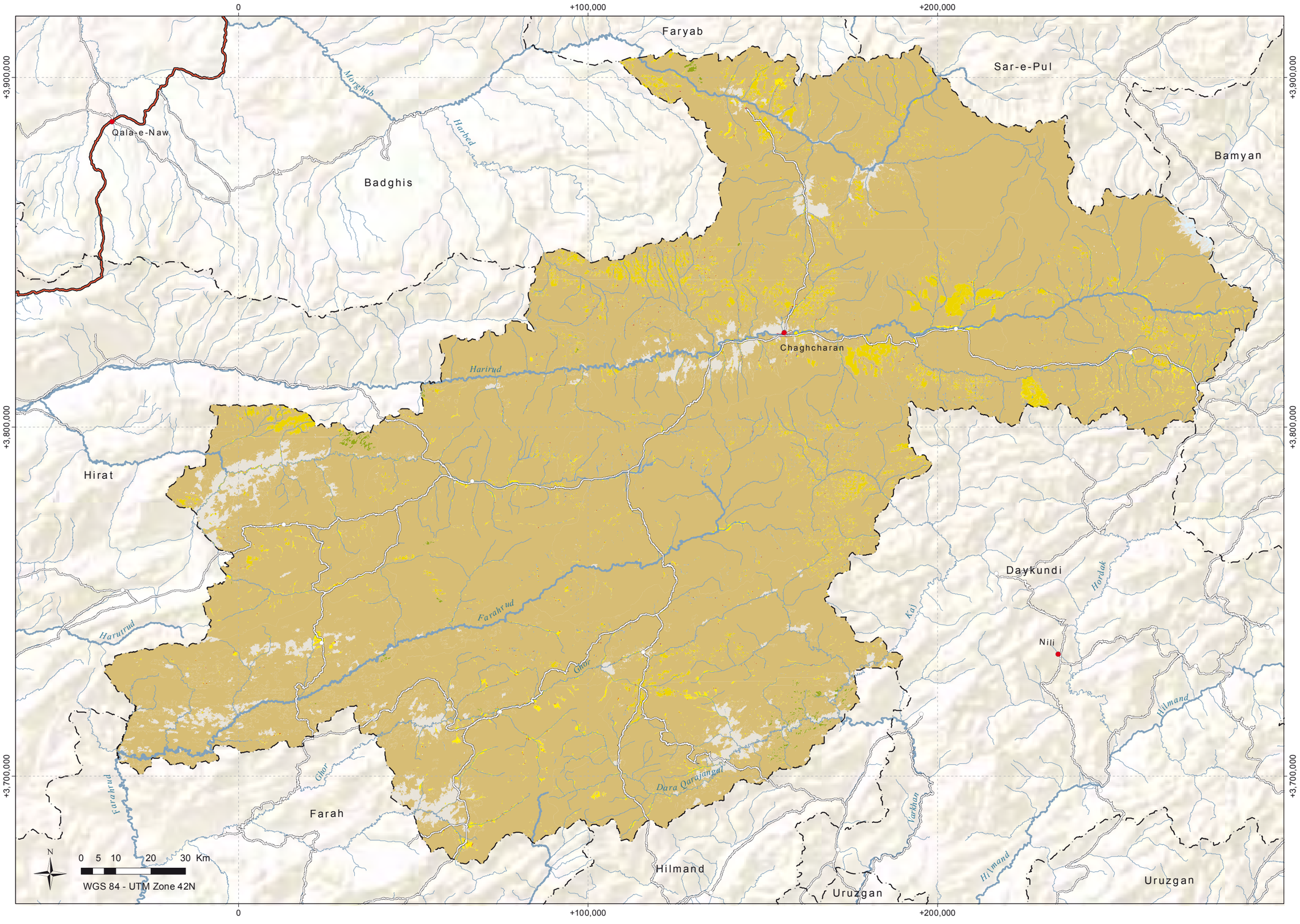


Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Chaghcharan	7,263	37,352	84	0	35,398	0	70	682,188	0	1,370	8,361	**772,085**
Chahar Sadra	2,787	10,540	226	0	4,627	0	649	109,980	0	269	606	**129,683**
Dawlat Yar	3,854	13,462	8	0	225	0	0	149,104	0	334	3,124	**170,111**
Dolayna	4,629	10,721	38	0	3,157	0	66	440,689	0	358	8,167	**467,823**
Lal Wa Sarjangal	12,605	8,425	9	0	4,145	0	0	356,318	2,356	573	3,759	**388,190**
Pasaband	9,903	6,256	152	0	28,883	0	3,017	397,660	0	249	1,755	**447,874**
Saghar	2,396	67	230	0	47,538	0	147	214,891	0	216	280	**265,764**
Shahrak	5,597	3,408	359	0	7,239	0	384	412.747	0	352	3,987	**434,072**
Taywarah	12,066	301	160	0	30,709	0	186	321,434	0	597	1,287	**366,739**
Tolak	5,250	7,984	13	0	31,876	0	1,686	222,497	0	234	1,268	**270,807**
TOTAL (ha)	**66,349**	**98,514**	**1,280**	**0**	**193,797**	**0**	**6,204**	**3,307,506**	**2,356**	**4,550**	**32,593**	**3,713,149**
TOTAL (%)	**1.8**	**2.7**	**0.0**	**0.0**	**5.2**	**0.0**	**0.2**	**89.1**	**0.1**	**0.1**	**0.9**	**100**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Sar-e-Pul
Bamyan
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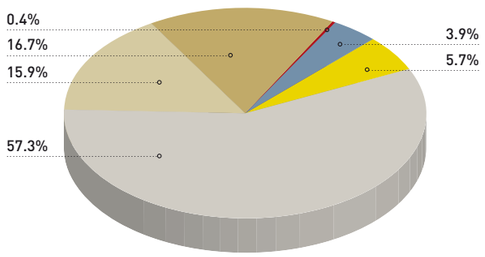
Morghab
Harhad
Chaghcharan
Harirud
Hirat
Daykundi
Nili
Hordak
Kaj
Helmand
Farahrud
Harutrud
Ghor
Farah
Dara Qarajangal
Farahrud
Tarkhan
Hilmand
Uruzgan
N
0 5 10 20 30 Km
WGS 84 - UTM Zone 42N

HILMAND

INDEX MAP

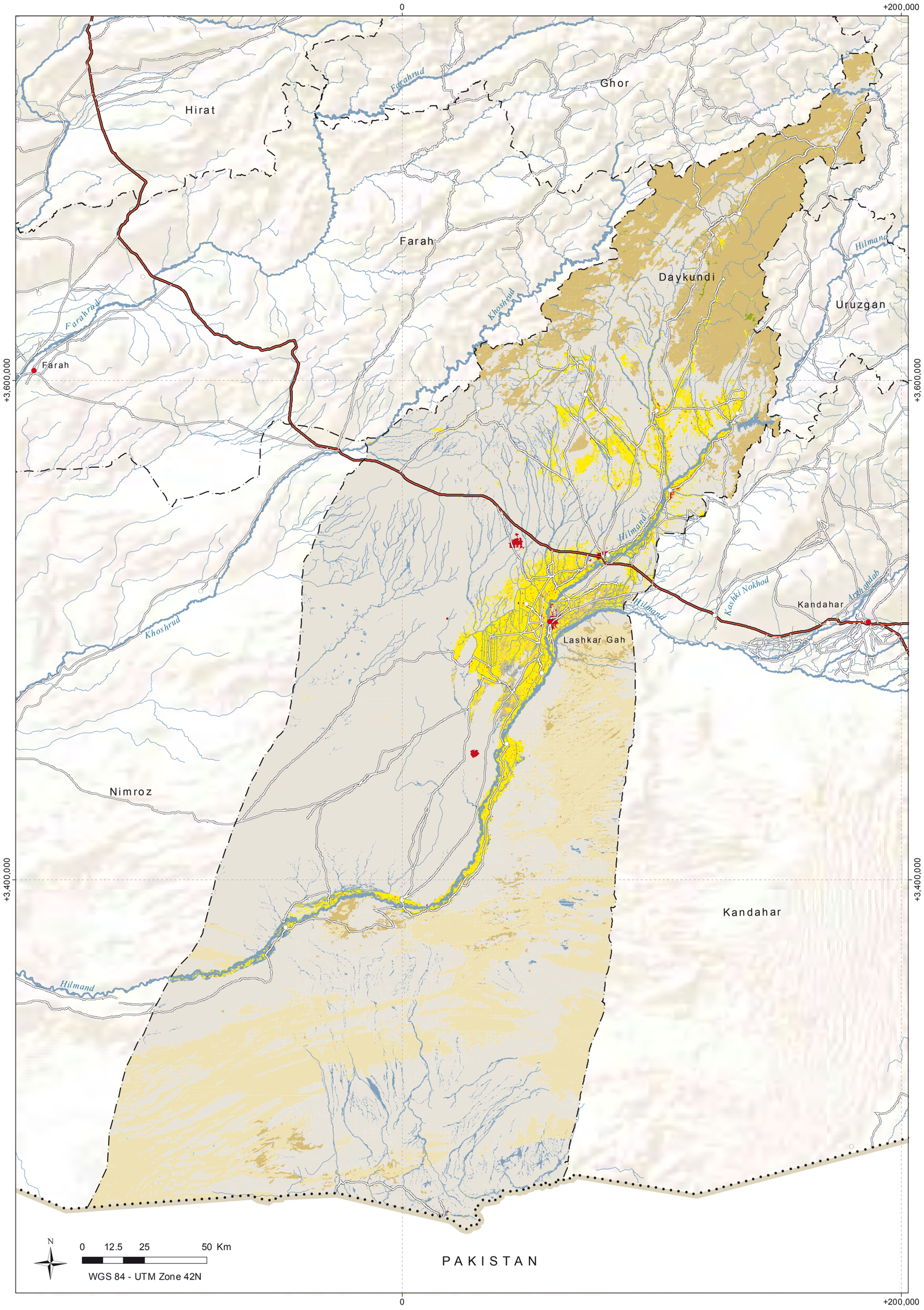
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land	Rainfed Ag. Land	Fruit Trees	Vineyards	Barren Land	Sand Cover	Forest & Shrubs	Rangeland	Permanent Snow	Built-up	Water Body & Marshland	TOTAL LAND
	AGI	**AGR**	**AGT**	**AGV**	**BRS**	**BSD**	**NFS**	**NHS**	**SNW**	**URB**	**WAT**	
	3A, 3A1 3B, 3C	4A, 4B	2A	2B	8A	8B, 8C	6A, 6B 6B1, 6C	7	13	1A, 1B	9A, 9B, 10A 10B, 11, 12	
Baghran	13,426	0	132	0	66,067	0	1,552	301,227	0	926	2,794	**386.123**
Dehe Shu	4,374	0	0	119	428,115	392,318	23	64,396	0	64	23,057	**912,467**
Garmser	31,360	0	29	335	835,124	485,647	121	245,588	0	2,863	69,113	**1,670,180**
Kajaki	26,874	0	69	134	88,269	0	1,381	98,723	0	1,911	10,467	**227,828**
Lashkargah	21,388	0	146	85	43,928	59,917	0	45,416	0	3,999	8,822	**183,702**
Musaqalah	25,462	0	237	51	68,188	0	0	25,596	0	1,921	9,315	**130,770**
Nad-e-Ali	75,101	0	223	18	478,348	651	4	11,693	0	3,807	21,464	**591,308**
Nahr-e-Saraj	42,206	0	343	55	98,795	0	9	6,685	0	3,570	12,100	**163,763**
Nawa-e-Barakzaiy	26,431	0	95	31	17,691	130	0	9,121	0	1,177	6,073	**60,751**
Nawzad	43,978	555	508	35	196,045	0	444	155,465	0	1,584	15,832	**414,445**
Reg	12,347	0	1	81	680,836	15,428	0	2,532	0	413	19,550	**731.188**
Sangin	9,898	0	159	1	36,261	0	0	12,275	0	1,654	3,589	**63,838**
Washer	9,327	0	14	3	399,299	0	0	24,486	0	1,940	29,418	**464,488**
TOTAL (ha)	**342,172**	**555**	**1,957**	**949**	**3,436,966**	**954,091**	**3,534**	**1,003,204**	**0**	**25,828**	**231,595**	**6,000,851**
TOTAL (%)	**5.7**	**0.0**	**0.0**	**0.0**	**57.3**	**15.9**	**0.1**	**16.7**	**0.0**	**0.4**	**3.9**	**100**



Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.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Ghor
Daykundi
Uruzgan
Nimroz
Kandahar
Farah
Farahrud
Khoshrud
Hilmand
Kashki Nokhod
Arghandab
Lashkar Gah
Kandahar
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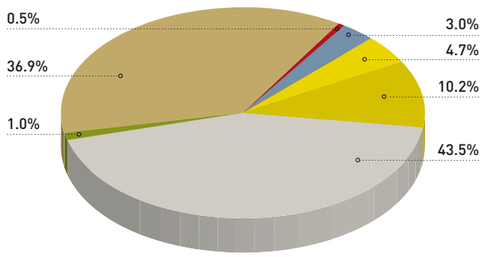
WGS 84 - UTM Zone 42N
PAKISTAN

HIRAT

INDEX MAP

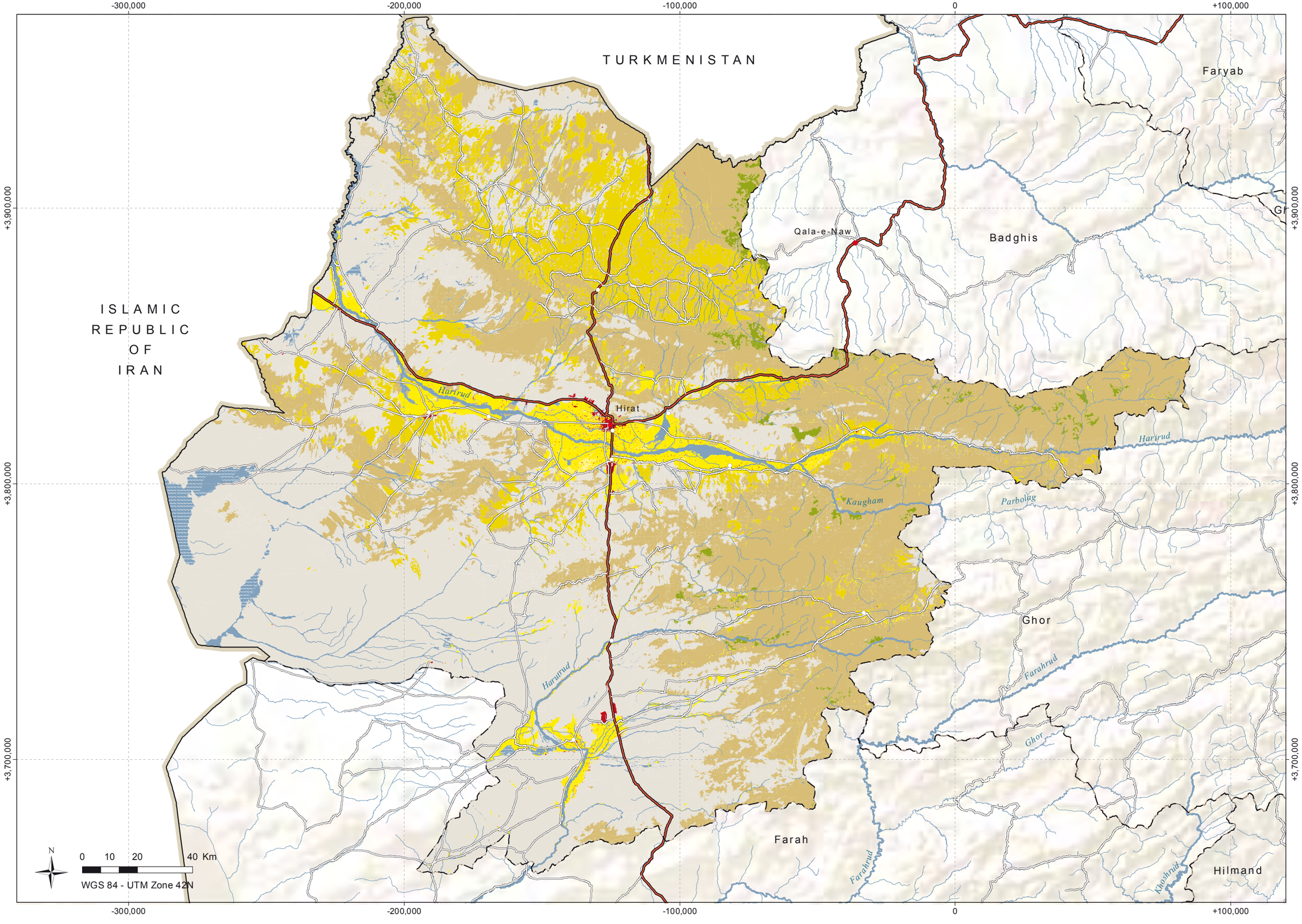


Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land	Rainfed Ag. Land	Fruit Trees	Vineyards	Barren Land	Sand Cover	Forest & Shrubs	Rangeland	Permanent Snow	Built-up	Water Body & Marshland	TOTAL LAND
	AGI	AGR	AGT	AGV	BRS	BSD	NFS	NHS	SNW	URB	WAT	
	3A, 3A1 3B, 3C	4A, 4B	2A	2B	8A	8B, 8C	6A, 6B 6B1, 6C	7	13	1A, 1B	9A, 9B, 10A 10B, 11, 12	
Adraskan	16,092	7,802	46	4	659,078	0	7,312	281,852	0	522	25,685	**998,393**
Chisht-e-Sharif	4,105	4,786	622	37	17,303	0	7,769	231,976	0	279	1,759	**250,637**
Farsi	7,180	9,882	19	0	22,287	0	2,200	161,799	0	155	497	**204,018**
Ghoryan	22,509	54,932	13	565	421,528	0	0	184,574	0	1,640	50,196	**735,958**
Gulran	1,703	153,925	15	68	233,931	1,803	2,427	202,267	0	1,580	12,596	**610,316**
Guzara	35,133	15,193	61	3,286	134,112	0	0	69,775	0	2,867	5,260	**265,687**
Herat	1,568	0	67	231	1,994	0	0	1,088	0	3,170	231	**8,332**
Injil	36,112	8,672	117	1,401	36,856	0	0	46,228	0	4,019	5,858	**139,262**
Karukh	19,630	21,712	62	130	31,903	0	3,118	114,600	0	682	7,618	**199,454**
Kohsan	12,146	12,037	2	15	144,343	0	0	43,524	0	951	9,859	**222,876**
Kushk	4,151	161,919	46	23	21,044	1,099	14	94,683	0	1,948	3,629	**288,555**
Kushk-e-Kohna	1,511	56,140	25	2	2,585	0	20,082	83,630	0	509	1,621	**166,103**
Obe	13,564	20,844	345	716	24,004	0	7,872	189,340	0	841	4,813	**262,339**
Pashtun Zarghun	27,299	12,680	237	551	52,753	0	1,431	84,051	0	972	9,831	**189,803**
Shindand	39,238	0	30	268	482,915	0	1,371	154,519	0	3,816	17,423	**699,579**
Zindajan	18,035	18,617	10	264	103,385	0	0	102,525	0	859	8,778	**252,473**
TOTAL (ha)	**259,975**	**559,141**	**1,717**	**7,561**	**2,390,020**	**2,903**	**53,595**	**2,028,430**	**0**	**24,808**	**165,637**	**5,493,787**
TOTAL (%)	**4.7**	**10.2**	**0.0**	**0.1**	**43.5**	**0.1**	**1.0**	**36.9**	**0.0**	**0.5**	**3.0**	**100**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0
+100,000
+3,900,000
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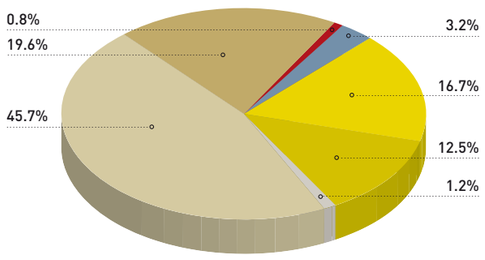
+3,700,000
TURKMENISTAN
ISLAMIC
REPUBLIC
OF
IRAN
Faryab
Qala-e-Naw
Badghis
Harirud
Hirat
Kaugham
Parbolag
Ghor
Farahrud
Ghor
Farah
Farahrud
Khoshrud
Hilmand
Harirud
N
0 10 20 40 Km
WGS 84 - UTM Zone 42N

JAWZJAN

INDEX MAP



Land Cover in percentage

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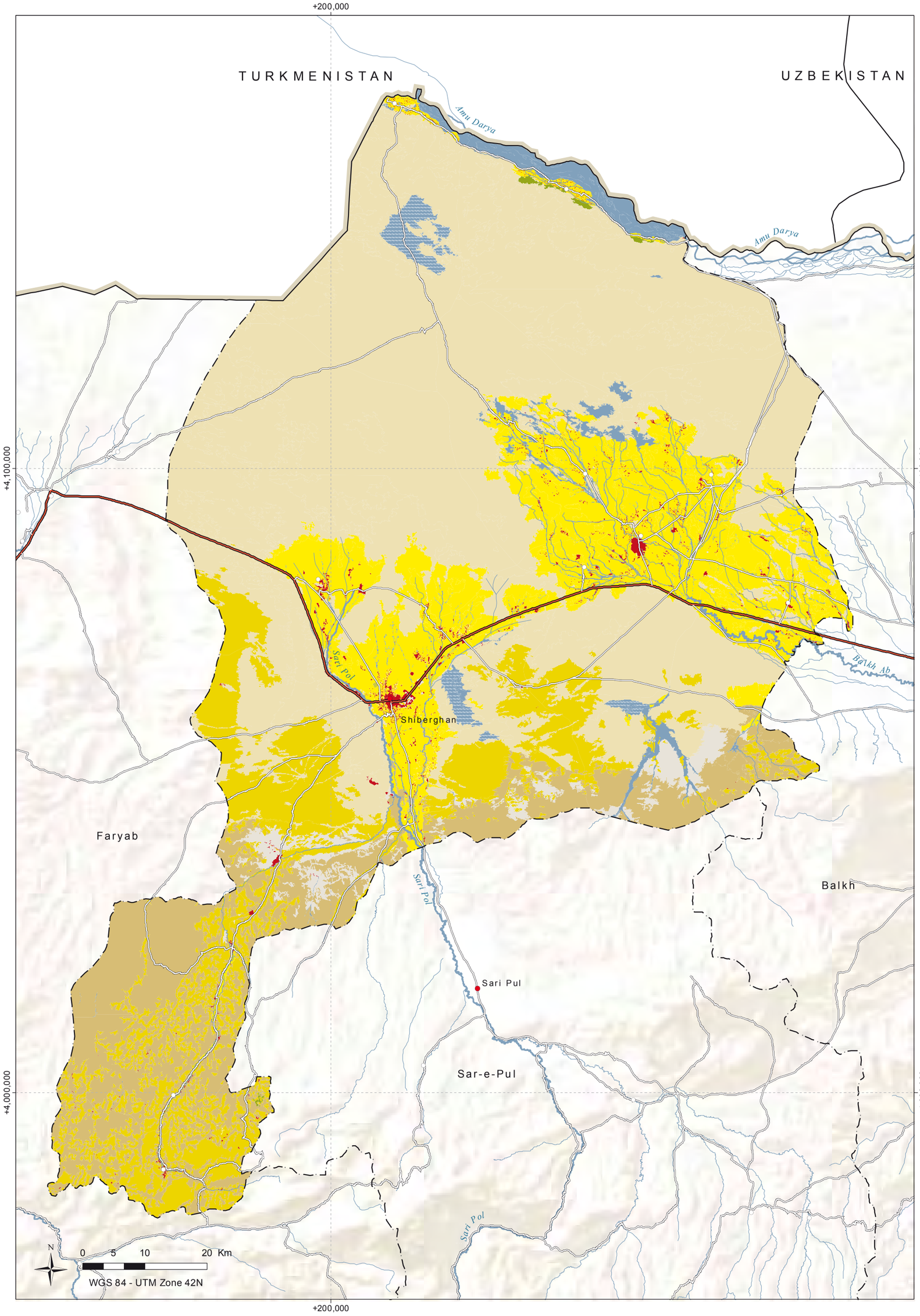
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Aqcha	13,770	0	49	1	8	98	0	63	0	1,227	354	**15,568**
Darzab	99	25,849	92	22	0	0	107	21,201	0	331	139	**47,839**
Fayzabad	34,792	10,885	40	0	5,803	22,552	0	37,931	0	768	5,294	**118,085**
Khamyab	1,433	0	6	0	0	75,329	0	2,164	0	165	7,831	**86,928**
Khanaqa	11,069	4,480	9	22	0	22,709	0	9,657	0	438	417	**48.800**
Khwaja Du Koh	28,866	7,290	12	3	0	145,271	0	25,079	0	845	328	**207,692**
Mardyan	23,344	0	29	8	20	43,924	0	1,029	0	843	1,535	**70,730**
Mingajik	32,734	0	6	0	0	46,452	0	3,759	0	718	4,537	**88,207**
Qarquin	1,964	0	5	0	2	109,402	902	452	0	254	10,524	**123,506**
Qush Tepa	1,209	24,809	1	21	58	0	0	61,458	0	388	199	**88,142**
Shiberghan	36,979	66,137	91	481	7,013	42,888	0	54,917	0	3,202	4,812	**216,519**
TOTAL (ha)	**186,258**	**139,448**	**339**	**557**	**12,904**	**508,624**	**1,009**	**217,708**	**0**	**9,179**	**35,970**	**1,111,996**
TOTAL (%)	**16.7**	**12.5**	**0.0**	**0.1**	**1.2**	**45.7**	**0.1**	**19.6**	**0.0**	**0.8**	**3.2**	**100**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UZBEKISTAN
Amu Darya
Amu Darya
+4,100,000
+4,100,000
Sari Pol
Balkh Ab
Shiberghan
Faryab
Sari Pol
Balkh
Sari Pul
Sar-e-Pul
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+4,000,000
Sari Pol
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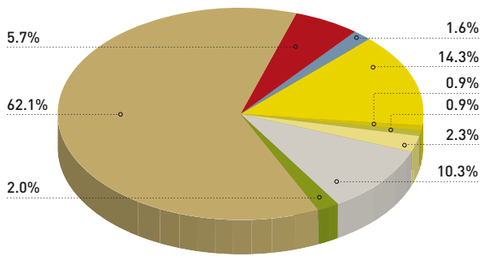
WGS 84 - UTM Zone 42N
+200,000

KABUL

INDEX MAP



Land Cover in percentage

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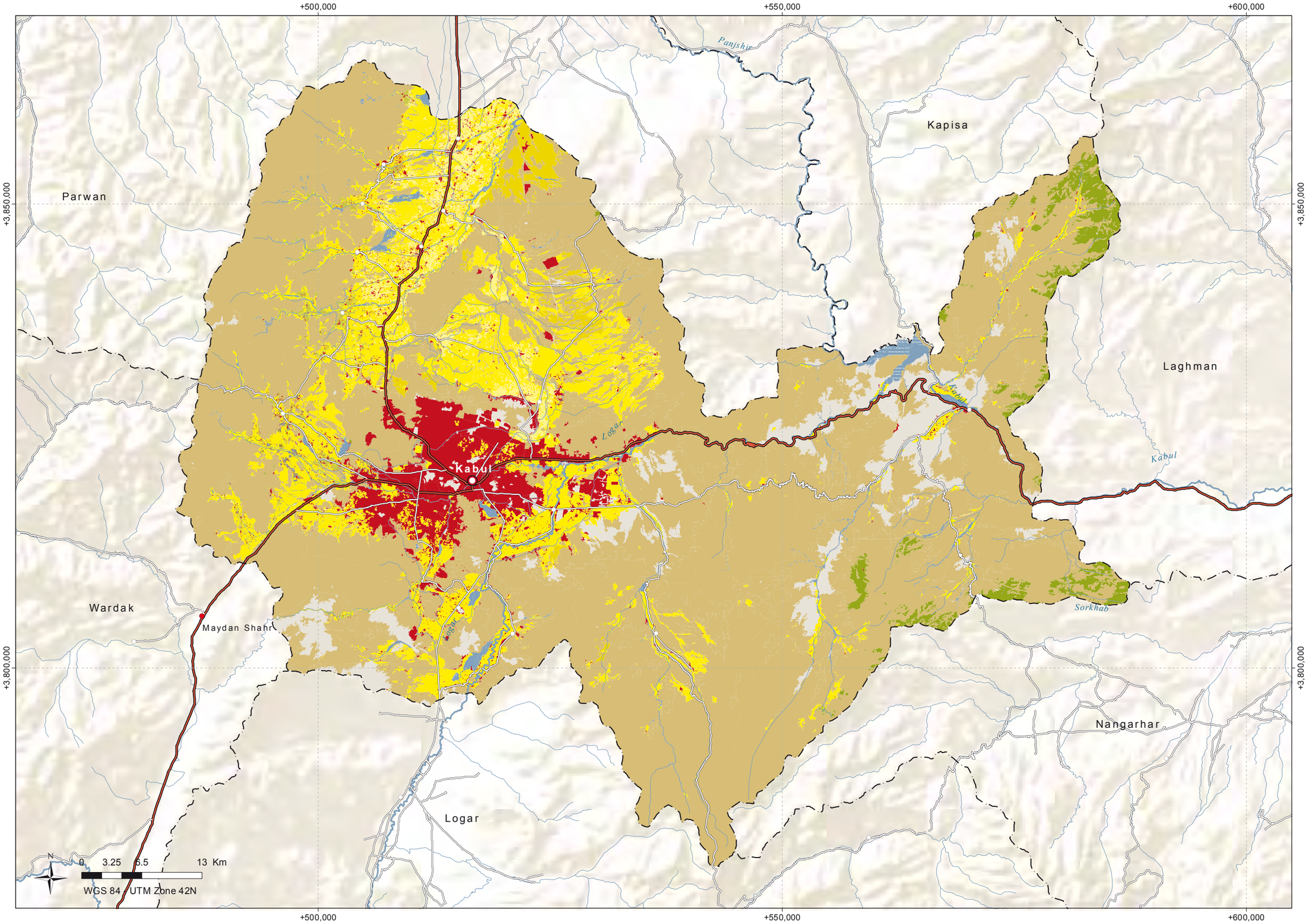
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Bagrami	6,276	162	44	2	6,648	0	2	12,158	0	2,330	325	**27,947**
Chahar Asyab	3,755	0	209	0	5,666	0	0	15,260	0	571	276	**25,736**
Dehsabz	13,881	1,600	28	1,919	3,708	0	43	23,561	0	1,156	257	**46,153**
Estalef	1,163	0	199	369	8	0	0	8,985	0	169	50	**10,942**
Farza	1,715	0	334	277	26	0	0	6,171	0	99	340	**8,962**
Guldara	1,187	0	249	176	1	0	0	5,687	0	71	200	**7,572**
Kabul	4,340	1	209	225	2,553	0	0	9,416	0	17,727	516	**34,987**
Kalakan	2,654	262	3	1,607	106	0	0	2,452	0	254	152	**7,491**
Khake Jabbar	2,479	148	21	0	4,083	0	0	51,437	0	101	201	**58,470**
Mir Bacha Kot	2,472	0	5	1,240	2	0	0	2,369	0	333	156	**6,576**
Musayi	1,836	0	9	0	1,513	0	0	6,917	0	290	479	**11,043**
Paghman	8,081	0	1,419	31	457	0	100	24,587	0	908	537	**36,121**
Qarabagh	4,929	1,796	119	3,247	55	0	0	9,469	0	633	614	**20,862**
Shakardara	8,396	368	986	1,475	670	0	1	18,198	0	1,396	268	**31,757**
Surobi	3,585	2	166	31	22,504	0	9,098	92,242	0	314	2,968	**130,908**
TOTAL (ha)	**66,748**	**4,340**	**4,000**	**10,600**	**47,998**	**0**	**9,244**	**288,908**	**0**	**26,350**	**7,340**	**465,528**
TOTAL (%)	**14.3**	**0.9**	**0.9**	**2.3**	**10.3**	**0.0**	**2.0**	**62.1**	**0.0**	**5.7**	**1.6**	**100**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+3,850,000
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Parwan
Kapisa
Laghman
Wardak
Nangarhar
Logar
Kabul
Maydan Shahr
Panjshir
Logar
Kabul
Kabul
Sorkhab
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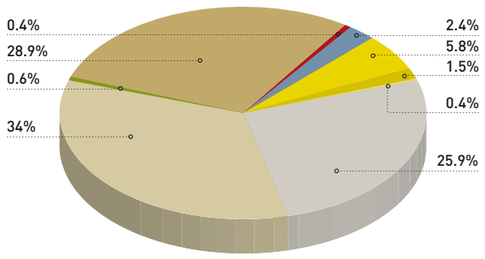
3.25
6.5
13 Km
WGS 84 / UTM Zone 42N

KANDAHAR

INDEX MAP



Land Cover in percentage

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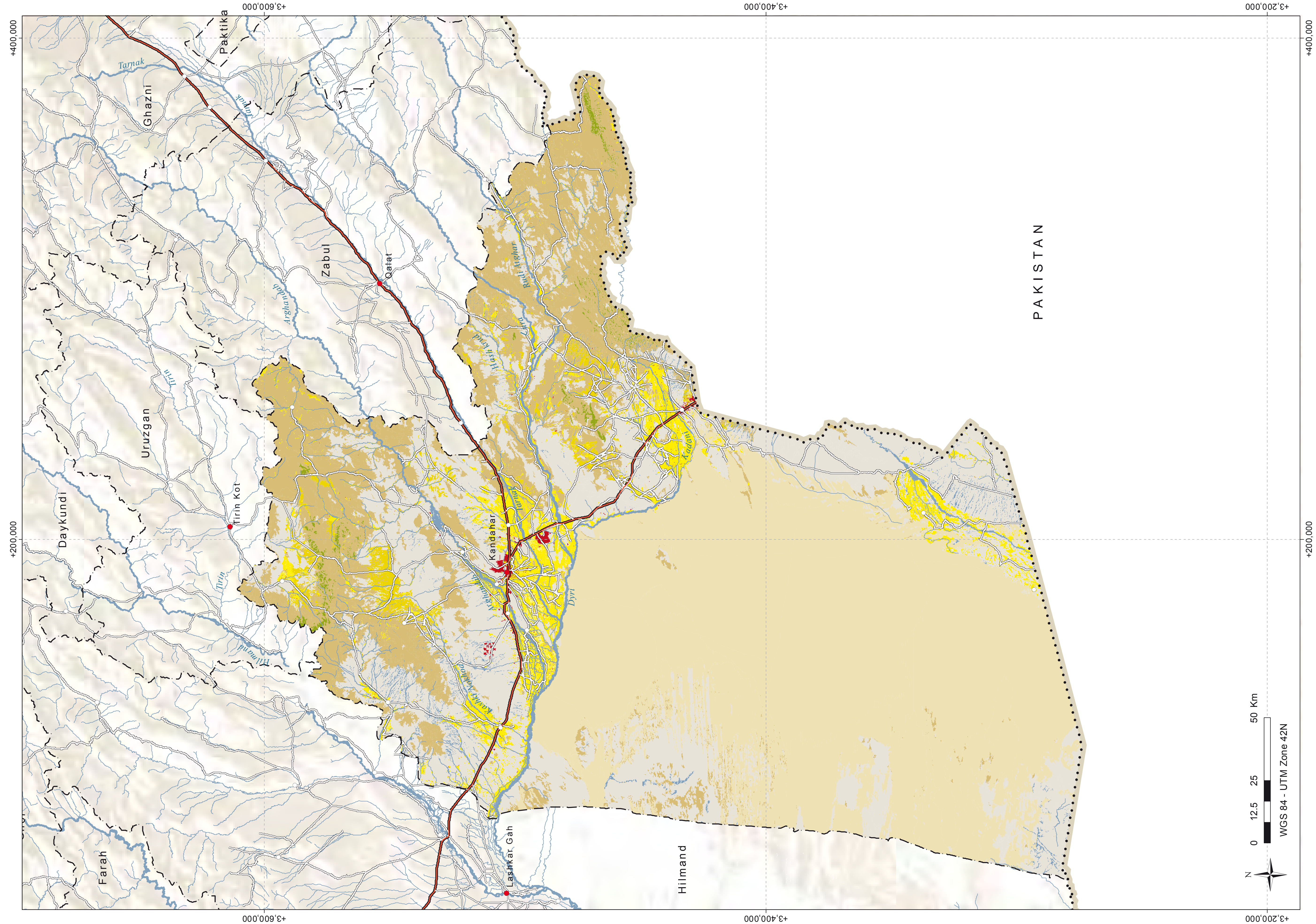
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Arghandab	5,686	0	2,448	1,764	30,818	0	2	9,619	0	1,380	3,002	**54,719**
Arghestan	19,476	19,265	694	11	135,591	0	7,876	190,534	0	973	15,434	**389,854**
Daman	40,184	1,512	17	38	68,127	162,861	0	129,386	0	1,046	7,769	**410,940**
Ghorak	5,519	0	27	2	57,983	0	0	69,234	0	291	11,028	**144,084**
Kandahar	40.369	0	785	5,250	12,749	761	25	4,169	0	8,910	4,084	**77,103**
Khakrez	4,954	23,102	232	277	55,655	0	288	71,686	0	294	8,262	**164,751**
Maruf	9,197	63	280	484	88,013	0	10,209	204,209	0	374	5,480	**318,309**
Maywand	36,965	0	62	569	156,333	39,051	33	58,453	0	1,033	17,328	**309,827**
Miyanshin	3,482	398	1,044	0	8,269	0	36	76,127	0	22	85	**89,463**
Nesh	8,053	13,424	78	291	33,697	0	7.899	62,497	0	253	1,909	**128,101**
Panjwayi	14,930	0	140	6,584	109,585	302,301	15	153,360	0	960	8,334	**596,208**
Reg	3,434	0	0	0	119,192	1,039,971	0	185,311	0	2	4,102	**1,352,012**
Shah Wali Kot	8,887	14,217	2,435	12	124,347	0	3,576	165,340	0	544	8,577	**327,936**
Shorabak	40,363	14	0	27	198,255	119,842	36	43,306	0	64	15,403	**417,309**
Spin Boldak	58,535	10,898	122	476	165,094	174,214	2,263	136,779	0	2,962	17,147	**568,489**
Zheray	12,431	0	234	4,056	39,144	0	0	6,244	0	2,130	3,147	**67,385**
TOTAL (ha)	**312,465**	**82,892**	**8,599**	**19,840**	**1,402,853**	**1,839,000**	**32,258**	**1,566,255**	**0**	**21,237**	**131,091**	**5,416,490**
TOTAL (%)	**5.8**	**1.5**	**0.2**	**0.4**	**25.9**	**34.0**	**0.6**	**28.9**	**0.0**	**0.4**	**2.4**	**100**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Kandahar
Qalat
Tirin Kot
Lashkar Gah
Zabul
Uruzgan
Daykundi
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Paktika
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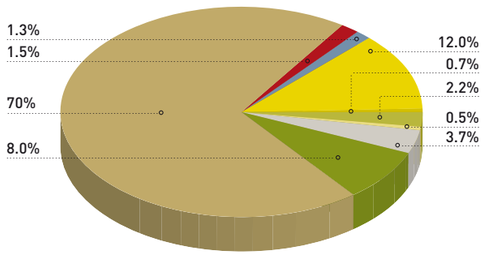
Hilmand
Tarnak
Arghandab
Tirin
+400,000
+200,000
+3,600,000
+3,400,000
+3,200,000
0
12.5
25
50 Km
WGS 84 - UTM Zone 42N
N

KAPISA

INDEX MAP

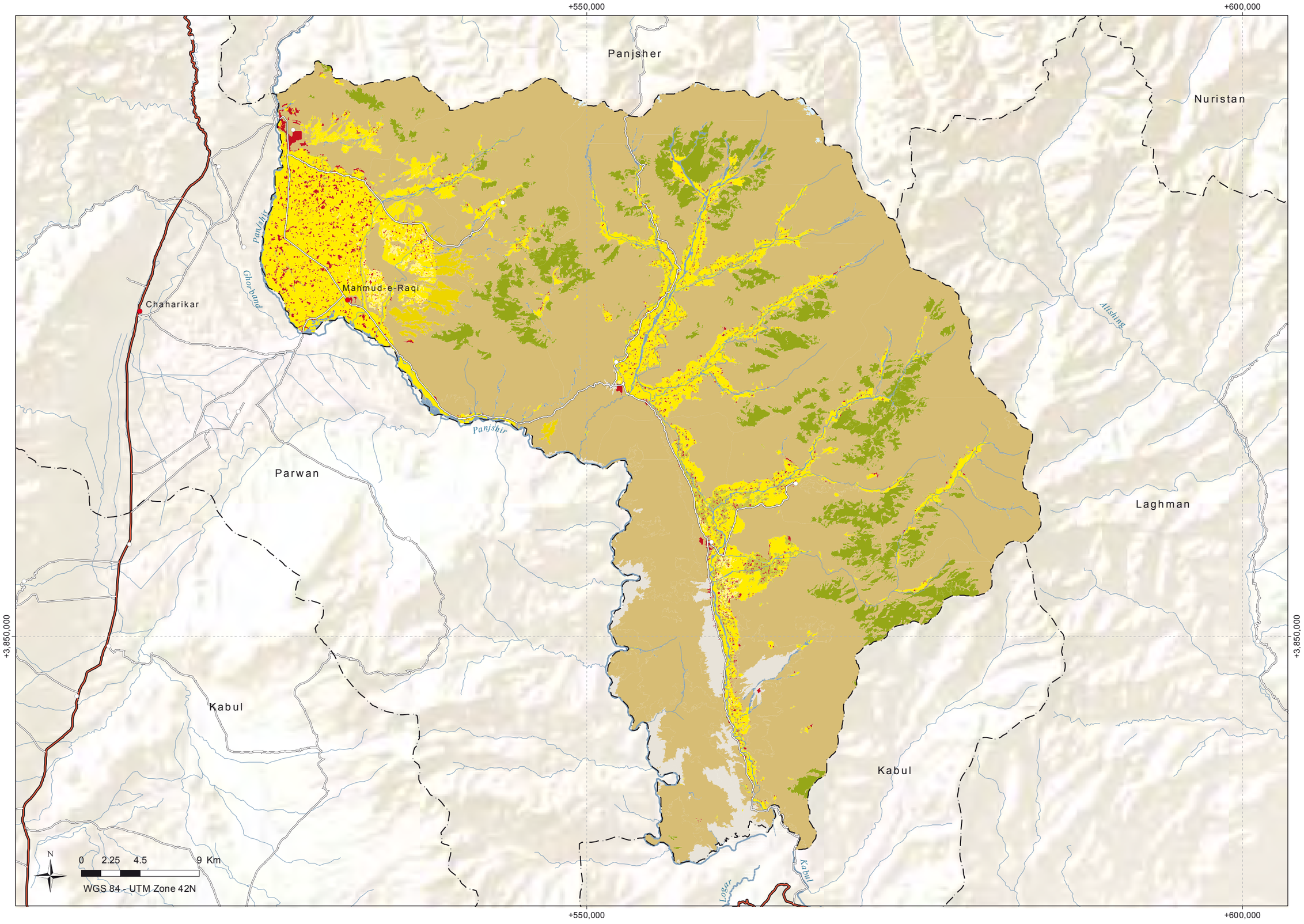
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Alasay	1,475	0	430	1	95	0	4,100	23,778	0	125	249	**30,252**
Hisa-e-Awale Kohestan	2,424	0	166	4	0	0	379	5,217	0	545	64	**8,798**
Hisa-e-Duwum-e-Kohestan	4,039	0	51	35	0	0	0	586	0	514	77	**5,301**
Kohband	1,082	107	336	10	0	0	1,027	12,224	22	57	142	**15,008**
Mahmud-e-Raqi	4,565	1,216	85	645	138	0	405	10,413	0	483	487	**18,438**
Nejrab	5,725	0	1,533	9	81	0	6,208	43,078	107	458	932	**58,132**
Tagab	3,285	0	1,607	226	6,634	0	3,024	36,345	0	554	549	**52,224**
TOTAL (ha)	**22,594**	**1,323**	**4,208**	**930**	**6,949**	**0**	**15,143**	**131,640**	**130**	**2,735**	**2,500**	**188,152**
TOTAL (%)	**12.0**	**0.7**	**2.2**	**0.5**	**3.7**	**0.0**	**8.0**	**70.0**	**0.1**	**1.5**	**1.3**	**100**



Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.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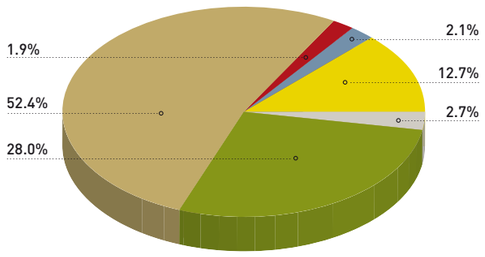
+600,000
+3,850,000
Panjsher
Nuristan
Laghman
Kabul
Parwan
Chaharikar
Mahmud-e-Raqi
Panjshir
Ghorband
Alishing
Logar
Kabul
N
0 2.25 4.5 9 Km
WGS 84 - UTM Zone 42N

KHOST

INDEX MAP

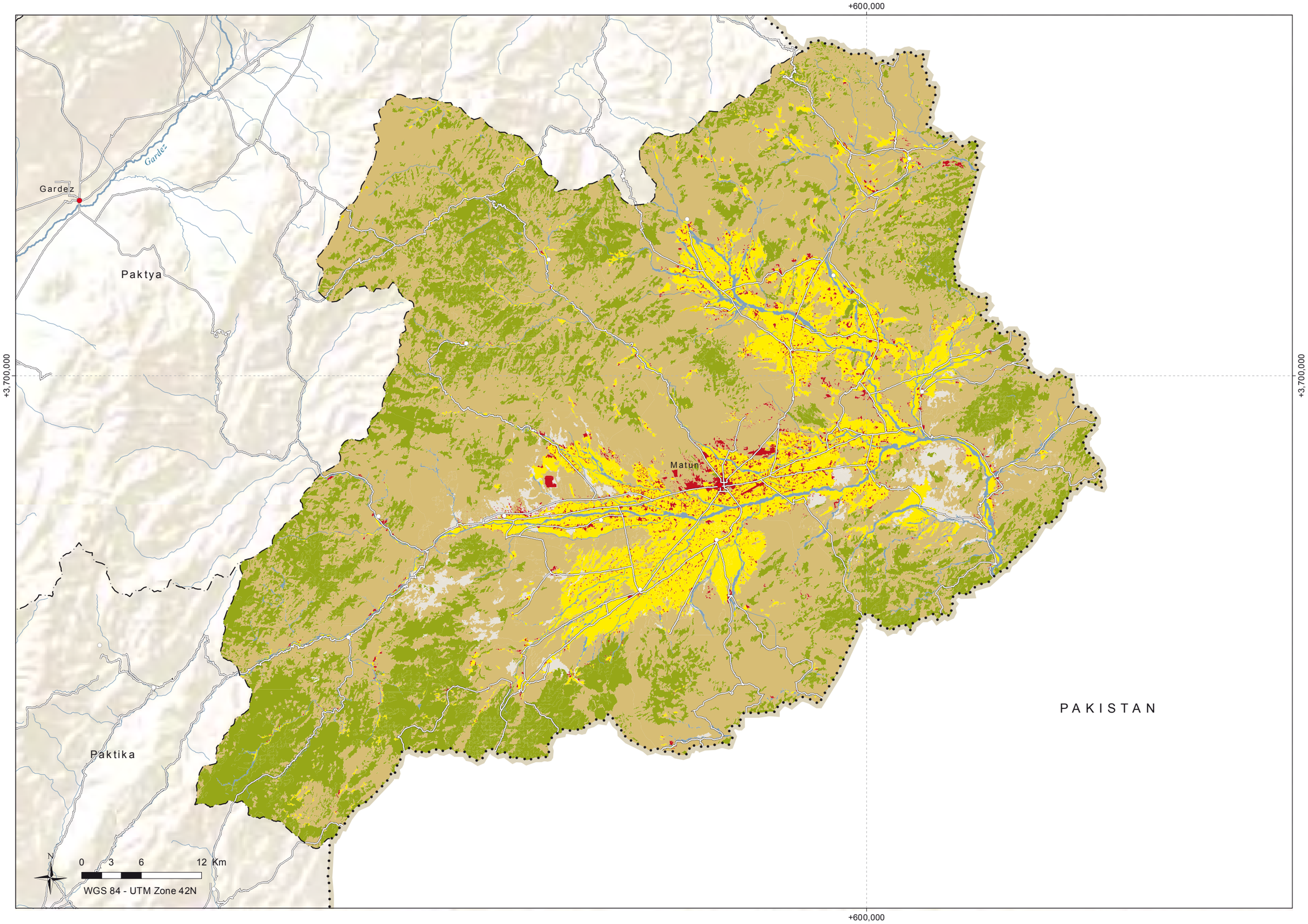


Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.

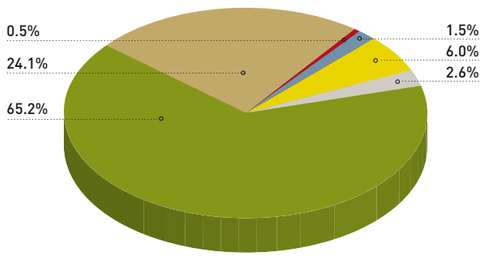
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Bak	2,968	0	1	2	52	0	3,582	9,817	0	285	371	**17,079**
Gurbuz	3,975	14	11	0	153	0	6,967	23,821	0	350	647	**35,937**
Jaji Maydan	1,748	281	9	0	0	0	6,612	23,238	0	318	542	**32,749**
Khost (Matun)	12,586	2	81	0	2,310	0	6,307	22,851	0	3,189	1,793	**49,119**
Mando Zayi	4,824	0	30	0	1,279	0	0	3,731	0	1,023	552	**11,438**
Musa Khel	977	15	0	0	0	0	14,841	26,432	0	40	367	**42,673**
Nadir Shah Kot	2,098	0	25	0	1,091	0	7,722	21,729	0	335	360	**33,359**
Qalandar	177	10	0	0	0	0	8,466	7,008	0	9	27	**15,699**
Sabari	9,355	52	4	0	0	0	8,389	21,105	0	1,014	1,427	**41,345**
Shamal	173	0	17	0	127	0	6,843	9,692	0	76	230	**17,159**
Spera	793	0	0	0	778	0	28,236	18,575	0	137	673	**49,193**
Tani	8,924	0	14	0	1,523	0	14,132	17,319	0	596	516	**43,023**
Tere Zayi	5,921	0	12	0	4,139	0	7,989	19,218	0	743	1,640	**39,662**
TOTAL (ha)	**54,519**	**374**	**203**	**2**	**11,453**	**0**	**120,088**	**224,536**	**0**	**8,114**	**9,145**	**428,434**
TOTAL (%)	**12.7**	**0.1**	**0.0**	**0.0**	**2.7**	**0.0**	**28.0**	**52.4**	**0.0**	**1.9**	**2.1**	**100**


+600,000
+3,700,000
Gardez
Gardez
Paktya
Matun
PAKISTAN
Paktika
N
0 3 6 12 Km
WGS 84 - UTM Zone 42N
+600,000
+3,700,000

KUNAR

INDEX MAP

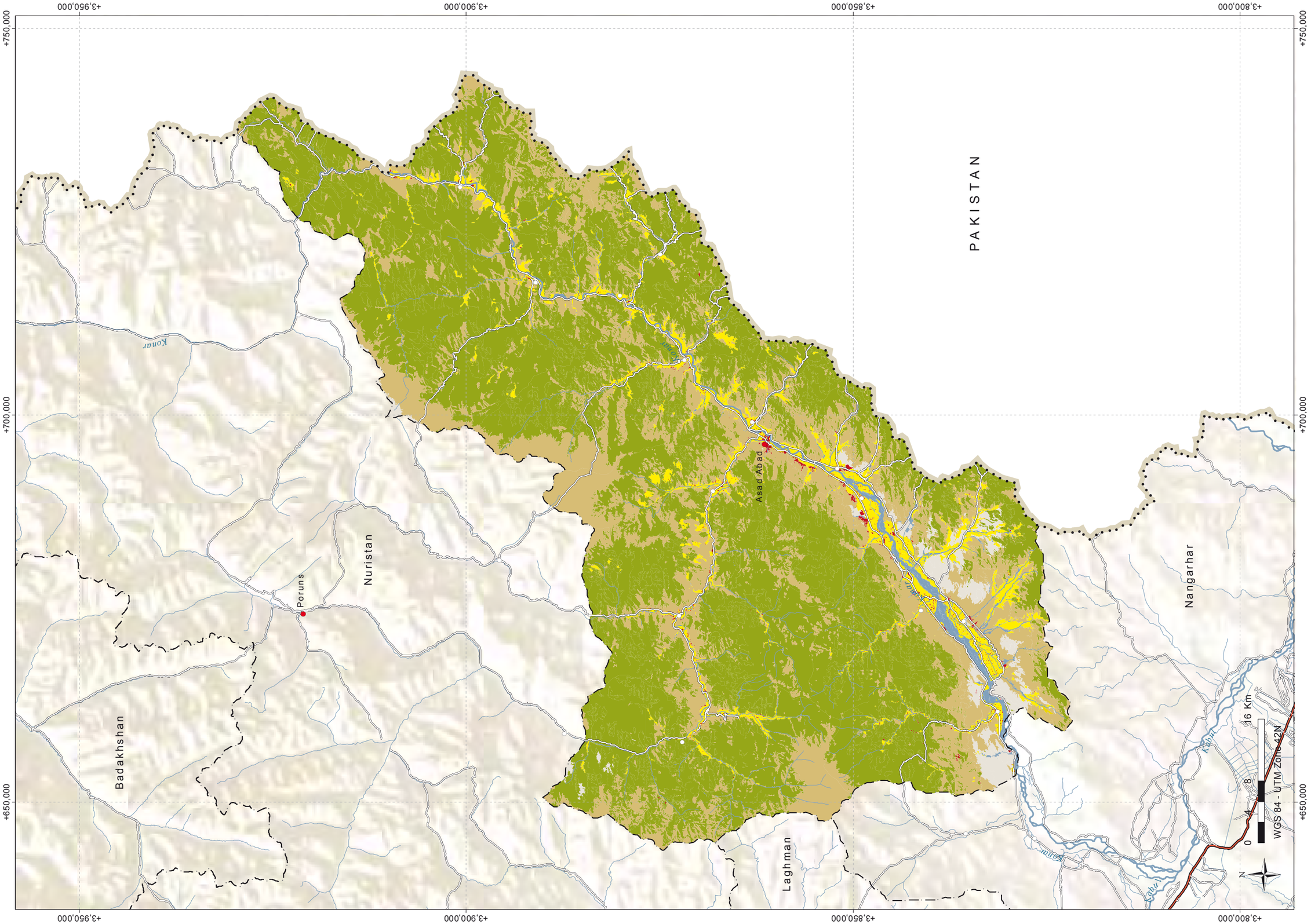


Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Asad Abad	1,081	0	42	0	228	0	2,010	4,397	0	369	343	**8,468**
Bar Kunar	949	0	0	0	149	0	11,707	3,836	0	25	212	**16,878**
Chapa Dara	1,613	0	34	0	210	0	44,052	13,678	0	93	362	**60,042**
Chawkay	1,416	0	1	0	407	0	16,590	4,709	0	192	1,207	**24,522**
Dangam	1,333	0	3	0	119	0	15,160	3,545	0	35	134	**20,328**
Dara-e-Pech	1,707	0	26	0	0	0	42,053	10,698	0	187	257	**54,927**
Ghazi Abad	1,644	0	0	0	287	0	43,474	10,410	0	28	263	**56,107**
Khas Kunar	6,129	57	147	0	6,174	0	10,074	11,957	0	316	1,660	**36,515**
Marawara	1,457	0	0	0	40	0	9,506	3,421	0	53	193	**14,670**
Narang	1,432	0	13	0	247	0	12,817	3,702	0	264	458	**18,934**
Nari	2,205	0	0	0	111	0	40,900	9,852	0	117	412	**53,597**
Nurgal	1,416	0	19	4	3,312	0	17,543	7,550	0	152	798	**30,793**
Sarkani	2,461	0	15	0	1,491	0	8,119	6,835	0	205	717	**19,843**
Shigal Wa Sheltan	2,351	0	5	0	0	0	29,213	12,078	0	101	214	**43,962**
Wata Pur	1.821	0	2	0	1	0	13,041	10,140	0	93	140	**25,238**
TOTAL (ha)	**29,013**	**57**	**308**	**4**	**12,775**	**0**	**316,258**	**116,808**	**0**	**2,231**	**7,371**	**484,824**
TOTAL (%)	**6.0**	**0.0**	**0.1**	**0.0**	**2.6**	**0.0**	**65.2**	**24.1**	**0.0**	**0.5**	**1.5**	**100**

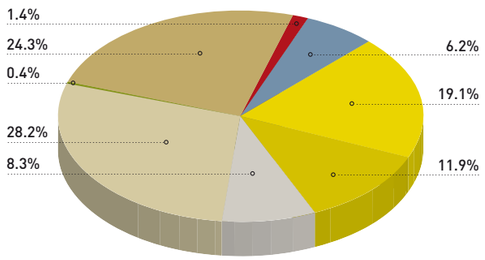

+3,950,000
+3,900,000
+3,850,000
+3,800,000
+750,000
+700,000
+650,000
PAKISTAN
Konar
Asad Abad
Nuristan
Porun
Badakhshan
Laghman
Nangarhar
Kabul
16 Km
0
8
WGS 84 - UTM Zone 42N
N

KUNDUZ

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Ali Abad	6,655	11,596	17	50	5,146	177	333	16,128	0	997	516	**41,615**
Char Darah	14,854	0	1,028	14	21,366	23,134	75	58,070	0	911	1,929	**121,381**
Dasht-e-Archi	20,084	26,840	24	0	12,442	4	638	24,405	0	1,122	570	**86,130**
Emam Saheb	47,643	2,529	147	3	10,944	43,177	0	28,789	0	2,050	24,666	**159,948**
Khan Abad	15,465	50,986	97	0	3,100	0	1,959	32,018	0	1,992	1,879	**107,495**
Kunduz	29,880	2,145	67	146	5,576	6,132	0	11,192	0	3,783	2,707	**61,627**
Qala-e-Zal	16,556	0	141	0	6,770	150,586	0	21,068	0	529	16,509	**212,158**
TOTAL (ha)	**151,136**	**94,096**	**1,521**	**213**	**65,344**	**223,210**	**3,006**	**191,670**	**0**	**11,384**	**48,775**	**790,355**
TOTAL (%)	**19.1**	**11.9**	**0.2**	**0.0**	**8.3**	**28.2**	**0.4**	**24.3**	**0.0**	**1.4**	**6.2**	**100**



Land Cover in percentage

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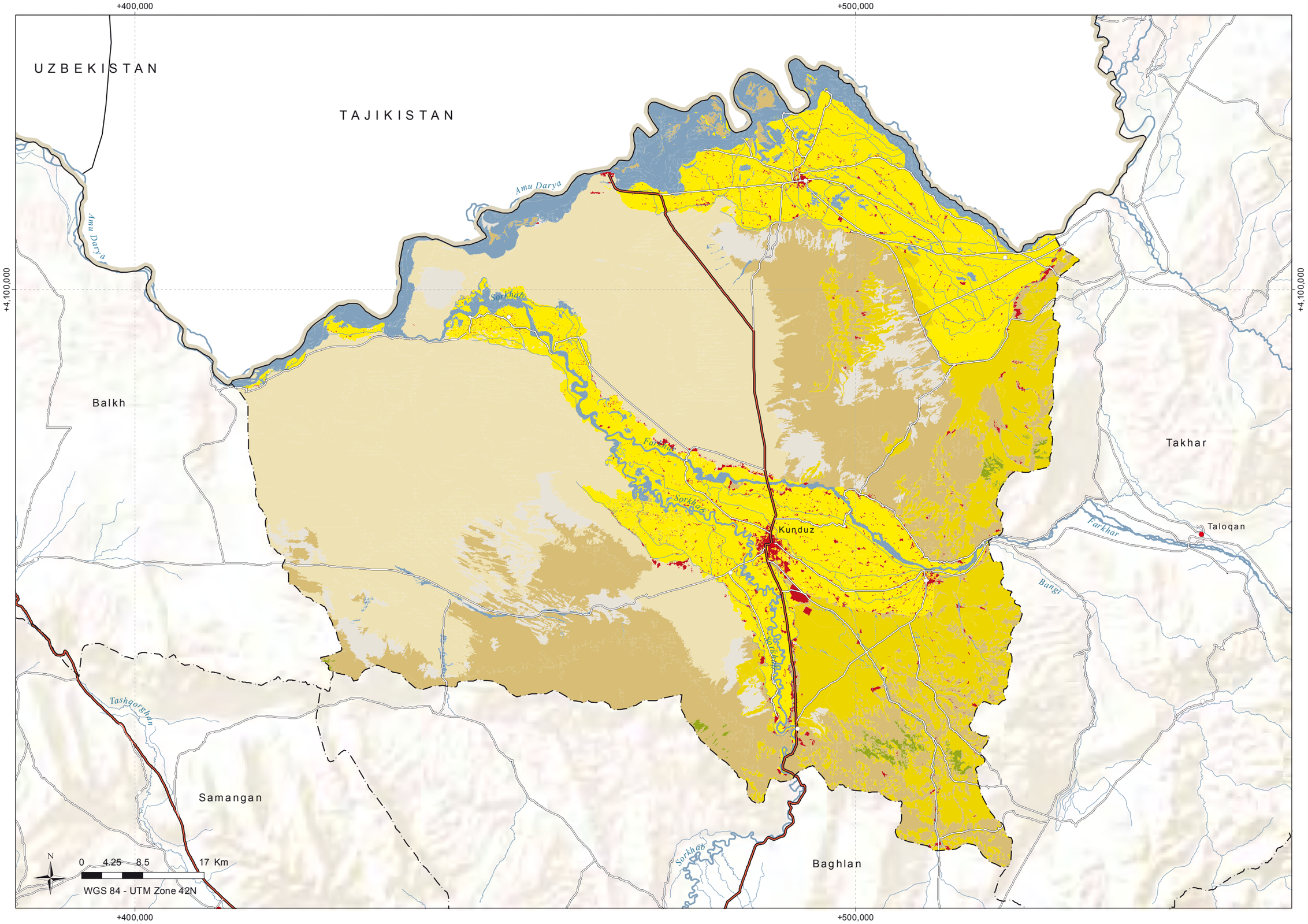
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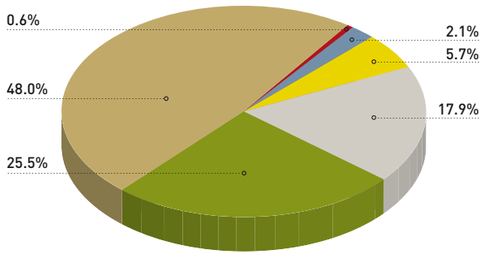
+500,000
+4,100,000
UZBEKISTAN
TAJIKISTAN
Amu Darya
Amu Darya
Sorkhab
Balkh
Takhar
Farkhar
Sorkhab
Kunduz
Taloqan
Farkhar
Bangi
Tashgarghan
Samangan
Sorkhab
Baghlan
N
0 4.25 8.5 17 Km
WGS 84 - UTM Zone 42N
+400,000
+500,000

LAGHMAN

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Alingar	4,017	9	240	0	11,109	0	33,623	31,676	0	365	765	**81,804**
Alishang	2,958	12	254	3	2,727	0	31,813	28,245	0	272	726	**67,009**
Dawlat Shah	2,260	11	33	0	114	0	23,027	47,783	2	83	872	**74,185**
Mehtarlam	6,630	0	150	0	24,535	0	2,722	35,091	0	988	1,773	**71,889**
Qarghayi	6,011	0	24	1	30,318	0	6,434	41,120	0	736	4,019	**88,662**
TOTAL (ha)	**21,876**	**32**	**700**	**4**	**68,803**	**0**	**97,619**	**183,915**	**2**	**2,444**	**8,156**	**383,550**
TOTAL (%)	**5.7**	**0.0**	**0.2**	**0.0**	**17.9**	**0.0**	**25.5**	**48.0**	**0.0**	**0.6**	**2.1**	**100**



Land Cover in percentage

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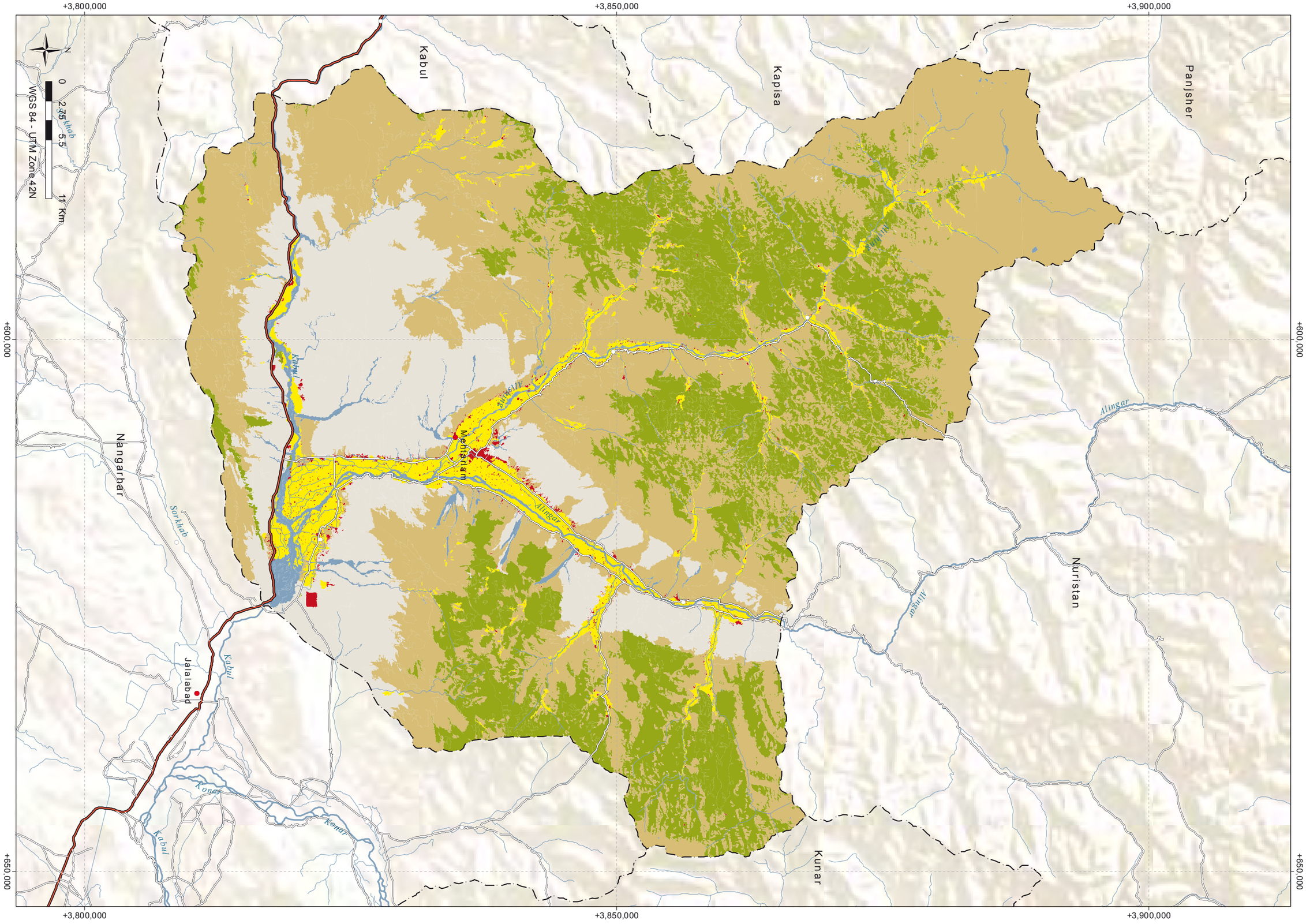
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+3,850,000
+3,900,000
+600,000
+650,000
N
0
2.75
5.5
11 Km
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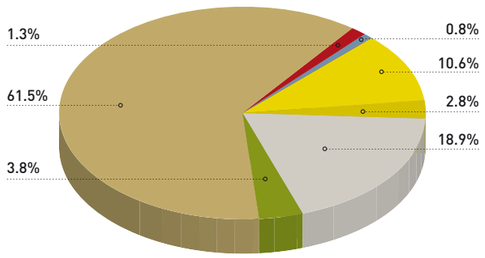
Kabul
Kapisa
Panjsher
Nangarhar
Nuristan
Kunar
Jalalabad
Mehtarlam
Sorkhab
Kabul
Konar
Kunar
Alingar
Alingar
Alingar

LOGAR

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Azra	1,771	19	6	0	1,724	0	15,584	56,467	0	15	489	**76,075**
Baraki Barak	9,630	288	76	8	4,603	0	66	11,484	0	929	211	**27,294**
Charkh	3,378	1,904	190	591	1,535	0	312	19,813	0	718	184	**28,626**
Kharwar	4,281	7,769	7	0	3,404	0	135	30,421	0	317	390	**46,725**
Khoshi	1,030	248	83	0	9,811	0	301	31,917	0	92	149	**43,631**
Mohammad Agha	10,492	50	313	16	37,336	0	25	54,743	0	1,169	884	**105,028**
Pul-e-Alam	15,958	1,875	184	438	24,457	0	224	65,307	0	2,477	1,202	**112,122**
TOTAL (ha)	**46,540**	**12,153**	**861**	**1,053**	**82,870**	**0**	**16,646**	**270,151**	**0**	**5,717**	**3,509**	**439,500**
TOTAL (%)	**10.6**	**2.8**	**0.2**	**0.2**	**18.9**	**0.0**	**3.8**	**61.5**	**0.0**	**1.3**	**0.8**	**100**



Land Cover in percentage

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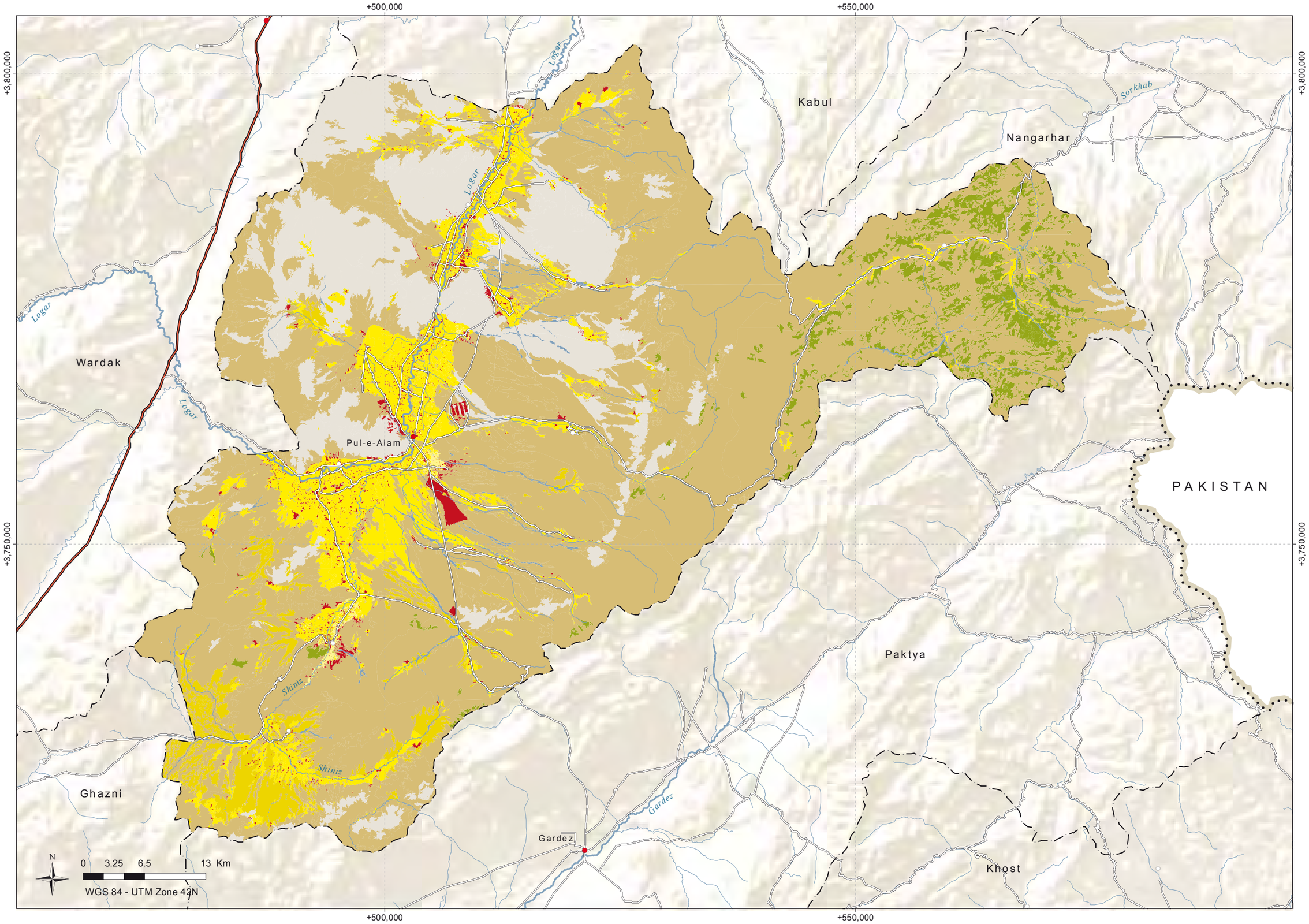
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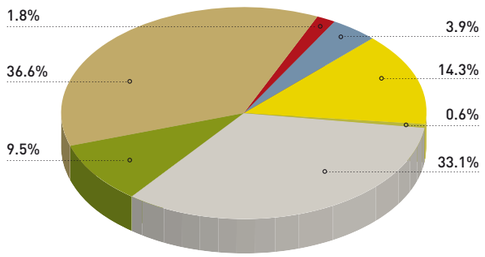
+550,000
+3,800,000
+3,750,000
Kabul
Nangarhar
Wardak
Logar
Pul-e-Alam
PAKISTAN
Sorkhab
Paktya
Ghazni
Shiniz
Gardez
Khost
N
0 3.25 6.5 13 Km
WGS 84 - UTM Zone 42N

NANGARHAR

INDEX MAP



Land Cover in percentage

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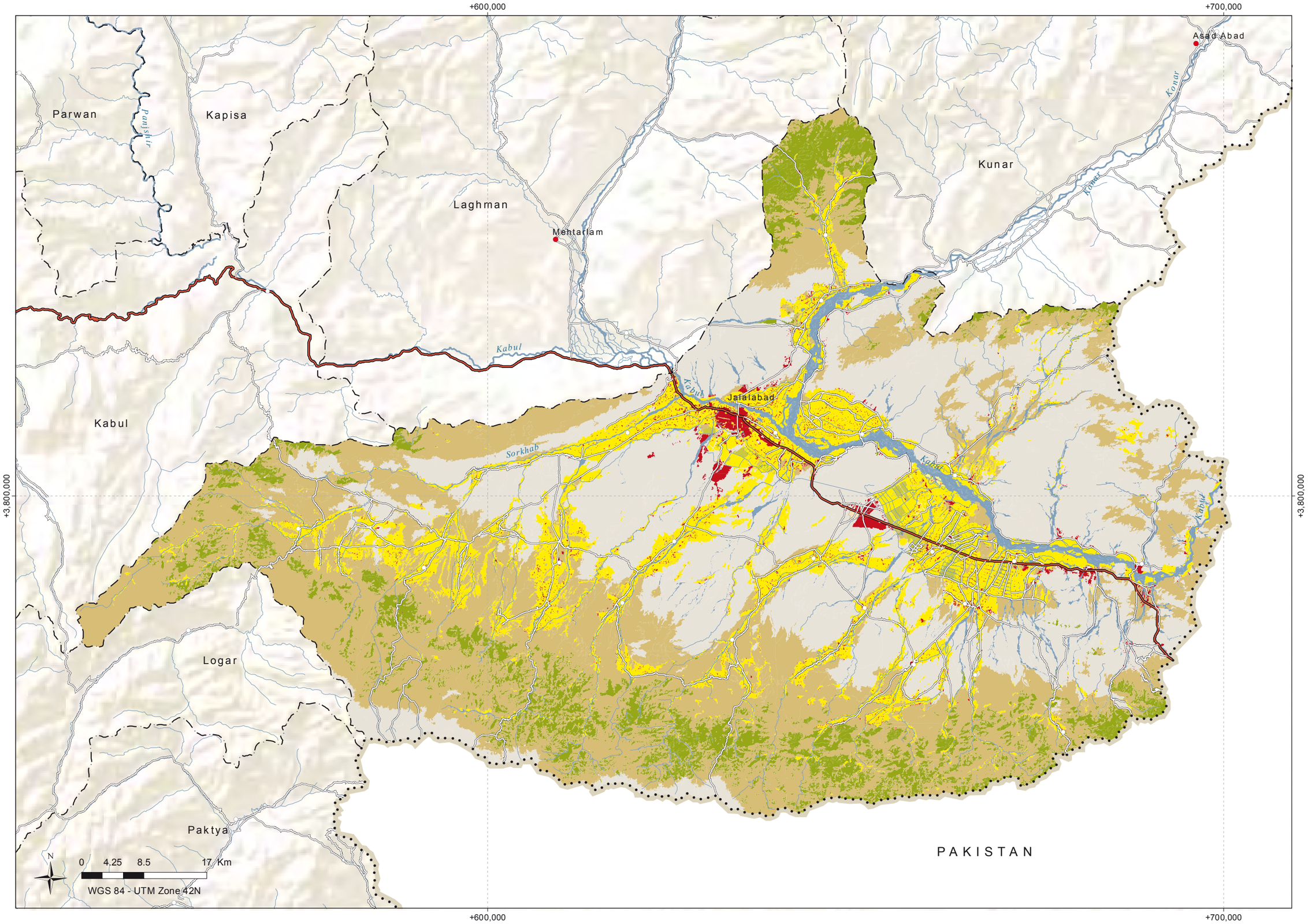
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Achin	6,238	0	12	0	7,355	0	10,174	21,650	0	442	853	**46,725**
Bati Kot	8,656	0	896	233	1,138	0	598	1,197	0	772	1,771	**15,260**
Behsud	7,242	0	328	0	16,874	0	151	1,885	0	1,570	3,053	**31,103**
Chaparhar	5,377	0	42	1	14,177	0	0	1,798	0	930	793	**23,118**
Dara-e-Nur	2,139	0	151	0	509	0	12,990	9,741	0	149	172	**25,851**
Deh Bala	2,808	1	95	0	6,986	0	5,470	22,500	0	142	538	**38,539**
Dur Baba	722	1	0	0	9,731	0	4,522	11,490	0	119	1,367	**27,951**
Goshta	3,431	0	15	18	31,260	0	1,595	13,457	0	263	2,093	**52,132**
Hesarak	4,501	0	180	1	6,117	0	8,736	46,731	0	127	532	**66,923**
Jalalabad	696	0	85	0	25	0	4	53	0	1,402	97	**2,361**
Kama	6,384	0	168	0	11,602	0	2	1,969	0	544	2,283	**22,953**
Khogyani	12,147	6	497	3	15,842	0	6,086	31,360	0	685	1,102	**67,728**
Kot	2,848	0	78	2	6,498	0	42	7,052	0	278	512	**17,310**
Kuz Kunar	3,993	0	222	2	11,688	0	851	9,281	0	552	2,429	**29,018**
Lalpur	2,437	0	28	0	33,055	0	0	7,505	0	354	2,973	**46,353**
Muhmand Dara	4,269	0	40	0	13,853	0	105	5,300	0	1,010	3,801	**28,377**
Nazyan	983	0	3	0	3,614	0	3,753	12,720	0	61	496	**21,630**
Pachier Agam	2,584	4	90	1	6,112	0	10,649	26,494	0	170	829	**46,933**
Rodat	7,619	1	549	14	20,804	0	10	3,981	0	1,480	1,178	**35,636**
Sherzad	7,107	0	360	4	7,164	0	4,637	26,715	0	263	352	**46,601**
Shinwar	4,807	0	183	0	1,488	0	132	1,095	0	594	458	**8,759**
Surkhrod	9,090	0	264	1	18,989	0	90	7,075	0	1,670	1,279	**38,459**
TOTAL (ha)	**106,079**	**13**	**4,286**	**281**	**244,879**	**0**	**70,594**	**271,049**	**0**	**13,576**	**28,962**	**739,720**
TOTAL (%)	**14.3**	**0.0**	**0.6**	**0.0**	**33.1**	**0.0**	**9.5**	**36.6**	**0.0**	**1.8**	**3.9**	**100**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+700,000
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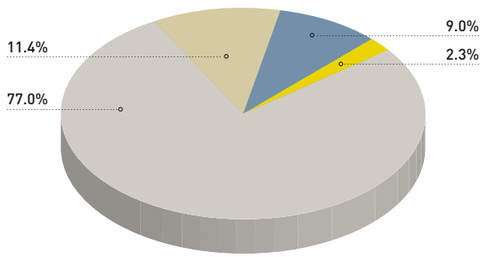
Asad Abad
Parwan
Panjshir
Kapisa
Laghman
Mehtarlam
Kunar
Konar
Kabul
Kabul
Jalalabad
Kabul
Sorkhab
Kabul
Logar
Paktya
PAKISTAN
N
0 4.25 8.5 17 Km
WGS 84 - UTM Zone 42N

NIMROZ

INDEX MAP

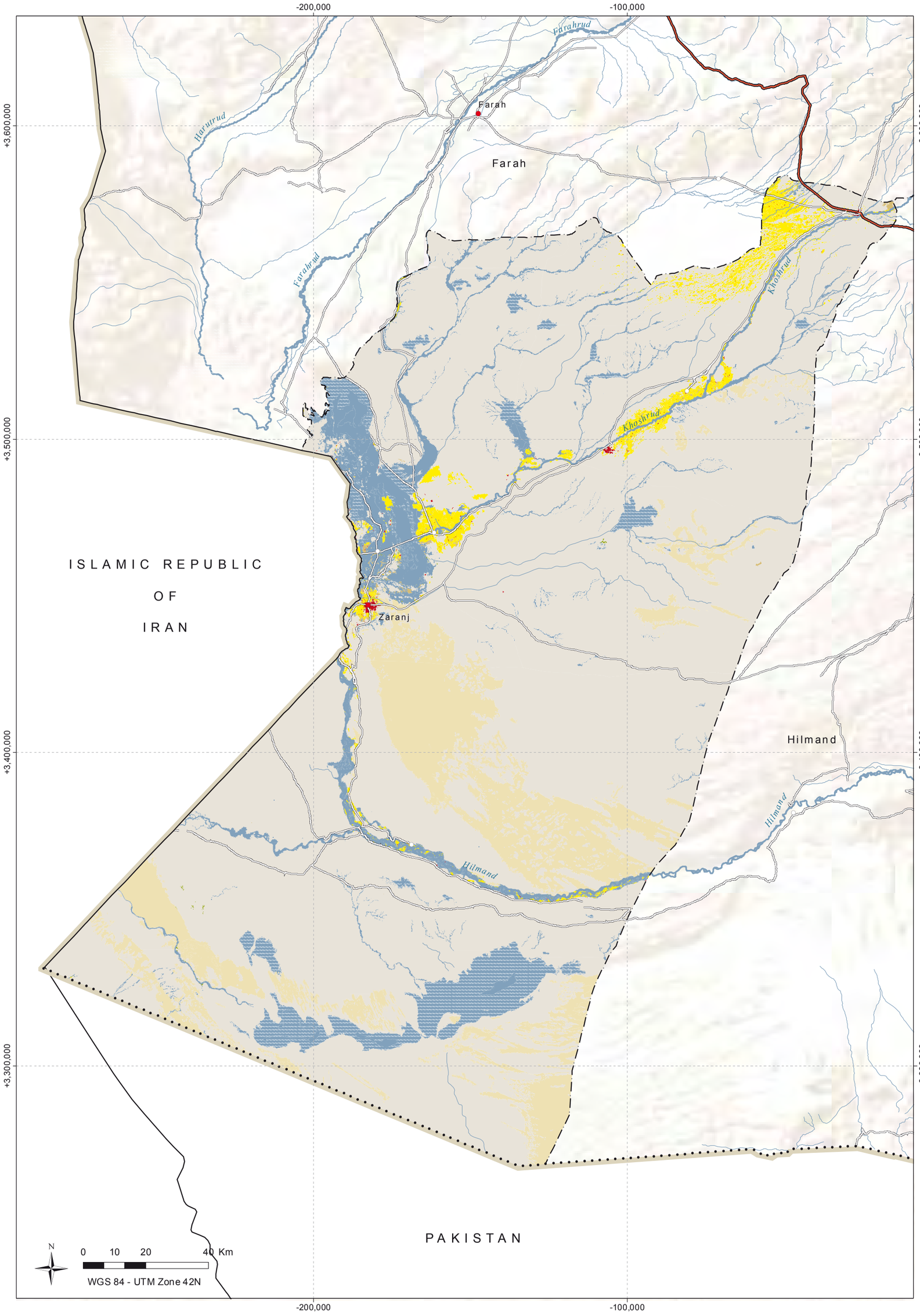
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Chakhansur	20,898	0	0	34	880,851	25,740	149	1,100	0	411	58,600	**987,782**
Charburjak	6,014	0	0	21	1,521,207	401,321	326	3,953	0	259	162,855	**2,095,957**
Kang	3,395	2	0	126	16,755	94	103	1,206	0	426	94,160	**116,267**
Khashrod	60,623	0	8	17	674,651	9,766	0	1,481	0	1,671	36,436	**784,653**
Zaranj	4,106	0	5	187	64,516	29,567	206	2,052	0	1,571	17,019	**119,230**
TOTAL (ha)	**95,037**	**2**	**13**	**385**	**3,157,980**	**466,487**	**784**	**9,792**	**0**	**4,339**	**369,069**	**4,103,889**
TOTAL (%)	**2.3**	**0.0**	**0.0**	**0.0**	**77.0**	**11.4**	**0.0**	**0.2**	**0.0**	**0.1**	**9.0**	**100**



Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.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Farah
Farah
Farahrud
Harutrud
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ISLAMIC REPUBLIC
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IRAN
Zaranj
Hilmand
Hilmand
Hilmand
PAKISTAN
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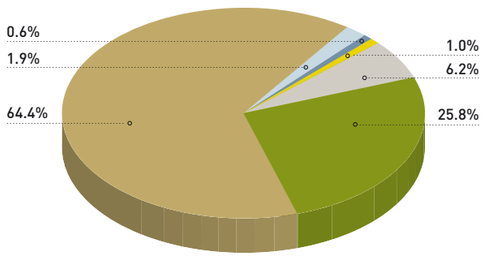
0 10 20 40 Km
WGS 84 - UTM Zone 42N

NURISTAN

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land	Rainfed Ag. Land	Fruit Trees	Vineyards	Barren Land	Sand Cover	Forest & Shrubs	Rangeland	Permanent Snow	Built-up	Water Body & Marshland	TOTAL LAND
	AGI	AGR	AGT	AGV	BRS	BSD	NFS	NHS	SNW	URB	WAT	
	3A, 3A1 3B, 3C	4A, 4B	2A	2B	8A	8B, 8C	6A, 6B 6B1, 6C	7	13	1A, 1B	9A, 9B, 10A 10B, 11, 12	
Barg-e-Mata	1,643	403	143	0	32,912	0	11,430	109,564	13,999	22	1,612	**171,729**
Duab	674	0	21	0	135	0	31,775	23,355	0	14	447	**56,422**
Kamdesh	1,442	0	0	0	4,902	0	46,219	69,002	138	21	486	**122,211**
Mandol	2,046	0	174	0	6,034	0	23,323	169,757	1,708	24	997	**204,064**
Nurgeram	642	1	0	1	1,883	0	50,909	44,048	0	30	316	**97,833**
Poruns	949	0	29	0	5,717	0	16,408	117,139	1,008	21	1,413	**142,684**
Wama	481	0	39	0	1,203	0	17,385	8,953	0	21	63	**28,145**
Waygal	1,054	0	18	0	2,636	0	34,457	37,344	0	16	59	**75,584**
TOTAL (ha)	**8,931**	**405**	**424**	**1**	**55,423**	**0**	**231,907**	**579,163**	**16,854**	**169**	**5,394**	**898,671**
TOTAL (%)	**1.0**	**0.0**	**0.0**	**0.0**	**6.2**	**0.0**	**25.8**	**64.4**	**1.9**	**0.0**	**0.6**	**100**



Land Cover in percentage

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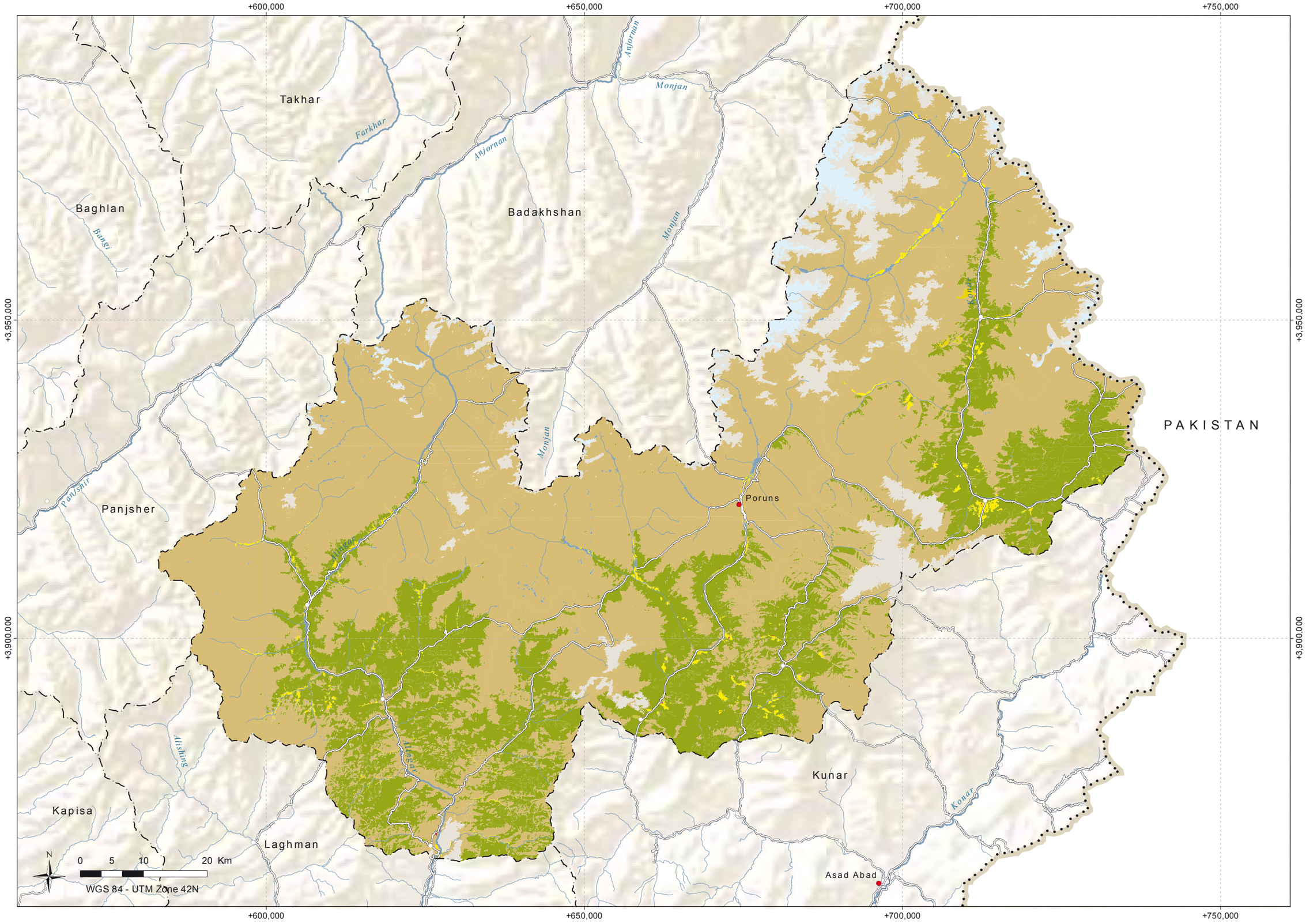
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Baghlan
Badakhshan
Panjsher
Kapisa
Laghman
Kunar
PAKISTAN
Poruns
Asad Abad
Farkhar
Anjornan
Monjan
Bangi
Panjshir
Alishing
Konar
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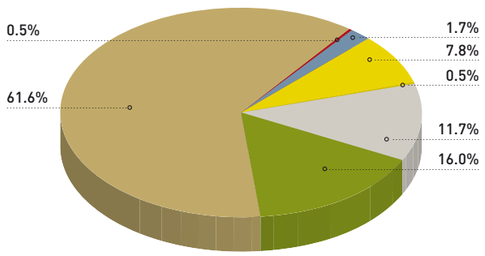
WGS 84 - UTM Zone 42N

PAKTIKA

INDEX MAP



Land Cover in percentage

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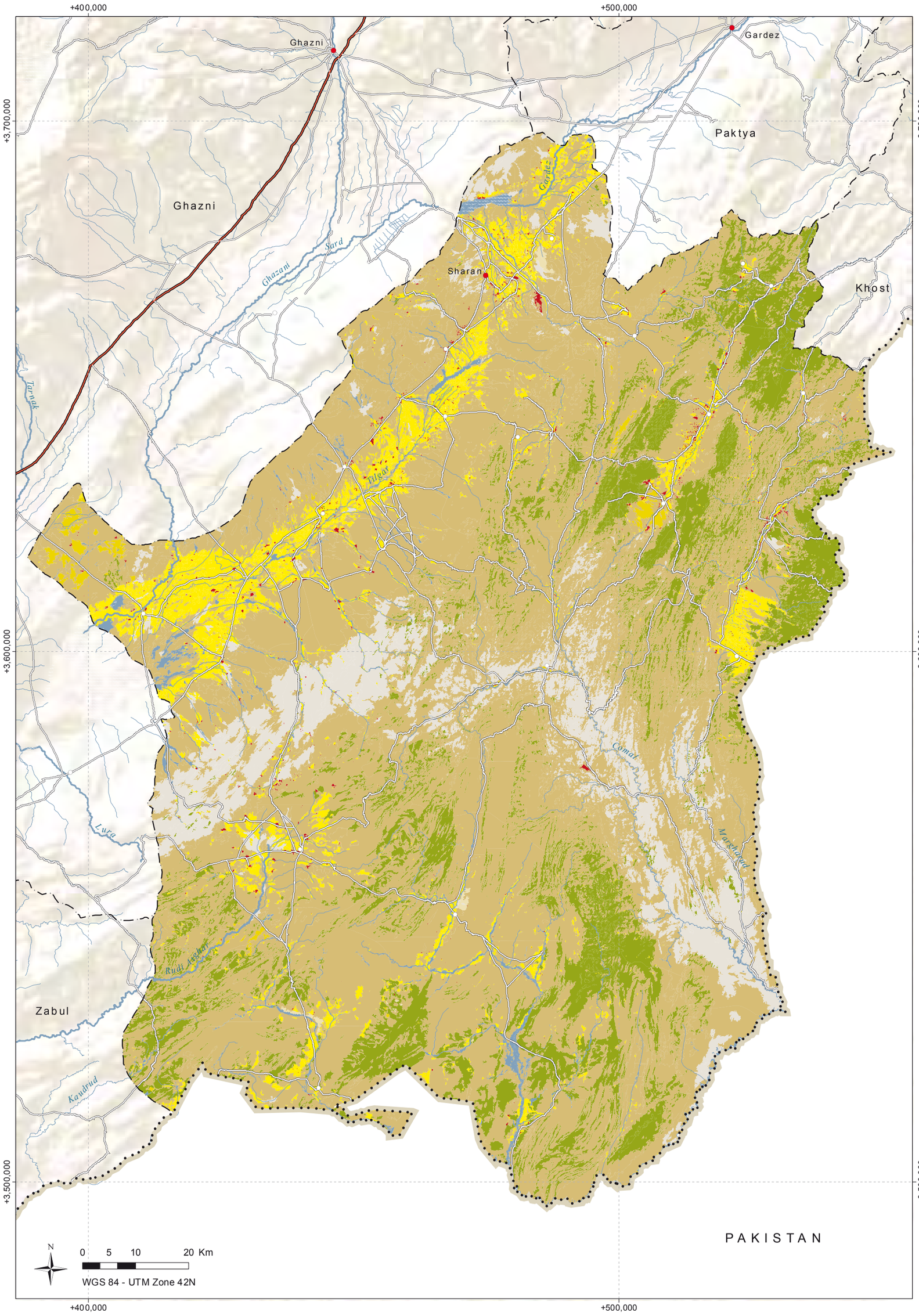
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Bermel	11,355	87	432	0	2,327	0	50,698	62,877	0	975	1,146	**129,896**
Dila	37,934	4,752	128	69	25,800	0	621	76,895	0	875	6,061	**153,135**
Gomal	1,672	187	44	0	100,586	0	47,273	253,814	0	231	3,081	**406,889**
Gyan	412	0	2	0	473	0	7,364	13,926	0	147	135	**22,459**
Janikhel	12,276	159	107	69	15,687	0	2,332	65,433	0	779	2,017	**98,859**
Mata Khan	8,997	6	31	55	6,156	284	225	25,974	0	289	276	**42,294**
Naka	460	0	0	0	1	0	5,907	5,751	0	30	52	**12,201**
Omna	2,770	11	3	6	1,074	0	3,441	38,539	0	137	183	**46,163**
Sarobi	1,785	2,105	49	0	866	0	10,009	14,883	0	454	22	**30,172**
Sarrawzah (Sarhawzah)	1,483	790	7	0	3,107	0	10,451	51,009	0	226	100	**67,173**
Sharan	10,922	97	387	314	9,783	391	125	28,143	0	1,192	2,331	**53,685**
Turwo (Tarwe)	7,318	389	4	2	1,774	472	30,011	99,808	0	60	2,467	**142,306**
Urgun	4,427	0	239	0	336	0	18,856	25,983	0	742	538	**51,122**
Wazakhah	12,360	649	339	12	30,642	0	17,164	112,895	0	1,076	762	**175,901**
Wormamay	9,546	105	52	1	13,153	525	86,101	200,257	0	205	8,701	**318,646**
Yahyakhel	10,115	0	96	55	1,495	0	97	21,600	0	284	1,064	**34,806**
Yosufkhel	5,319	283	68	113	6,182	0	26	38,797	0	333	1,127	**52,247**
Zarghun Shahr	9,597	24	34	36	3,838	0	27	31,723	0	543	1,541	**47,363**
Ziruk	400	0	0	0	1	0	14,912	5,580	0	64	427	**21,384**
TOTAL (ha)	**149,147**	**9,645**	**2,022**	**732**	**223,281**	**1,672**	**305,640**	**1,173,886**	**0**	**8,643**	**32,032**	**1,906,700**
TOTAL (%)	**7.8**	**0.5**	**0.1**	**0.0**	**11.7**	**0.1**	**16.0**	**61.6**	**0.0**	**0.5**	**1.7**	**100**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Ghazni
Gardez
Paktya
Ghazni
Sharan
Khost
Zabul
Ghazani
Sard
Tarnak
Tilgar
Gardez
Lura
Rudi Ashan
Kaudrud
Comal
Margha rud
PAKISTAN
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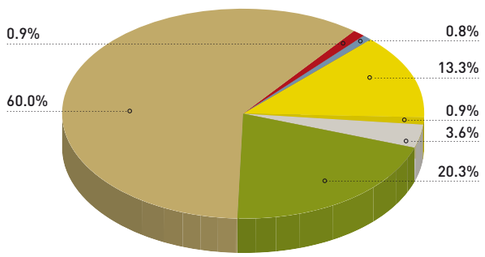
WGS 84 - UTM Zone 42N

PAKTYA

INDEX MAP



Land Cover in percentage

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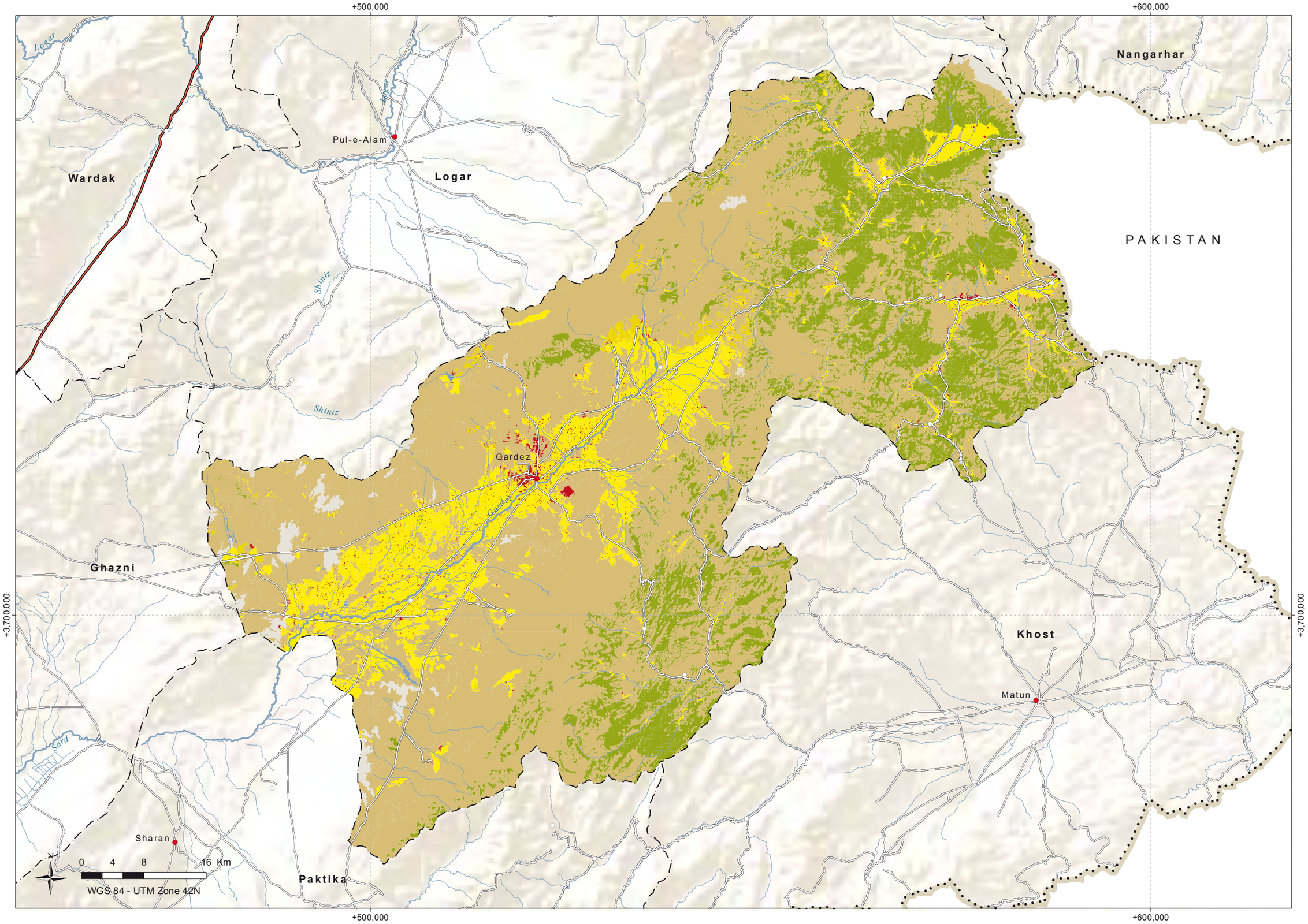
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Ahmadaba	5,426	1,221	42	0	195	0	2,232	31,987	0	373	152	**41,627**
Alikhel (Jaji)	5,356	292	35	0	1,300	0	21,887	30,326	0	168	843	**60,208**
Chamkani	2,290	7	20	0	0	0	14,329	12,548	0	447	484	**30,124**
Dand Wa Patan	2,145	0	3	0	0	0	8,401	9,284	0	199	403	**20,436**
Gardez	15,808	457	304	25	2,733	0	2,133	46,893	0	1,824	610	**70,788**
Janikhel	707	6	0	0	0	0	7,796	5,912	0	44	34	**14,498**
Lija Ahmad Khel	1,533	127	31	0	4	0	16,786	23,365	0	92	335	**42,273**
Sayedkaram	9,086	1,947	23	0	148	0	5,889	27,638	0	288	122	**45,140**
Shawak	182	0	0	0	0	0	4,024	6,417	0	0	77	**10.699**
Zadran	718	0	5	0	0	0	20,949	28,282	0	26	332	**50,312**
Zurmat	26,868	594	268	259	14,547	0	2,794	93,964	0	1.206	881	**141,381**
TOTAL (ha)	**70,119**	**4,651**	**732**	**285**	**18,927**	**0**	**107,220**	**316,615**	**0**	**4,666**	**4,271**	**527,486**
TOTAL (%)	**13.3**	**0.9**	**0.1**	**0.1**	**3.6**	**0.0**	**20.3**	**60.0**	**0.0**	**0.9**	**0.8**	**100**


+500,000
+600,000
+3,700,000
Logar
Pul-e-Alam
Wardak
Logar
Nangarhar
PAKISTAN
Shiniz
Shiniz
Gardez
Ghazni
Khost
Matun
Sard
Sharan
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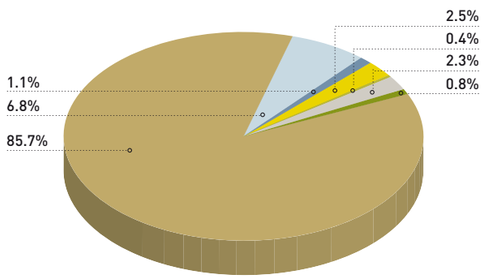
0 4 8 16 Km
WGS 84 - UTM Zone 42N
Paktika
+500,000
+600,000
+3,700,000

PANJSHER

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land	Rainfed Ag. Land	Fruit Trees	Vineyards	Barren Land	Sand Cover	Forest & Shrubs	Rangeland	Permanent Snow	Built-up	Water Body & Marshland	TOTAL LAND
	AGI	**AGR**	**AGT**	**AGV**	**BRS**	**BSD**	**NFS**	**NHS**	**SNW**	**URB**	**WAT**	
	3A, 3A1 3B, 3C	4A, 4B	2A	2B	8A	8B, 8C	6A, 6B 6B1, 6C	7	13	1A, 1B	9A, 9B, 10A 10B, 11, 12	
Bazarak	703	0	235	0	78	0	66	25,750	7,176	79	371	**43,458**
Dara	1,613	0	226	0	11	0	0	65,511	3,218	88	548	**71,216**
Khenj (Hes-e-Awal)	2,807	669	381	0	180	0	0	59,760	3,997	83	554	**68,431**
Onaba (Anawa)	1,120	0	283	0	0	0	1,298	14,908	3	117	111	**17,840**
Paryan	2,257	126	27	0	6,731	0	0	123,472	7,358	18	2,093	**142,082**
Rukha	660	0	259	0	0	0	0	14,721	467	64	180	**16,351**
Shutul	141	0	39	0	1,634	0	1,747	15,675	3,255	16	103	**22,609**
TOTAL (ha)	**9,302**	**795**	**1,450**	**0**	**8,634**	**0**	**3,110**	**319,797**	**25,474**	**465**	**3,959**	**372,987**
TOTAL (%)	**2.5**	**0.2**	**0.4**	**0.0**	**2.3**	**0.0**	**0.8**	**85.7**	**6.8**	**0.1**	**1.1**	**100**



Land Cover in percentage

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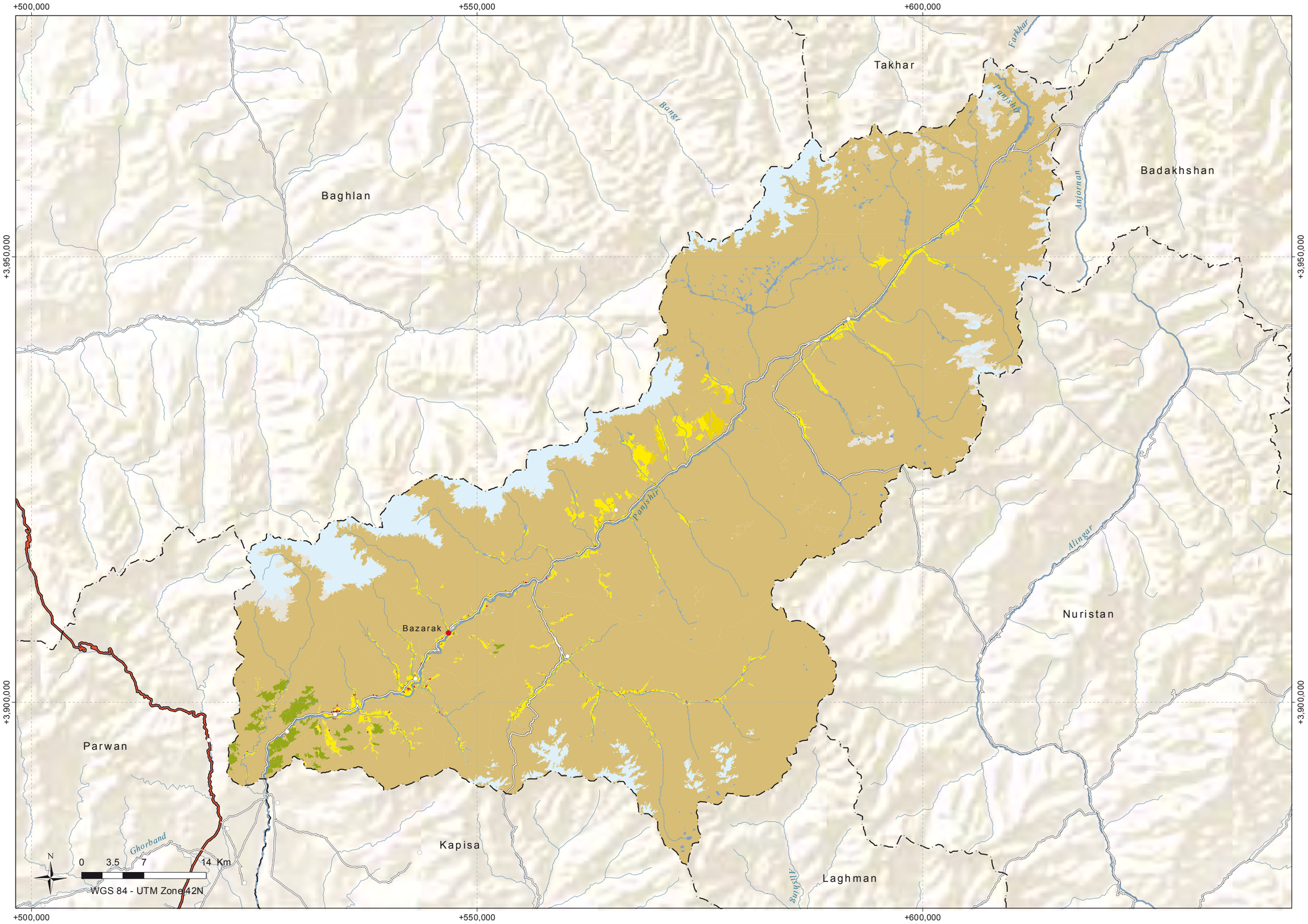
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+3,950,000
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Takhar
Badakhshan
Baghlan
Nuristan
Parwan
Kapisa
Laghman
Bazarak
Bangi
Panjshir
Farkhar
Anjornan
Alingar
Ghorband
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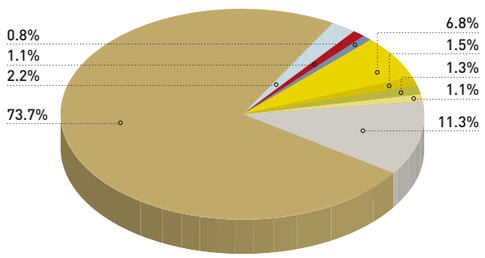
0 3.5 7 14 Km
WGS 84 - UTM Zone 42N

PARWAN

INDEX MAP



Land Cover in percentage

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AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Bagram	10,124	2,659	54	3,738	3,628	0	207	12,518	0	2,146	954	**36,029**
Charikar	8,068	0	318	2,426	23	0	102	13,818	0	1,511	470	**26,736**
Ghorband	2,962	1	3,110	0	21,528	0	0	59,214	1,678	520	449	**89,463**
Jabalussaraj	2,367	0	229	5	24	0	11	8,419	0	435	156	**11,646**
Koh-e-Safi	1,658	806	142	153	11,715	0	506	42,495	0	105	396	**57,976**
Salang	1,118	5	570	0	1,179	0	133	43,683	4,926	102	291	**52,004**
Saydkhel	3,531	0	50	51	0	0	1	37	0	370	549	**4,588**
Shekhali	2,452	4,657	680	0	6,976	0	0	75,901	879	207	268	**92,020**
Shinwari	2,284	0	795	0	9,022	0	31	54,509	4,496	321	670	**72,127**
Surkh-e-Parsa	3,662	37	1,174	0	9,051	0	0	101,331	257	357	514	**116,382**
TOTAL (ha)	**38,226**	**8,165**	**7,121**	**6,373**	**63,146**	**0**	**991**	**411,924**	**12,235**	**6,075**	**4,716**	**558,971**
TOTAL (%)	**6.8**	**1.5**	**1.3**	**1.1**	**11.3**	**0.0**	**0.2**	**73.7**	**2.2**	**1.1**	**0.8**	**100**

+500,000

+3,900,000

Baghlan

Panjsher

Bazarak

Kapisa

Mahmud-e-Raqi

Chaharikar

Bamyan

Kabul

Wardak

Kuhmard

Sorkhab

Ghorband

Panjshir

Hilmand

Logar

N

0 3.5 7 14 Km

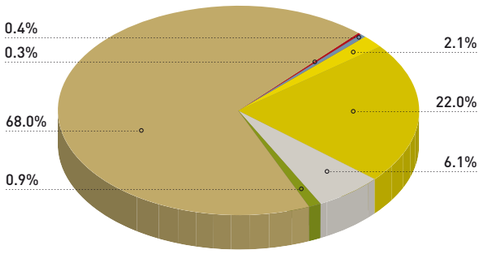
WGS 84 - UTM Zone 42N

SAMANGAN

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Aybak	5,342	31,003	778	0	10,942	0	1,478	97,928	0	1,210	242	**148,923**
Dar-e-Suf-e-Bala	6,244	32,419	266	0	6,075	0	3,554	238,369	0	463	1,641	**289,032**
Dara-e-Suf-e-Payin	342	64,711	30	0	1,566	0	515	65,261	0	758	953	**134,136**
Feroz Nakhchir	1,576	9,949	41	552	28,673	0	0	77,130	0	176	434	**118,530**
Hazrat-e-Sultan	6,955	33,584	234	8	28,664	0	478	76,966	0	1,160	547	**148,597**
Khuram Wa Sarbagh	2,303	70,138	89	0	2,142	0	5,384	132,406	0	297	744	**213,502**
Ruy-e-Duab	4,427	42,605	21	0	531	0	497	189,544	0	442	472	**238,539**
TOTAL (ha)	**29,190**	**284,410**	**1.459**	**561**	**78,593**	**0**	**11,906**	**877,603**	**0**	**4,505**	**5,032**	**1,291,259**
TOTAL (%)	**2.1**	**22.0**	**0.1**	**0.0**	**6.1**	**0.0**	**0.9**	**68.0**	**0.0**	**0.3**	**0.4**	**100**



Land Cover in percentage

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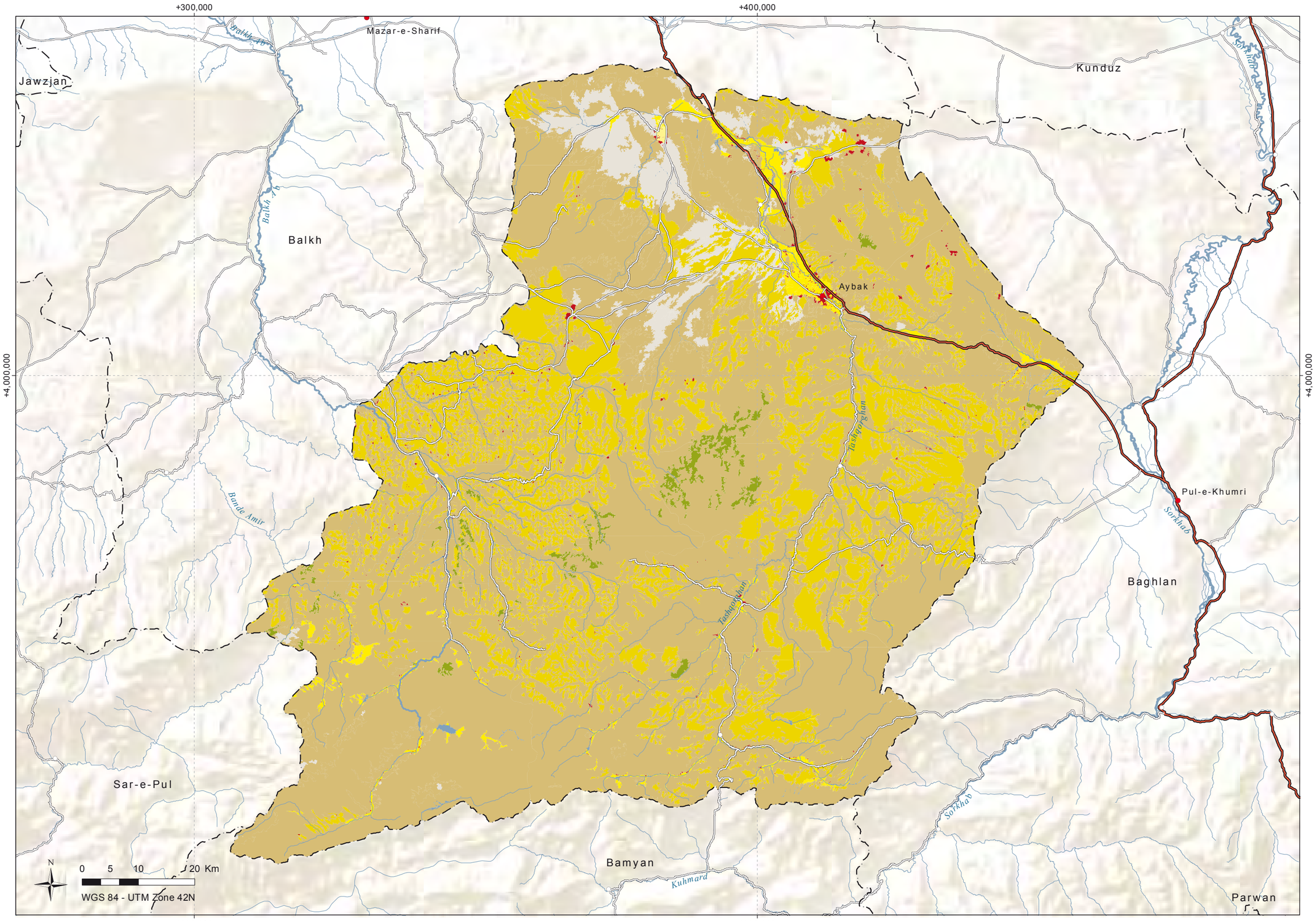
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+4,000,000
Mazar-e-Sharif
Jawzjan
Balkh
Kunduz
Aybak
Pul-e-Khumri
Baghlan
Sar-e-Pul
Bamyan
Parwan
Balkh Ab
Bande Amir
Tashqurghan
Kuhmard
Surkhab
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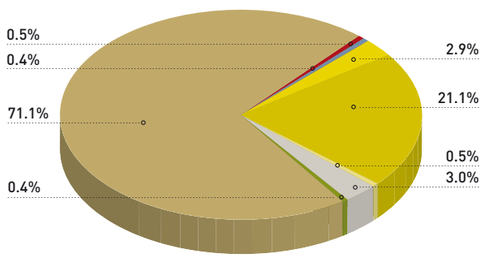
WGS 84 - UTM Zone 42N

SARI PUL

INDEX MAP

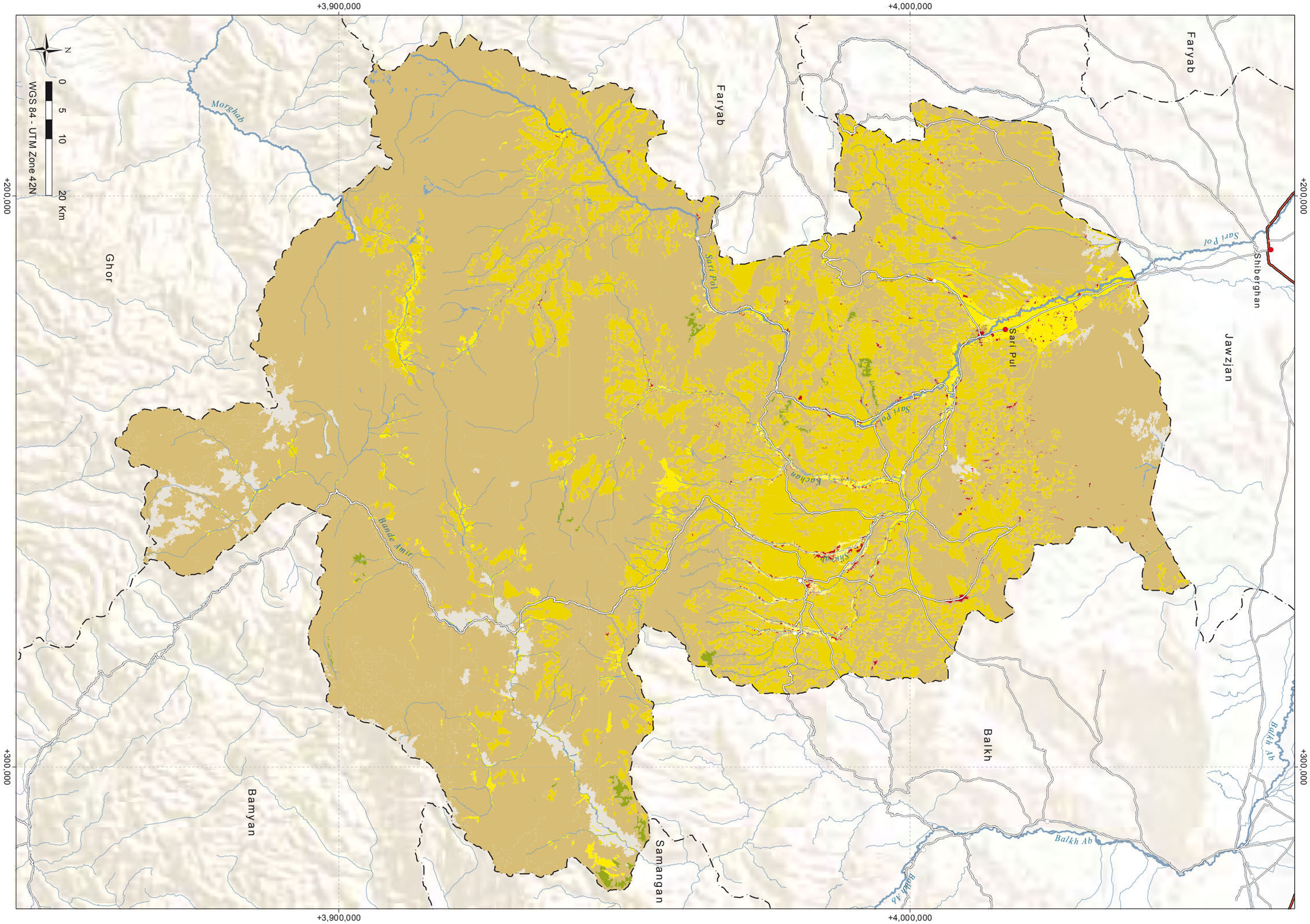
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Balkhab	8,716	15,545	448	0	26,912	0	2,698	241,914	0	197	1,338	**297,769**
Gosfandi	502	45,367	268	1,266	387	0	418	59,659	0	1,093	274	**109,233**
Kohestanat	11,479	82,171	480	411	14,937	0	886	502,577	0	789	2,734	**616,464**
Sancharak	3,154	50,146	193	3,225	2	0	4	47,649	0	1,351	349	**106,073**
Sari Pul	14,947	51,408	541	871	3,338	0	1,034	129,626	0	2,081	1,472	**205,317**
Sayad	2,041	46,570	21	0	82	0	250	83,096	0	615	845	**133,520**
Sozmaqala	3,405	30,859	87	1,626	0	0	144	21,304	0	682	286	**58,392**
TOTAL (ha)	**44,245**	**322,067**	**2,037**	**7,398**	**45,658**	**0**	**5,432**	**1,085,825**	**0**	**6,809**	**7,297**	**1,526,768**
TOTAL (%)	**2.9**	**21.1**	**0.1**	**0.5**	**3.0**	**0.0**	**0.4**	**71.1**	**0.0**	**0.4**	**0.5**	**100**



Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.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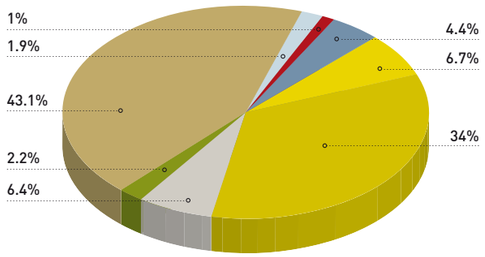
N
0 5 10 20 Km
WGS 84 - UTM Zone 42N
Morghab
Faryab
Ghor
Sari Pol
Shibergan
Jawzjan
Bande Amir
Kashan
Balkh Ab
Bamyan
Samangan
Balkh

TAKHAR

INDEX MAP

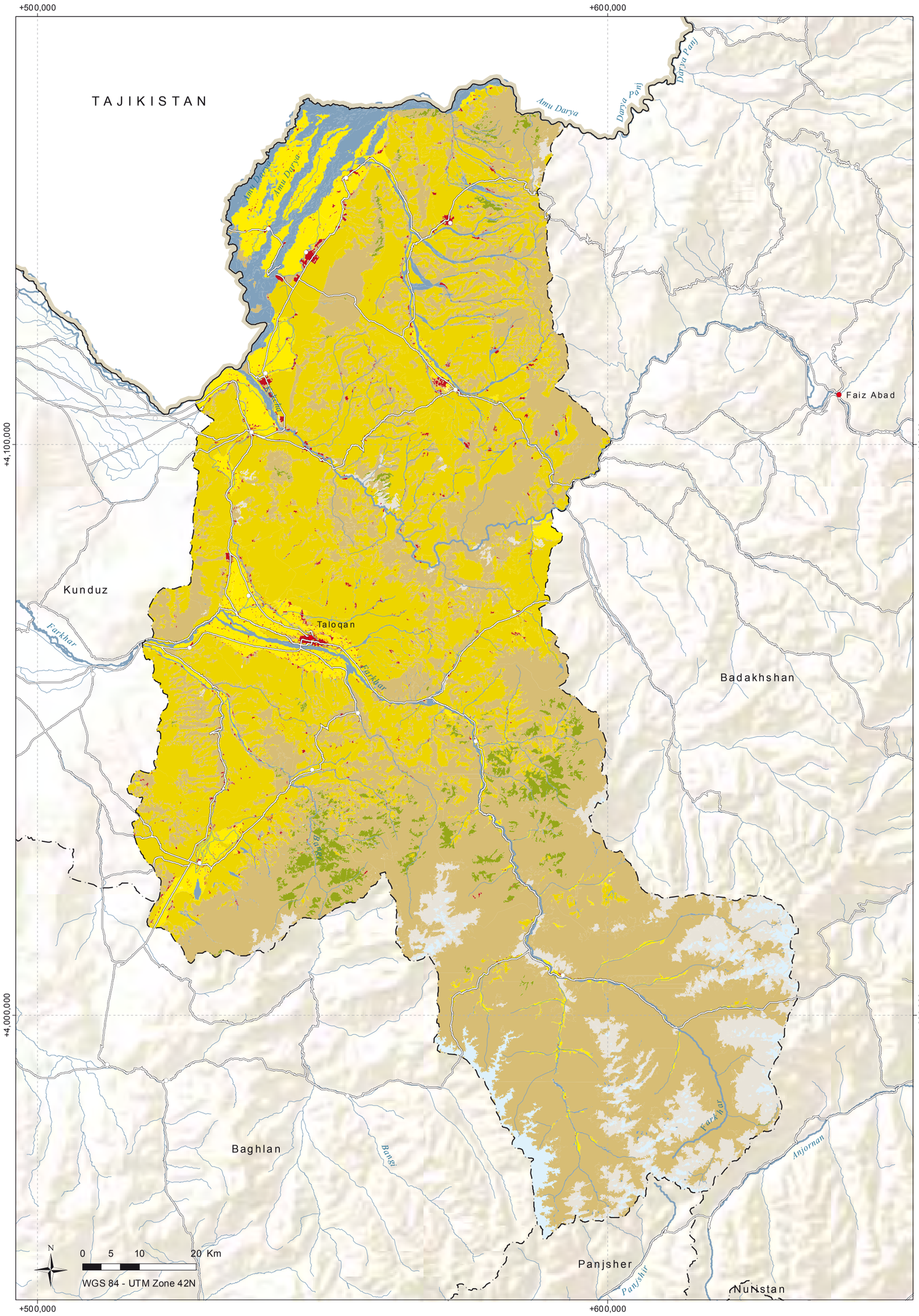


Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Baharak	6,739	13,506	125	0	42	0	0	3,001	0	582	334	**24,329**
Bangi	2,564	36,908	158	0	746	0	105	17,916	0	668	1,234	**60,299**
Chahab	536	33,580	93	0	1,097	0	2,203	31,820	0	790	5,972	**76,092**
Chal	292	14,046	253	0	58	0	2,476	14,411	0	278	800	**32,614**
Darqad	17,239	0	60	0	10	0	0	642	0	326	18,440	**36,717**
Dasht-e-Qala	5,936	14,027	80	0	86	0	32	6,352	0	920	5,405	**32,839**
Eshkmesh	6,274	25,369	412	11	1,713	0	6,387	37,297	0	897	1,516	**79,875**
Farkhar	2,961	15,312	573	0	5,729	0	12,031	86,745	315	283	1,592	**125,541**
Hazar Sumuch	53	24,646	4	0	1,138	0	27	8,065	0	371	265	**34,571**
Kalafgan	1,955	27,213	116	0	2,925	0	0	14,127	0	376	657	**47,369**
Khwaja Bahawuddin	4,567	7,234	54	0	0	0	283	7,574	0	741	814	**21,267**
Khwaja Ghar	7,348	24,879	34	0	853	0	133	4,378	0	814	287	**38,727**
Namakab	198	14,798	112	0	4,185	0	2,051	32,116	609	162	511	**54,742**
Rostaq	2,139	106,900	560	93	3,994	0	541	63,792	0	1,965	6,259	**186,242**
Taloqan	13,359	49,921	385	0	1,650	0	99	13,510	10	2,445	3,406	**84,783**
Warsaj	4,359	931	548	0	55,191	0	270	184,160	22,573	168	1,596	**269,795**
Yangi Qala	6,136	9,388	248	0	0	0	314	4,837	0	532	4,693	**26,148**
TOTAL (ha)	**82,655**	**418,657**	**3,815**	**105**	**79,416**	**0**	**26,953**	**530,743**	**23,506**	**12,319**	**53,780**	**1,231,949**
TOTAL (%)	**6.7**	**34.0**	**0.3**	**0.0**	**6.4**	**0.0**	**2.2**	**43.1**	**1.9**	**1.0**	**4.4**	**100**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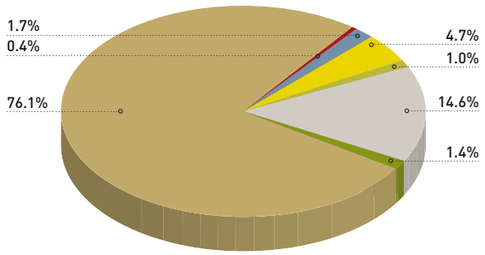
Amu Darya
Darya Panj
Faiz Abad
Kunduz
Farkhar
Taloqan
Badakhshan
Baghlan
Bangi
Panjsher
Anjornan
Nuristan
N
0 5 10 20 Km
WGS 84 - UTM Zone 42N

URUZGAN

INDEX MAP

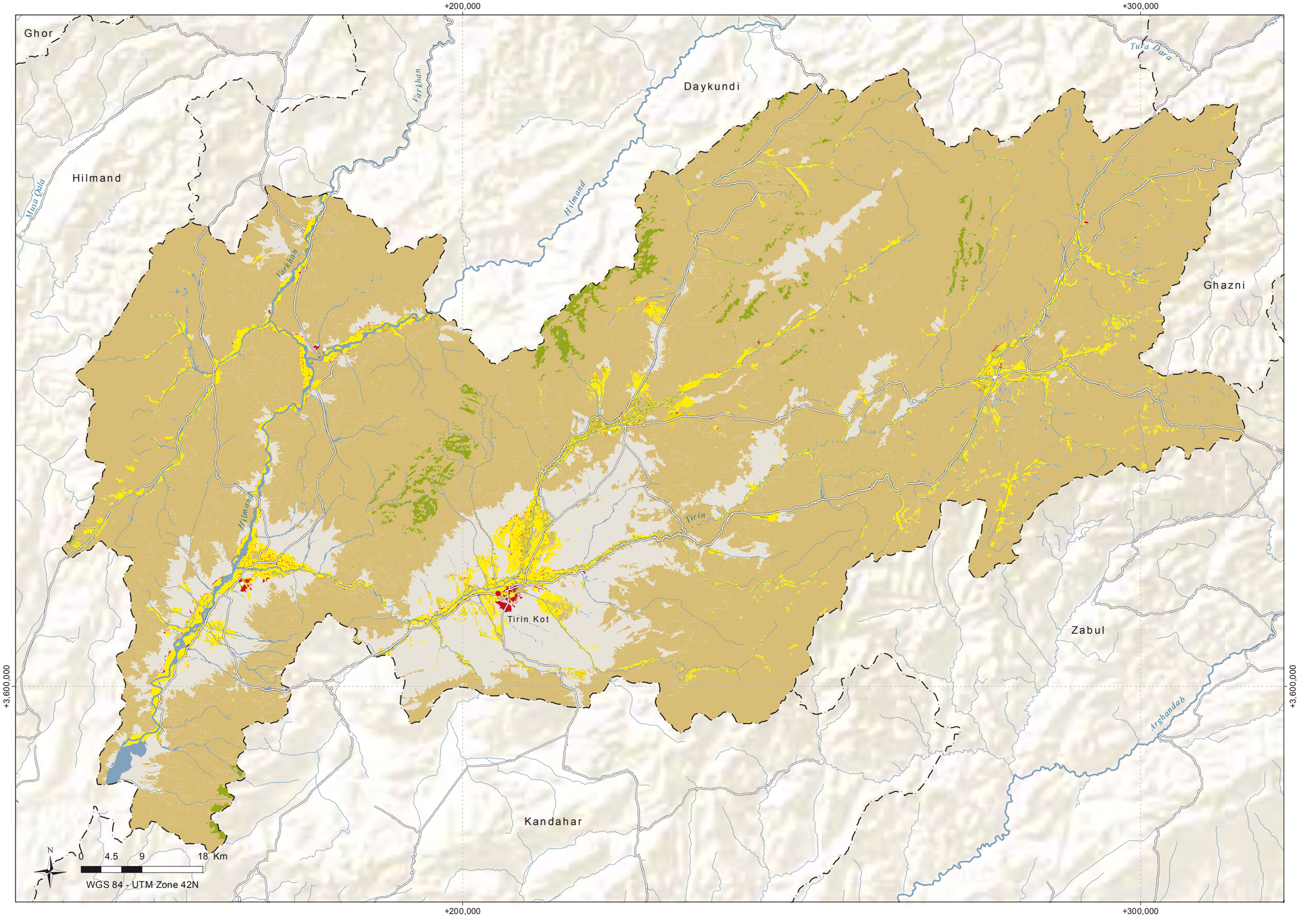
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Chora	8,631	447	3,242	0	34,983	0	7,467	246,508	0	395	1,718	**303,392**
Dehrawud	9,439	0	298	4	25,730	0	3,386	104,530	0	1,072	6,373	**160,832**
Khasuruzgan	11,568	136	2,985	18	9,723	0	1,442	229,854	0	370	3,836	**259,931**
Shahid-e-Hassas	8,399	41	521	0	17,815	0	48	154,623	0	578	3,811	**185,835**
Tirinkot	13,091	1,023	3,514	0	60,576	0	3,385	90,668	0	1,761	2,193	**176,210**
TOTAL (ha)	**51,127**	**1,647**	**10,560**	**23**	**158,827**	**0**	**15,727**	**826,184**	**0**	**4,175**	**17,931**	**1,086,200**
TOTAL (%)	**4.7**	**0.2**	**1.0**	**0.0**	**14.6**	**0.0**	**1.4**	**76.1**	**0.0**	**0.4**	**1.7**	**100**



Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.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Daykundi
Ghazni
Zabul
Kandahar
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Musa Qala
Yarkhan
Hilmand
Tirin
Arghandab
Tura Dara
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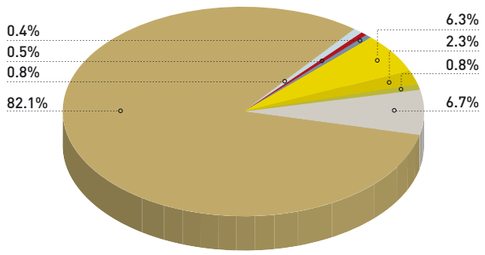
WGS 84 - UTM Zone 42N

WARDAK

INDEX MAP

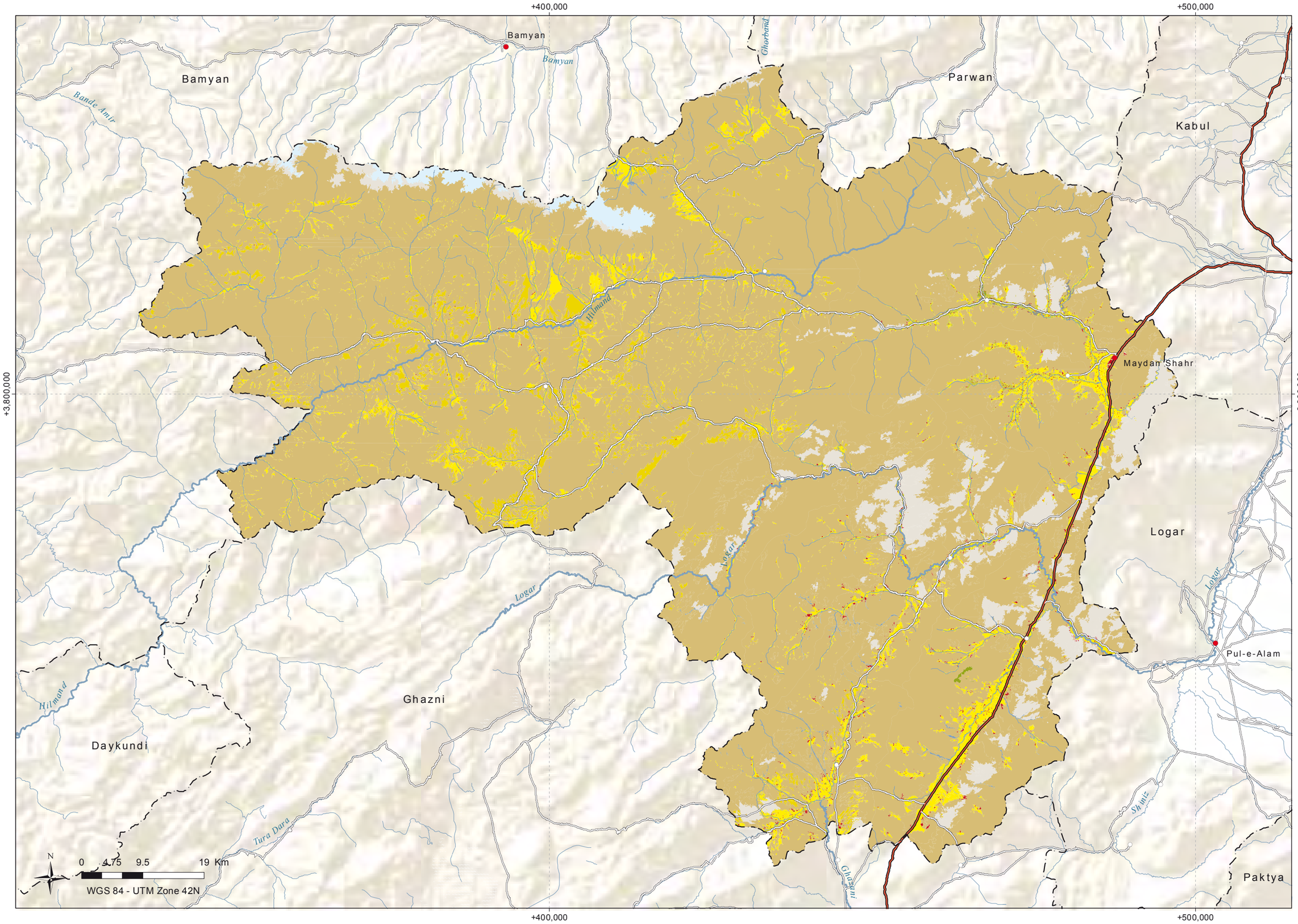


Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Chak	5,272	84	1,491	3	17,965	0	150	84,725	0	898	466	**111,054**
Daymirdad	2,418	858	669	7	9,503	0	80	81,700	0	255	147	**95,636**
Hesa-e-Awal-e-Behsud	11,536	3,963	149	0	913	0	0	136,611	3,257	126	783	**157,339**
Jaghatu	6,012	1,515	446	18	3,769	0	62	46,819	0	686	581	**59,909**
Jalrez	1,879	12	1,895	4	5,210	0	279	99,450	33	262	223	**109,245**
Markaz-e-Behsud	20,068	17,135	142	0	4,881	0	0	285,615	5,218	418	1,012	**334,490**
Maydanshahr	2,764	1	891	18	1,550	0	74	18,827	0	390	119	**24,636**
Nerkh	5,806	0	2,379	12	8,398	0	0	38,826	0	535	236	**56,192**
Saydabad	11,355	835	665	9	18,599	0	285	75,612	0	1,335	791	**109,484**
TOTAL (ha)	**67,110**	**24,402**	**8,727**	**72**	**70,788**	**0**	**931**	**868,185**	**8,508**	**4,906**	**4,357**	**1,057,985**
TOTAL (%)	**6.3**	**2.3**	**0.8**	**0.0**	**6.7**	**0.0**	**0.1**	**82.1**	**0.8**	**0.5**	**0.4**	**100**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Bande Amir
Ghorband
Parwan
Kabul
Hilmand
Maydan Shahr
Logar
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Logar
Pul-e-Alam
Ghazni
Hilmand
Daykundi
Tura Dara
Ghaznī
Shamiz
Paktya
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WGS 84 - UTM Zone 42N
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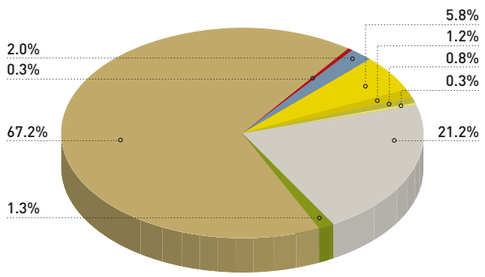
ZABUL

INDEX MAP



Land Cover in percentage

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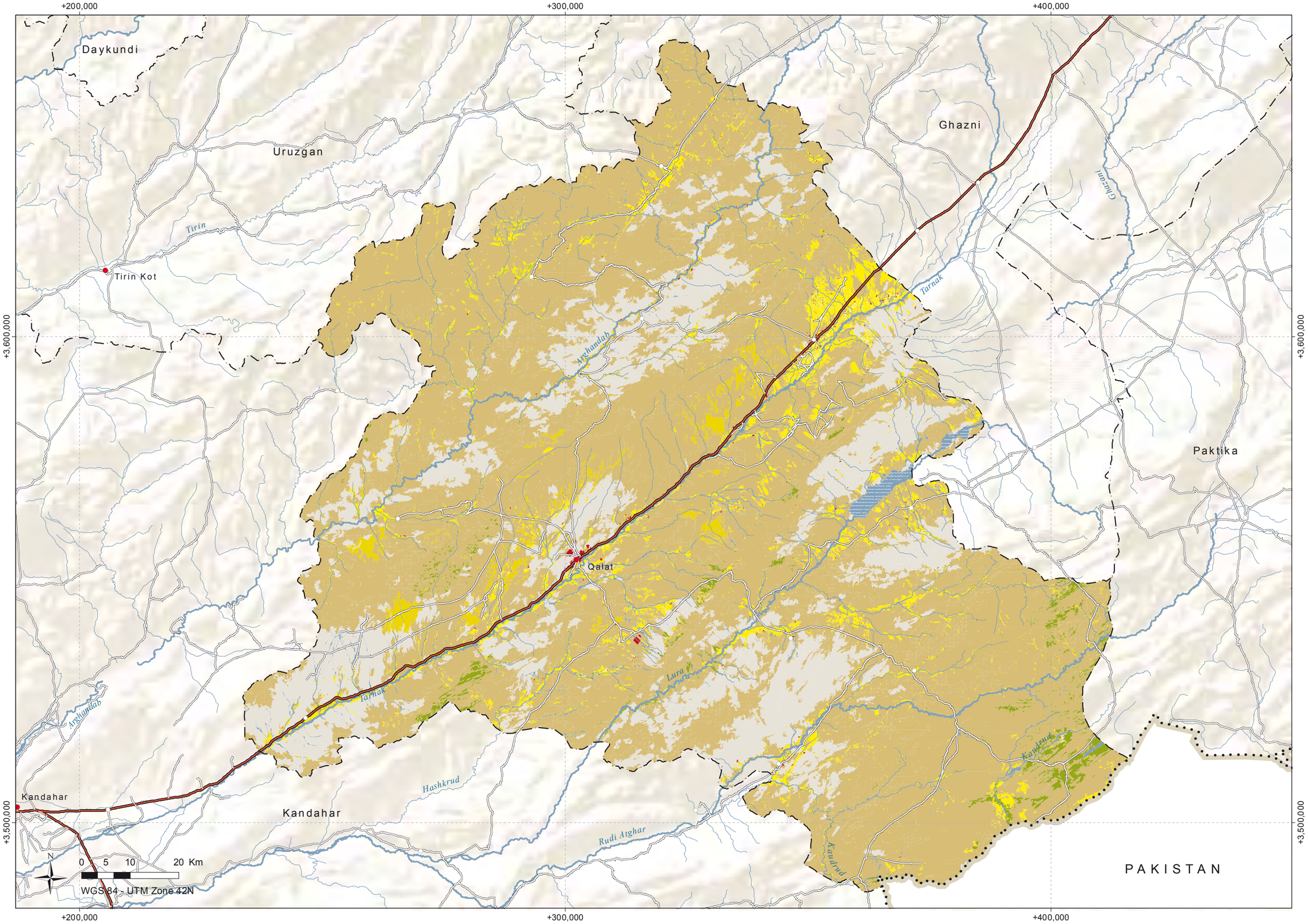
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Arghandab	3,794	112	2,032	2	52,579	0	5	90,365	0	383	1,427	**150,700**
Atghar	3,949	0	296	146	20,786	0	4	23,920	0	141	975	**50,217**
Daychopan	6,917	27	2,768	5	8,093	0	0	145,349	0	88	796	**164,045**
Kakar	5,978	77	2,280	0	14,753	0	0	82,843	0	360	1,881	**108,171**
Mizan	3,160	1,660	812	2	25,044	0	1,969	78,423	0	116	653	**111,841**
Nawbahar	10,768	0	701	307	43,207	0	9	63,908	0	351	7,162	**126,413**
Qalat	9,508	8,686	1,192	1,152	33,902	0	112	124,038	0	1,181	3,845	**183,615**
Shahjoy	26,297	4,638	1,684	3,128	23,341	0	680	108,094	0	1,290	2,706	**171,858**
Shinkay	11,086	829	908	347	66,105	0	3,429	140,502	0	500	5,214	**228,919**
Shomulzay	10,549	48	556	28	22,808	99	14,555	235,870	0	176	4,284	**288,973**
Tarnak Wa Jaldak	7,908	5,314	129	412	56,675	0	2,622	72,023	0	205	4,977	**150,265**
TOTAL (ha)	**99,913**	**21,392**	**13,358**	**5,529**	**367,294**	**99**	**23,385**	**1,165,336**	**0**	**4,790**	**33,922**	**1,735,018**
TOTAL (%)	**5.8**	**1.2**	**0.8**	**0.3**	**21.2**	**0.0**	**1.3**	**67.2**	**0.0**	**0.3**	**2.0**	**100**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Daykundi
Uruzgan
Ghazni
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PAKISTAN
Kandahar
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Qalat
Tirin
Arghandab
Tarnak
Hazarni
Lura
Hashkrud
Rudi Atghar
Kandrud
N
0 5 10 20 Km
WGS 84 - UTM Zone 42N

LAND COVER by **Basin**

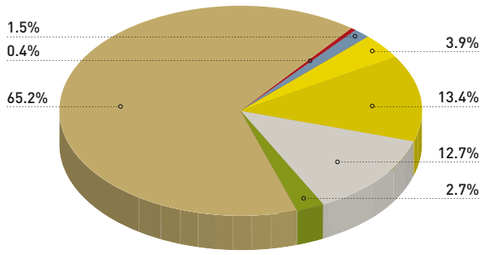
A hydrological basin can be defined as the extent of land from which surface water originating from precipitation, channelled in rivers and streams, drains down stream in a single point towards another waterbody such as river, lake, sea or ocean or wetland.
Based on the IWRM division, Afghanistan is covered by five hydrological river basins, comprising 34 watersheds.

HARIROD MURGHAB

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Kushk Wa Kashan	20,834	507,772	330	103	122,600	2,903	109,081	548,565	0	6,319	11,197	**1,329,703**
Lower Harirod	181,178	185,956	462	7,117	712,400	0	8,815	621,093	0	16,161	69,154	**1,802,335**
Murghab	56,879	269,399	1,198	2,315	32,416	0	72,695	2,092,858	0	5,058	14,862	**2,547,680**
Upper Harirod	44,674	82,227	1,527	79	122,868	0	16,896	1,829,607	1,928	3,162	23,346	**2,126,315**
TOTAL (ha)	**303,564**	**1,045,354**	**3,517**	**9,614**	**990,285**	**2,903**	**207,487**	**5,092,124**	**1,928**	**30,699**	**118,559**	**7,806,033**
TOTAL (%)	**3.9**	**13.4**	**0.1**	**0.1**	**12.7**	**0.0**	**2.7**	**65.2**	**0.0**	**0.4**	**1.5**	**100**



Land Cover in percentage

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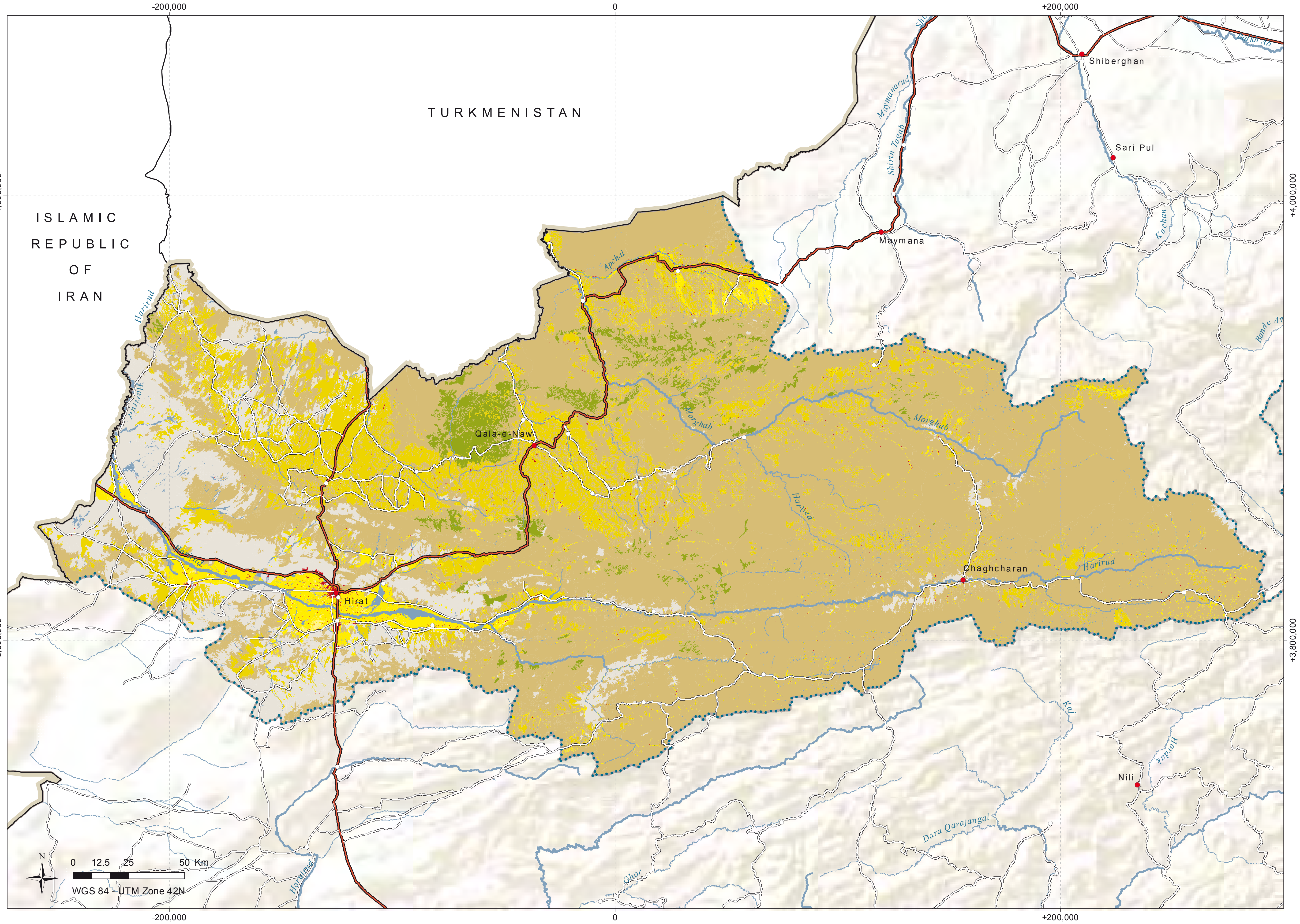
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ISLAMIC REPUBLIC OF IRAN
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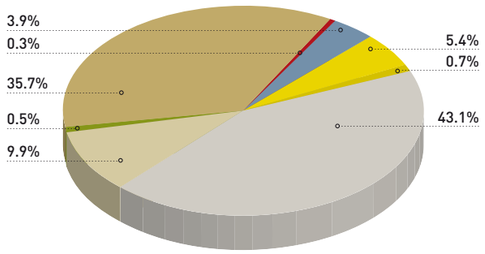
Sari Pul
Maymana
Qala-e-Naw
Hirat
Chaghcharan
Nili
Balkh Ab
Maymanarud
Shirin Tagab
Kachan
Bande Amir
Apchal
Harirud
Morghab
Harbed
Kaj
Hordak
Dara Qarajangal
Ghor
Harutrud
N
0 12.5 25 50 Km
WGS 84 - UTM Zone 42N

HILMAND

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land	Rainfed Ag. Land	Fruit Trees	Vineyards	Barren Land	Sand Cover	Forest & Shrubs	Rangeland	Permanent Snow	Built-up	Water Body & Marshland	TOTAL LAND
	AGI	AGR	AGT	AGV	BRS	BSD	NFS	NHS	SNW	URB	WAT	
	3A, 3A1 3B, 3C	4A, 4B	2A	2B	8A	8B, 8C	6A, 6B 6B1, 6C	7	13	1A, 1B	9A, 9B, 10A 10B, 11, 12	
Ab-e-Estada	264,903	26,990	5,203	7,062	196,575	0	15,085	940,812	0	16,794	80,797	**1,554,222**
Arghandab	148,716	41,209	17,742	14,512	556,247	20,317	5,616	1,106,497	0	15,203	58,212	**1,984,271**
Farah	405,093	30,205	923	1,355	7,274,546	36,931	20,127	2,495,795	0	16,716	568,224	**10,849,914**
Lower Hilmand	22,812	2	7	498	2,474,782	872,156	615	90,193	0	2,426	252,426	**3,715,918**
Mid Hilmand	374,155	559	1,895	814	2,376,988	1,893,957	3,293	1,208,971	0	25,601	183,653	**6,069,885**
Tarnak	296,142	69,916	8,368	14,231	794,300	436,303	73,926	1,784,493	0	15,261	88,772	**3,581,713**
Tirin Kot	41,904	15,260	9,370	310	142,806	0	17,841	589,489	0	3,274	9,720	**829,974**
Upper Hilmand	144,035	41,919	8,300	9	302,876	0	26,749	3,278,991	6,178	4,475	32,294	**3,845,827**
Upper Jelga	67,502	2,555	708	449	27,890	675	9,150	218,739	0	4,017	2,793	**334,479**
TOTAL (ha)	**1,765,263**	**228,617**	**52,516**	**39,239**	**14,147,011**	**3,260,338**	**172,402**	**11,713,980**	**6,178**	**103,767**	**1,276,891**	**32,766,203**
TOTAL (%)	**5.4**	**0.7**	**0.2**	**0.1**	**43.1**	**9.9**	**0.5**	**35.7**	**0.0**	**0.3**	**3.9**	**100**



Land Cover in percentage

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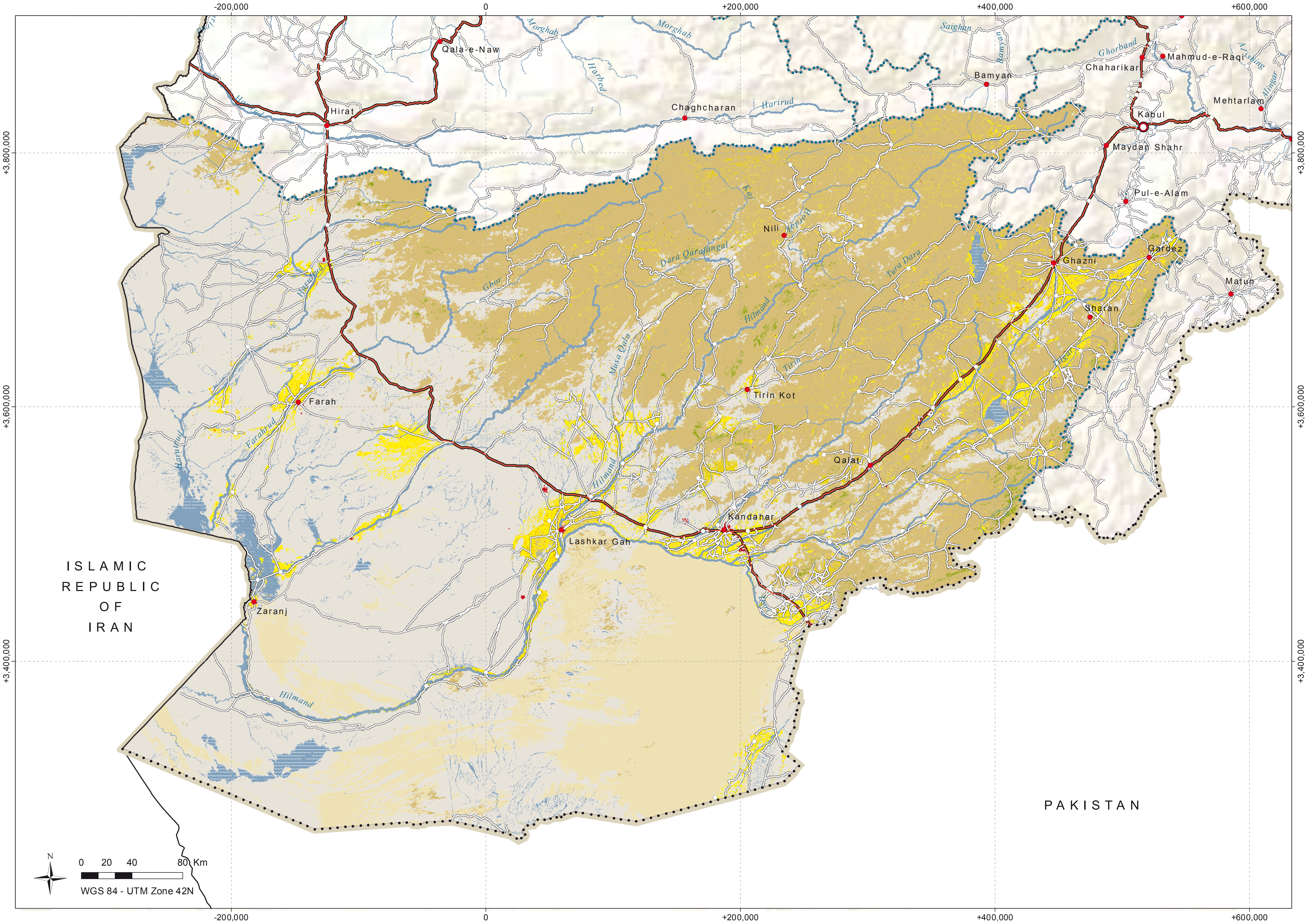
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Qala-e-Naw
Hirat
Chaghcharan
Bamyan
Chaharikar
Mahmud-e-Raqi
Mehtarlam
Kabul
Maydan Shahr
Pul-e-Alam
Gardez
Ghazni
Matun
Sharan
Nili
Tirin Kot
Qalat
Kandahar
Lashkar Gah
Farah
Zaranj
Morghab
Harirud
Hilmand
Farahrud
Harutrud
Musa Qala
Dara Qarafangal
Tura Dara
Ghorband
Saighan
Ghor
ISLAMIC
REPUBLIC
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IRAN
PAKISTAN
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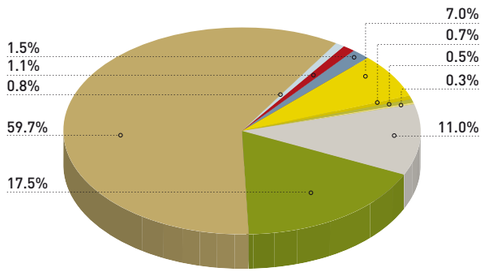
0 20 40 80 Km
WGS 84 - UTM Zone 42N

KABUL INDUS

INDEX MAP

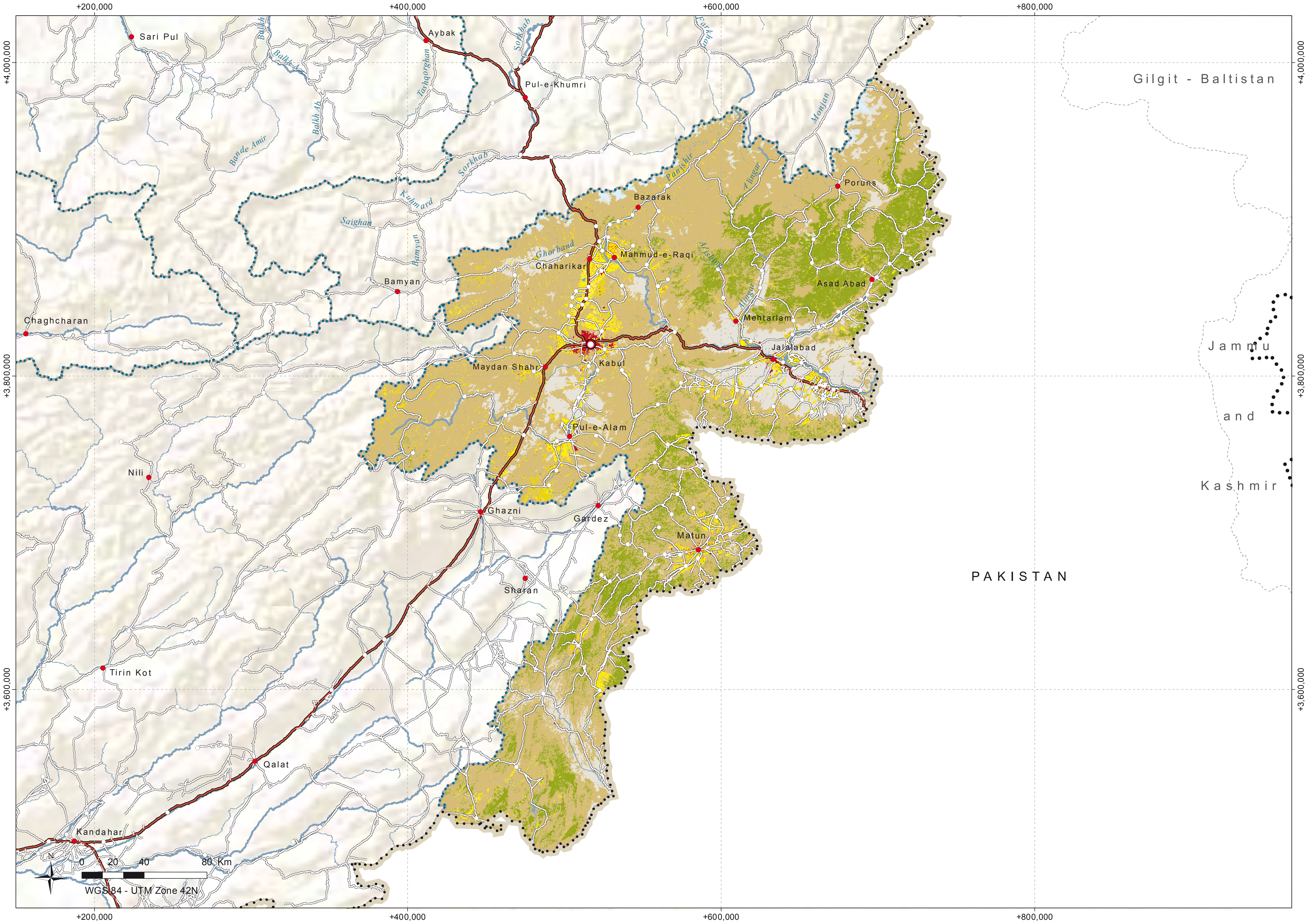
AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land AGI 3A, 3A1 3B, 3C	Rainfed Ag. Land AGR 4A, 4B	Fruit Trees AGT 2A	Vineyards AGV 2B	Barren Land BRS 8A	Sand Cover BSD 8B, 8C	Forest & Shrubs NFS 6A, 6B 6B1, 6C	Rangeland NHS 7	Permanent Snow SNW 13	Built-up URB 1A, 1B	Water Body & Marshland WAT 9A, 9B, 10A 10B, 11, 12	TOTAL LAND
Ghorband	18,270	5,223	6,685	59	48,163	0	190	369,800	10,903	2,163	2,486	**463,942**
Gomal	36,870	3,134	826	3	119,201	997	265,028	676,937	0	2,944	16,097	**1,122,037**
Kunar	40,951	460	916	6	82,238	0	458,761	483,880	16,446	3,096	14,104	**1,100,858**
Laghman	18,843	34	857	4	36,749	0	196,215	360,399	1,739	1,779	5,755	**622,375**
Logar	83,036	29,849	3,854	1,074	135,984	0	4,686	724,639	0	11,718	9,157	**1,003,997**
Lower Kabul	108,341	127	3,956	308	269,778	0	80,734	389,965	0	13,569	30,895	**897,672**
Lower Panjsher	80,331	8,811	6,669	17,466	27,240	0	15,957	273,746	101	10,547	7,735	**448,603**
Shamal and Khuram	69,153	2,439	302	2	12,938	0	217,655	359,562	0	9,158	11,725	**682,934**
Upper Kabul	31,456	167	7,106	382	45,288	0	6,121	293,865	0	20,514	3,624	**408,524**
Upper Panjsher	9,337	795	1,458	0	9,014	0	3,120	321,878	25,597	469	3,956	**375,624**
TOTAL (ha)	**496,587**	**51,040**	**32,628**	**19,305**	**786,592**	**997**	**1,248,468**	**4,254,671**	**54,786**	**75,957**	**105,535**	**7,126,566**
TOTAL (%)	**7.0**	**0.7**	**0.5**	**0.3**	**11.0**	**0.0**	**17.5**	**59.7**	**0.8**	**1.1**	**1.5**	**100**



Land Cover in percentage

*Classes represented by less than 0.30% are not showed on the graph.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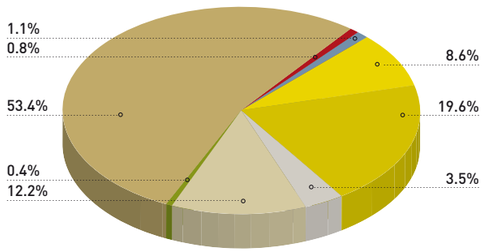
Gilgit - Baltistan
Bazarak
Poruns
Mahmud-e-Raqi
Chaharikar
Bamyan
Asad Abad
Chaghcharan
Mehtarlam
Jalalabad
Jammu
Maydan Shahr
Kabul
and
Pul-e-Alam
Nili
Kashmir
Ghazni
Gardez
Matun
PAKISTAN
Sharan
Tirin Kot
Qalat
Kandahar
Balkh Ab
Tashqorghan
Sorkhab
Farkhar
Bande Amir
Monjan
Panjshir
Alingar
Kuhmard
Saighan
Ghorband
Alishang
Bamyan
0 20 40 80 Km
WGS 84 - UTM Zone 42N

NORTHERN

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land	Rainfed Ag. Land	Fruit Trees	Vineyards	Barren Land	Sand Cover	Forest & Shrubs	Rangeland	Permanent Snow	Built-up	Water Body & Marshland	TOTAL LAND
	AGI	**AGR**	**AGT**	**AGV**	**BRS**	**BSD**	**NFS**	**NHS**	**SNW**	**URB**	**WAT**	
	3A, 3A1 3B, 3C	4A, 4B	2A	2B	8A	8B, 8C	6A, 6B 6B1, 6C	7	13	1A, 1B	9A, 9B, 10A 10B, 11, 12	
Balkhab	363,927	428,904	3,630	616	120,002	316,451	11,566	1,558,116	5,481	28,193	49,020	**2,885,905**
Khulm	52,398	166,749	2,494	561	102,400	83,563	9,615	597,879	0	3,520	3,519	**1,022,698**
Sar-e-Pul	98,544	461,380	1,776	7,925	12,971	221,564	3,044	851,768	0	10,971	13,552	**1,683,494**
Sherin Tagab	91,963	334,276	1,067	4,873	16,012	245,727	2,333	785,425	0	12,042	13,712	**1,507,431**
TOTAL (ha)	**606,833**	**1,391,309**	**8,967**	**13,975**	**251,385**	**867,305**	**26,558**	**3,793,187**	**5,481**	**54,727**	**79.802**	**7,099,527**
TOTAL (%)	**8.6**	**19.6**	**0.1**	**0.2**	**3.5**	**12.2**	**0.4**	**53.4**	**0.1**	**0.8**	**1.1**	**100**



Land Cover in percentage

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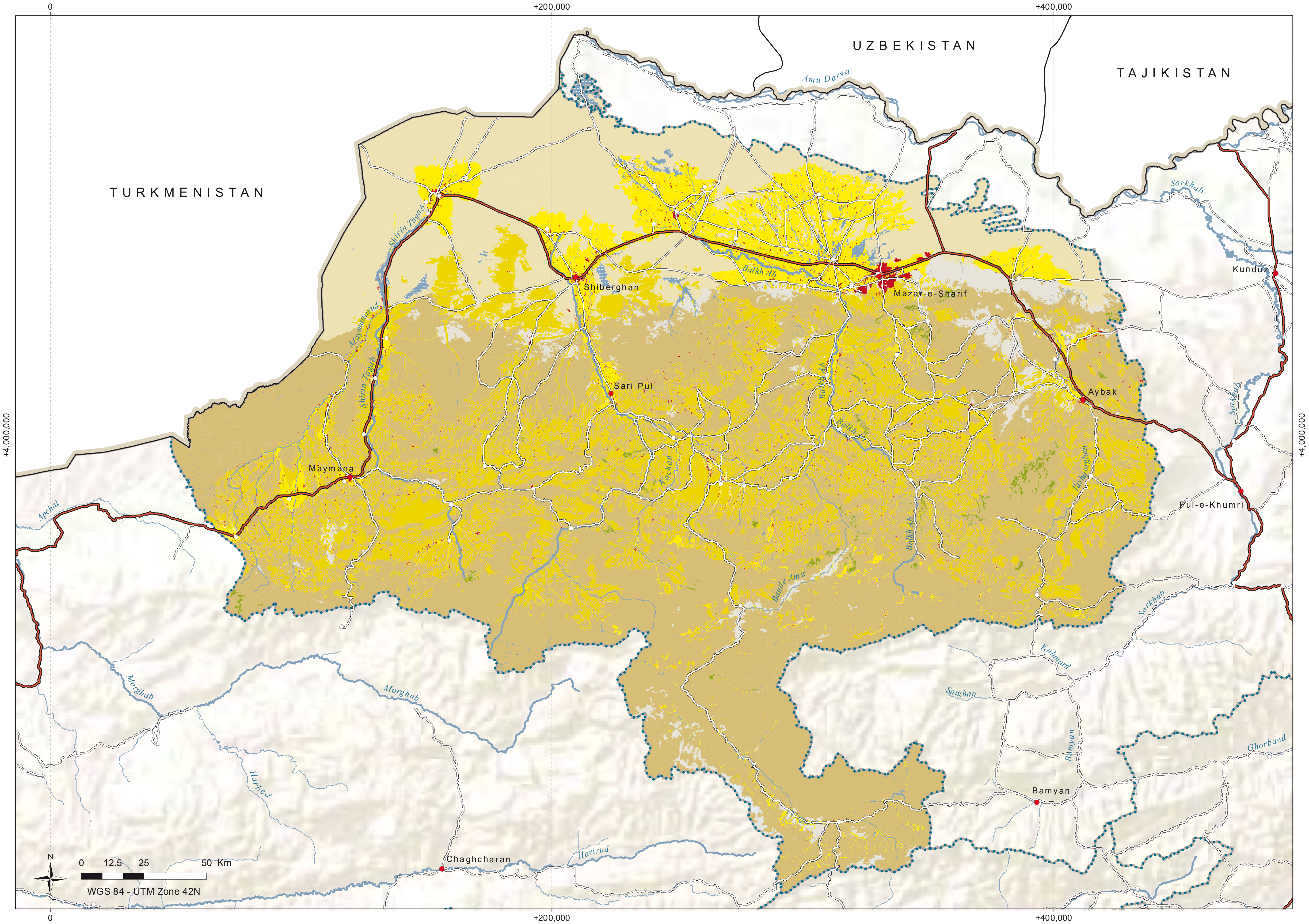

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Sorkhab
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Balkh Ab
Kunduz
Shiberghan
Mazar-e-Sharif
Maymanarud
Sari Pul
Aybak
Maymana
Kochan
Tashqorghan
Pul-e-Khumri
Apchal
Band-e Amir
Kuhmard
Morghab
Saighan
Bamyan
Ghorband
Harbed
Chaghcharan
Harirud
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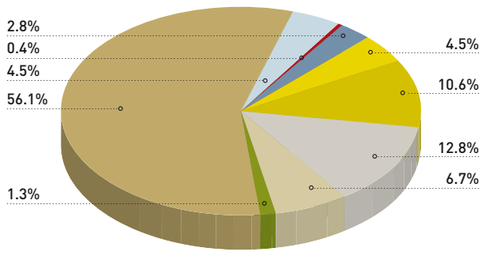
WGS 84 - UTM Zone 42N

PANJ AMU

INDEX MAP

AGGREGATED LAND COVER STATISTICS

DISTRICT	Irrigated Ag. Land	Rainfed Ag. Land	Fruit Trees	Vineyards	Barren Land	Sand Cover	Forest & Shrubs	Rangeland	Permanent Snow	Built-up	Water Body & Marshland	TOTAL LAND
	AGI	AGR	AGT	AGV	BRS	BSD	NFS	NHS	SNW	URB	WAT	
	3A, 3A1 3B, 3C	4A, 4B	2A	2B	8A	8B, 8C	6A, 6B 6B1, 6C	7	13	1A, 1B	9A, 9B, 10A 10B, 11, 12	
Kokcha	69,290	377,119	5,733	0	342,878	0	18,626	1,299,388	75,204	8,081	23,246	**2,219,565**
Lower Kunduz	113,279	194,531	2,377	98	89,107	167,966	19,830	624,587	1	12,770	28,054	**1,252,601**
Lower Panj	86,739	197,516	3,605	96	35,254	47,087	8,570	650,622	41,549	6,548	83,551	**1,161,137**
Shor Tepa	17,859	0	185	0	8	419,774	902	6,100	0	1,091	54,557	**500,475**
Taloqan	86,840	202,269	3,607	124	83,787	10,950	30,200	604,463	39,995	9,748	16,851	**1,088,833**
Upper Kunduz	40,403	39,872	3,702	0	180,258	0	40,663	1,267,323	65,583	3,189	11.390	**1,652,383**
Upper Panj	13,551	6,868	801	0	497,773	79	7,337	937,523	206,530	273	48,825	**1,719,559**
TOTAL (ha)	**427,960**	**1,018,174**	**20,010**	**318**	**1,229,064**	**645,857**	**126,128**	**5,390,007**	**428,863**	**41,700**	**266,474**	**9,594,555**
TOTAL (%)	**4.5**	**10.6**	**0.2**	**0.0**	**12.8**	**6.7**	**1.3**	**56.1**	**4.5**	**0.4**	**2.8**	**100**



Land Cover in percentage

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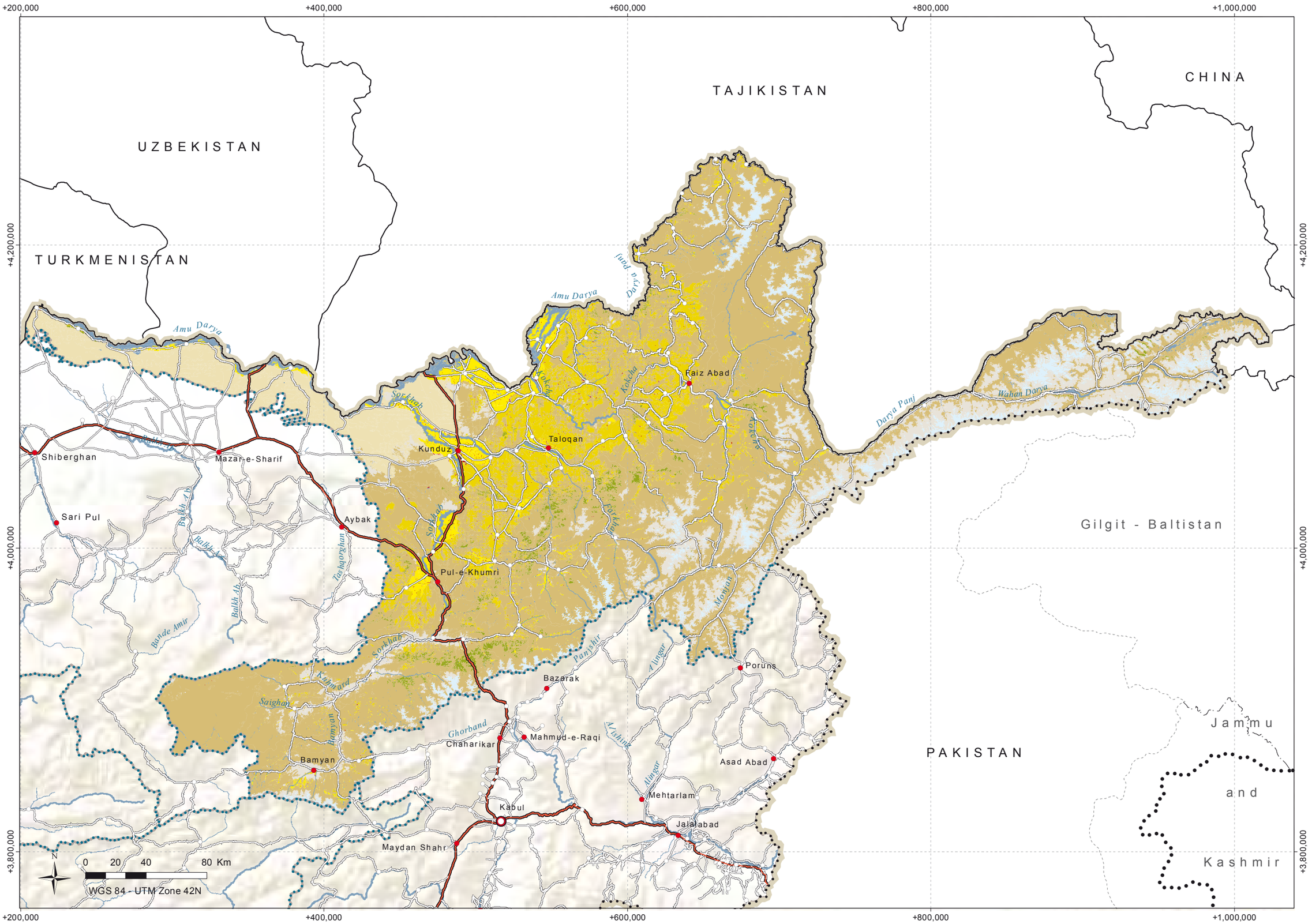
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TAJIKISTAN
CHINA
UZBEKISTAN
TURKMENISTAN
PAKISTAN
Gilgit - Baltistan
Jammu and Kashmir
Amu Darya
Panj
Darya Panj
Kokcha
Sorkhab
Wahan Darya
Raiz Abad
Taloqan
Kunduz
Shiberghan
Mazar-e-Sharif
Sari Pul
Aybak
Pul-e-Khumri
Balkh
Balkh Ab
Tashqorghan
Bande Amir
Saighan
Kahmard
Bamyan
Ghorband
Chaharikar
Mahmud-e-Raqi
Bazarak
Panjshir
Alingar
Alishing
Monjan
Poruns
Asad Abad
Mehtarlam
Kabul
Jalalabad
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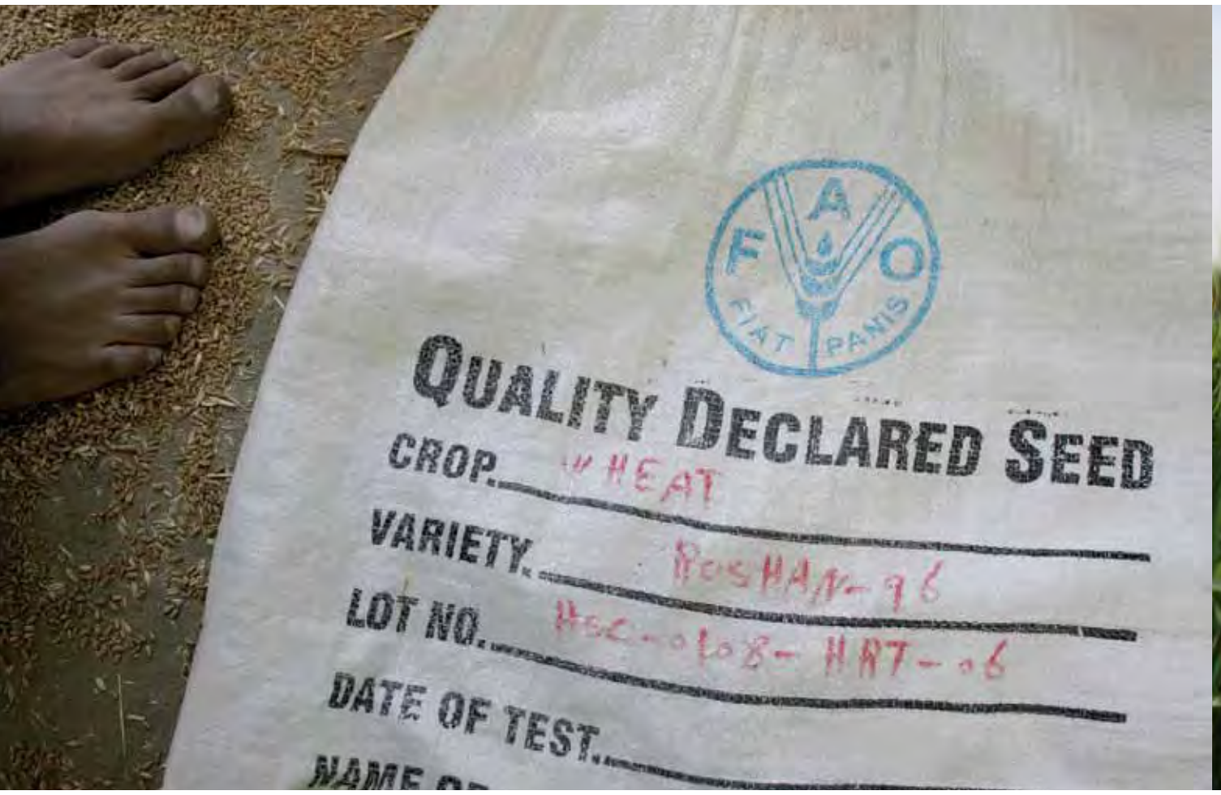
WGS 84 - UTM Zone 42N



SAHAR KHIZ VILLAGE, INJIL DISTRICT, HERAT PROVINCE Afghan farmers working in a wheat field.

Food and Agriculture
Organization of the
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