

ARTICLE

Sustaining Rural Afghanistan under Limited Central Government Influence

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Land and water access insecurity, land grabbing, and unstable common property status of critical local resources continue to drive conflicts, rural landlessness and environmental problems throughout many areas of Afghanistan where formal government is weak or entirely absent. In contrast to traditional development strategies that favor infrastructure enhancement and backed by enforced national policies, we offer Afghan-specific strategies based on resource conservation and increased capacity of local resource management institutions that can function when and where central government cannot be relied upon to assume or maintain a supportive role. Resource conservation and building local capacity are key components of existing and proposed future efforts to increase stability. However, support for these efforts, whether government or community-based, has been limited in portions of rural Afghanistan, apparently due to low stakeholder confidence in retaining access to improved land, water and other critical resources when international forces withdraw. Powerful individuals and groups, operating outside local community structures, are increasingly impacting land use practices. We suggest a thorough assessment of the present and likely future social environment, including awareness of likely conflicts resulting from agricultural or natural resource improvements, before any tangible actions are taken.

Introduction

More than ten years have passed since the start of the most recent effort to stabilize Afghanistan. Coalition and Afghan partner's vision for post-war Afghanistan has been articulated and, in many locations is taking shape, although long-term stability and functionality as a state are doubtful (Groninger and Ruffner 2010, USGAO 2010, Felbab-Brown 2012). As an arid, predominantly rural, agricultural country, sound management of

water and land resources are central to economic self-sustainability and are widely recognized as being essential for agricultural productivity, economic prosperity and social stability among donor nations and within the central government ministries in Kabul (MAIL 2009). Accordingly, laws and policies intended to protect and sustain watersheds (eg. 2009 Water Law, 2010 Forest and Land Use Law) have been ratified, but remain largely not enacted. Most Afghans we encountered in rural areas have a limited understanding of watershed processes and poorly developed social institutions to address problems (Groninger and Lasko 2011, Groninger 2012). For example, most government agriculture extension agents and farmers do not recognize ubiquitous livestock overgrazing as a major cause of the soil erosion that decreases water availability in lower catchments due to

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sedimentation of irrigation infrastructure. Donor nation influence can be expected to decline precipitously as withdrawal deadlines come to pass. Watershed improvement efforts are arguably among the most challenging basic needs in Afghanistan, yet progress lags across much of the country despite the efforts of military, civilian, and non-governmental organizations. In most areas, long-term sustainability would require many years of continuous rehabilitation efforts.

The international development community has increasingly worked in accordance with the central government and its ministries and directorates. This has produced modest gains in areas where central government authority is recognized. That is, swaths of northern and central Afghanistan and near some major cities elsewhere. Accordingly, state-based solutions such as basin-wide watershed restoration plans have been proposed and can be expected to proceed there as in other countries (Varis and Kummu 2012). However many critical water source and use areas identified in central plans are in rural areas that continue to be effectively beyond the control of the central government and where anti-government elements hold local sway (Groninger and Lasko 2011). In other instances, degree of government control varies within a single watershed. In the Helmand-Arghandab-Tarnak River Valley watersheds, all have sub-basin authorities who are charged with managing water, but do so with equivocal effect. However, beyond approximately 50 km from a dam or major town, the sub-basin authorities give way to whoever controls the local territory. The interplay among these formal and informal authorities within the watershed depends upon the security situation at a given time and place. This is significant, given the overwhelming dependence of livelihoods on irrigation agriculture throughout rural Afghanistan.

Across most rural areas, there is limited to non-existent state influence on courts, law enforcement, and local education. Instead,

strongmen are re-emerging as a force determining land use and limiting opportunities to improve present stability conditions supported by the central government and international security forces (Wily 2012). In areas where the central government has little or no influence, personnel known to have connection to the central government, or its proxies, may be severely limited in their ability to engage local stakeholders on water and land-related issues without putting their lives, and those of their families, at risk. Furthermore, failure to correctly assess the physical and cultural terrain prior to making plans public can quickly result in violent conflict. Our experience suggests that development activities creating wealth disparities or false economies can destabilize local inter-community relationships. This effectively rules out large infrastructure development in these uncontrolled areas.

This paper is based on the premise that these non-state influences will continue to either remain dominant or grow in importance as international security forces withdraw or decline. At the same time, local institutions that have traditionally mediated land and water issues remain in a degraded state, leaving a vacuum regarding critical biophysical and social issues related to agricultural sustainability. Our objective is to identify challenges and review resources available to address rural water and land issues in the portions of Afghanistan expected to remain outside the hypothetically stabilizing influence of the central government. Aspects of this Afghanistan-based case study may inform strategies in countries or regions experiencing similar stability and development challenges.

Rural Afghanistan Resources and Constraints

Agriculture is central to rural Afghan life and water availability often dictates where and to what extent agriculture occurs on a season by season basis. Agricultural improvements associated with early stabilization efforts have been hampered by land security concerns

born in part from recent international conflicts but also over a longer history of social structure degradation.

Irrigated lands and agriculture

Most of the agricultural products that are being produced by Afghan farmers are directly consumed by their families and/or villages. Greater than 80 per cent of the population resides in rural areas and most are subsistence farmers whose agricultural production is often times insufficient to sustain themselves and their families. Wheat is the primary crop and supplies a large portion of the overall average Afghan farm income; however, horticultural food crops, such as fruit and vegetables, are also important to Afghan farm families and are grown for both home use as well as for supplementing farm income (Walters et al. 2012). Farm families generally support themselves through multiple sources including both crop and livestock production and sales. Although large holdings are generally rare, it remains likely that around 40 per cent of arable land is owned by less than 10 per cent of the rural population (Wily 2004). The average arable land farm size is approximately 5 ha and roughly two-thirds of farms are smaller than 5 ha. Under this scenario, farmers are dependent on common land resources outside the irrigated landscape to support fodder and fuel needs. In addition, nearly 70 per cent of farmers are essentially sharecropping the land they work, with 75 per cent of the harvest secured by the actual landowner, leaving little in the way of profit for the tenant.

Significant water resources remain available to increase irrigated crop and livestock production. However, Afghanistan suffers from damaged irrigation infrastructure and poor overall performance of existing irrigation systems (Torell and Ward 2010). The location specific technologies for water harvesting, water saving and conservation need to be developed for increasing growth in agriculture, and the livelihood of the rural

population. Any improvement in the sustainable development of water resources surely improves agriculture to a great extent. Efforts to improve agricultural water use through community-based approaches would most likely improve the sustainable use of natural resources and should be the focus for achieving and maintaining social stability and sustainable development in Afghanistan.

A major problem that limits implementation of proven irrigation and agricultural production technologies is the weak and inadequate institutional capacity at both the national and provincial levels. Although there are several ministries that are directly involved in the management of water resources, including Ministry of Agriculture Irrigation and Livestock (MAIL), Ministry of Energy and Water, and Ministry of Rural Rehabilitation and Development, they often lack the coordination to effectively solve issues relating to water resource management. The majority of civilian and military decision makers do not fully appreciate the relationship that water plays with near-term governance, security and development success in the country, and the unequal distribution of water leads to regional loss of livelihoods and population displacement (Palmer-Moloney 2011). For example, most local Afghan requests for recent assistance focused on water, with specific requests made regarding digging wells and the reconstruction of canals to improve irrigation for agricultural activities (Palmer-Moloney 2011).

Physical conditions of watersheds and agricultural infrastructure

Water availability is the most essential natural resource concern to the Afghan populace. Although Afghanistan has an arid climate, it is rich in water resources with more than 80 per cent originating from melting mountain snow pack. However, watershed degradation, amplified by recent droughts and region-wide climatic changes, has contributed to water shortages (Yadav 2009). Many dam

and irrigation infrastructure development projects have failed due to siltation, strongly suggesting that meaningful improvements in watershed management must address a degraded physical environment that generates peak flows that routinely exceed engineered capacities. However, even under the best of management circumstances, some river systems and agricultural landscapes are inherently prone to flash flooding and vulnerable to landslides, stream bank instability, and other byproducts of an inherently unstable geologic landscape.

With exception of rain-fed wheat and grazing, water source and consumption areas are often widely separated spatially. Given the lack of central government influence and cultural heterogeneity/antipathy throughout watersheds, land users who degrade upper watersheds are not inclined to consider those in downstream areas who are dealing with the consequences (Groninger 2012). As is typical in regions with highly degraded range resources, annual climatic variability impacts on water yield is sharpened, increasing the incidence of both floods and droughts. The former is especially problematic, resulting in permanent losses of farm lands. This was recently noted across southeastern Afghanistan following the monsoonal rains of 2010 (Groninger and Lasko 2011).

Present biophysical conditions are degrading the capacity of Afghan communities to grow and thrive. Continued poor watershed management, including degraded forest, scrub, and grassland vegetative cover, primarily on steep mountainsides and foothills contribute to slope destabilization, soil erosion and reservoir siltation (**Table 1**).

The most extensive direct effect from soil loss and reduced vegetation cover is an impact on available range resources. In Afghanistan, 70 per cent of the land may be at least periodically used for livestock grazing (Thieme 2000). Although there has been no specific technical evaluation of the status of desertification in Afghanistan, factors associated with this problem are clearly impacting

vast areas (Formoli 1995; Mahmoodi 2008). Desertification is increasing as rain-fed wheat production expands, herd sizes grow, grazing patterns change in response to security conditions, and household energy deficits drive over-exploitation of brush and fuel wood collection. Thus, much land area has been overgrazed and de-vegetated, increasing the potential for desertification and associated forms of soil degradation.

Erosion and flooding are both concerns. The rainy season is relatively short in Afghanistan (from December to April) and occurs at a time when vegetation cover is minimal. However, water discharges have been increasing, typically beginning in March. This may be attributed to snowmelt that culminates in June/July before receding to a minimum in December/January. The most disastrous flooding normally occurs after heavy rainfall in March/April, coinciding with peak snowmelt runoff. Traditional surface irrigation systems and erosion control are vulnerable to severe spring floods and must be quickly rebuilt, creating additional work for the local community. Deleterious practices that decrease soil cover and reduce water buffering capacity vary regionally and include deforestation, neglectful grazing, and conversion of pastureland to rain-fed wheat (Azimi and McCauley 2002).

Key aspects of rural water management include agricultural water use for various forms of crop irrigation and animal husbandry, generation of hydropower, and to support natural systems such as forests, rangelands, and wetlands. Water management systems throughout Afghanistan have been severely damaged during the years of internal conflict with chronic pre-conflict neglect also playing a role (Saba 2001). Unstable rural water availability directly affects everything from food security and internal migration patterns to economic development and susceptibility to extremist influences originating both from within and outside Afghanistan. The resolution of water

Challenge	Primary Cause	Locations	Direct consequences
Rangeland degradation	Fuel wood collection, poor grazing management, conversion to cropland	Extensive across the rural landscape	Reduced fuel and grazing resource availability, reduced watershed buffering, siltation of karez and canal systems
Flash flooding	Range degradation	Riverine areas	Loss of arable land, soil erosion, destroyed canal intakes, siltation of canals
Karez/canal deterioration	Deferred maintenance in karezes/canals and siltation from uplands	Upstream from irrigated lands	Significant water loss, lack of or inconsistent water flows in karezes/canals, loss of agricultural capacity
Inefficient water use	Inappropriate farming practices including; mismatched crop needs with water availability due to poor irrigator understanding of crop-water scheduling, excessive irrigation during times of water sufficiency and under-irrigation during times of water insufficiency, pooling of water in low areas of fields resulting from improper water drainage. Poor capacity or coverage of agricultural support services	Throughout irrigated landscapes	Reduced crop yield and quality, soil compaction, erosion, and increased soil salinity

Table 1: Primary causes and effects of watershed related damage and water misuse in rural Afghanistan.

problems will require tremendous investment to significantly improve the pervasively degraded human capacity, physical infrastructure and environmental resources. As of January 2013, these remain in the planning or early implementation stages. The central government and international donors call for improving watershed management through an integrated, top to bottom approach. However, the extent and effectiveness of governance needed to accomplish such reforms in all but the smallest watersheds is unprecedented in much of Afghanistan and an unrealistic expectation for the foreseeable future.

In the absence of functioning national land use policies, we argue that agricultural development and stabilization strategies should focus on giving local communities the capacity to strengthen critical institutions in order

to improve and defend water resources and the lands that impact them. For instance, some areas still have water masters (mirabs) who are responsible for maintaining an equitable distribution of water. However, current watering techniques are based on timing of flow, not the actual flow rate, so most fields are completely inundated with water when available. In addition, range masters (harbekai) historically acted to enforce rotational grazing and forest harvesting activities but are now only a memory of older villagers. Reinstating and strengthening credibility of these traditional institutions may provide local communities the opportunity to better manage critical resources, provided these individuals are able to function free of destabilizing elements.

Cultural challenges to improving rural water availability and use

Afghanistan's diverse biophysical conditions and tribal land management norms and expectations can vary from one locale to the next. This heterogeneity complicates programmatic replication. For example, the southwestern provinces are characterized by large and complex canal systems and local use of tube wells (Palmer-Moloney 2011). In this region, communities that otherwise share little affinity are accustomed to cooperating with one another to settle water management issues. Elsewhere, karez systems are critical for the supply of water to many villages transporting water in underground aqueducts to arable fields downhill from collection zones (Hussain et al. 2008). Changes in water use patterns and actual blockages in one portion of the watershed can impact karez yields and the balance of power between neighboring communities. This is also the case in many areas where communities draw irrigation water sequentially from a river and without regard for downstream needs. In other mountainous areas, water source and use areas occur within the same community. Under these physically differing scenarios, also characterized by unstable inter-community relationships, facilitation of locally self-sustaining management practices and agreements is extremely challenging. Experience has shown that efforts to provide outside assistance must be addressed on a case by case basis in order to avoid sparking potentially deadly conflicts between communities.

Watershed rehabilitation practices needed to sustain Afghan agriculture are faced with the initial hurdle of language as no word encompasses the concept of a "watershed" in either Dari or Pashto, Afghanistan's primary languages (Groninger and Lasko 2011). Instead, rural Afghans tend to consider water as generally coming from the mountains by way of a river that supplies a local canal intake and continues downstream where it leaves their local area of interest or disap-

pears into wasteland. Exceptions are karez systems where a spring is delivered to agricultural land through a network of canals and tunnels (Hussain et al. 2008). Furthermore, other key terms, such as that used to describe a forest, are extremely vague. For example, the same word is used to describe a landscape dominated by scattered bushes as well as a closed canopy stand of mature, timber producing trees. Forest restoration targets are difficult to establish when word of mouth descriptions of pre-existing landscapes are restricted by severely limited terminology and vague recollections. We have observed that rural Afghans tend to positively embellish the quality of pre-war life and landscape conditions to international personnel, further complicating the development of realistic rehabilitation plans.

Outside the irrigated agricultural landscape, there is only limited indigenous precedent for improving lands. Land management practices that protect water sources, improve upland grazing, or restore depleted fuel wood or timber resources succeed only as cash for work propositions or where trees are grown to yield a food crop (Groninger 2012, Felbab-Brown 2012). There are many examples where long dormant inter-community land disputes are ignited when once useless land begins to acquire value for forage or fuel production. Even when communities control eroded land, attempts to stabilize the landscape occur only when a structure or high value food-producing land faces immediate peril. Under these circumstances, we have observed highly effective retaining walls constructed with local knowledge and labor.

Agricultural proficiency of Afghan farmers varies profoundly, sometimes from village to village. This can be attributed to knowledge lost due to mortality or extended displacement to other locations as refugees during past conflicts. Under these scenarios, basic farmer training is a challenge, given limited mobility of both farmers and potential trainers in most districts, but the lack of educated farmers is a critical problem that must be

dealt with to achieve increased crop productivity (Walters et al. 2012). Poor irrigation management is rampant, even among fairly competent farmers. Problems include planting crops where water use exceeds likely supply, excessive irrigation during times of water surplus, and spreading limited water in vain attempts to save all crops during times of water insufficiency (Walters et al. 2012). Conserving water resources for the consideration of unrelated downstream neighbors appears to be a foreign concept. Instead, we have repeatedly observed Afghans appearing to take pride in despoiling or squandering the resource for downstream Afghans living toward the borders; people who they associate with neighboring Pakistan or “Russia” in the absence of more specific tribal or ethnic antipathy. An interesting and unintended consequence of this attitude plays out within canal systems where the highest yields are achieved among mid-canal farmers. Here, damage that would be caused by excessively irrigating crops during the early season, when water is abundant, is instead used by upper canal farmers to excessively irrigate their own crops, removing that temptation for mid canal farmers. Later in the year, mid canal farmers experience water sufficiency while lower canal neighbors face droughts and upper canal farmers experience disease problems they repeatedly fail to attribute to their own early season over-watering.

Governance and rural lands

Despite international community efforts to increase the capacity of the central government throughout the country, Afghans in many rural areas exhibit behaviors consistent with the expectation that these plans will either not come to fruition or will not exact lasting change. Although exceptions have been noted, in most cases, Afghans concentrate their resources and efforts conservatively, toward family units and politically, in support of parties expected to maintain or increase in power and influence.

Over laying of governing influences over the past two centuries has resulted in a highly complex and inconsistent governance and land tenure situation. Emergence of Pashtun rule in the 1800s led to settlement of fellow-Pashtuns in order to control areas traditionally populated by rival minority groups. In return, the Kabul-based government issued settlers deeds that superseded traditionally recognized land claims. Since the early 1800's, several different entities have issued deeds, sometimes without regard to previously recognized ownership status. This culturally heterogeneous landscape makes it particularly difficult to coordinate watershed management plans or canal cleaning activities.

Across most provinces, village leaders support maintaining ownership rolls locally so that each family is aware of their own claims and those of others. A judge brought from outside that community tends to corrupt the situation along power sharing or sectarian lines. Recently, *huquqs* (land judges) have been assigned to most provincial capitals to settle land disputes. However, most rural disputes are still settled at the village level (Personal observation, C. Ruffner). Common pasturage is usually deeded to the nearest village although disagreements remain. Conflicts are common between local communities and the livestock-dependent *kuchi* clans who migrate annually through Afghanistan regarding grazing rights claims to these pastures. Shura members from Bamyan indicated the *Kuchis* were unwelcome because “the pastures are not enough for strangers” (Roe 2008). One particular conflict dates to Dost Mohammed (khan during the mid-1800's) who claimed public ownership for all pasture land and thus offered it to the *kuchis* for a flat stock fee to be paid to the government. Decades later, local pastoralists claimed the pasture was commonage (i.e. commonly held for all herdsmen to use), not just *kuchis*. Institutional subordination of private and communal land rights by those in power has been commonplace since before

the establishment of the modern state of Afghanistan (Dupree 1997).

Formal government and local institutions are unable to address both internal and external threats to common property systems. As a result, affected lands will become everybody's property or in other words, nobody's property. The lack of authority associated with an open access regime; ensures that users will eventually deplete the resource on a first come first served basis, culminating in a "tragedy of the commons" scenario (cf. Hardin 1968). A more common theme is the emergence of strongmen who supersede or preclude the return to more democratic forms of common land management (Felbab-Brown 2012). The widespread emergence of strongmen, sometimes using intertribal tensions as leverage, is a further threat to equitable land use within communities. Land grabbing and encroachment by warlords and powerful social classes has resulted in numerous disputes over common land rights (Wily 2012). This has occurred perhaps most famously as cartel members involved in the illicit timber trade, followed by extensive clearing, in the eastern forest regions (Bader et al. 2013). An estimate reported to the Afghan parliament suggests that 1.25 million acres have been impacted by land grabbing over the past few years (Sadaat 2012).

Improved land values may also spur conflicts between communities. When a once barren landscape begins to regain grazing potential as a result of land rehabilitation practices, dormant disputes over unresolved land claims are sometimes reignited. Even a project suggested by a powerful governor, within his area of influence, has led to deadly conflict among communities with overlapping claims, including one that resided several kilometers distant from the land in question. Before initiating projects, mechanisms are needed to assure that those conducting the work of land improvement will be the beneficiaries.

A government policy claiming public ownership of wastelands that were not regis-

tered as belonging to anyone else has often defaulted in use as open access commonage. This is evident as these lands are routinely stripped of all vegetation through the actions of local and itinerant grazers. Even land within villages may be treated as commonage when traditional community land management structures are absent (Wily 2003). When improvements are made to these lands by aspiring landholders, judges supported by the Central government routinely issue deeds. The land may then be subdivided and settled, but without regard to long-term sustainability of water and land resources, which put in place potential future resource use conflicts.

The impacts of these changes have been disastrous for powerless, poor social classes in rural areas of this country. Interventions were performed through legal machineries that were formulated mainly in favor of powerful elites and high ranking government officials. Thus, rangeland rights, conditions of maintenance and appropriation of benefits were transferred from primary users. The continuation of this process has resulted in concentration of high quality rangeland and pasture among a few powerful social groups, while poor farmers tend to concentrate on barren low quality areas of rangeland. Therefore, intense conflicts among different segments of the community are constantly being experienced over the utilization of rangeland and pasture. As a result, the quality of common pool rangeland is rapidly deteriorating or being converted into dry-land cultivation in some locations.

Present role of the central government

International community support of the central government has been critical to developing functional services in many areas of the country. However, it is impossible to generalize actual government effectiveness since this varies profoundly from one jurisdiction to the next. Based on anecdotes we have heard, the historic roots underlying the relationship between contemporary

rural Afghans and their central government is a fascinating topic that warrants further scholarly attention. Following are some challenges relating to the reassertion of a central government role as this relates to water and land issues.

Even where the central government has influence, forest and range management occurs under separate offices of the Ministry of Agriculture Irrigation and Livestock (MAIL). This model follows a mid-20th century administrative model based on European influences and results in poor integration of timber, fuel and fodder resource management. During the 1970's, when Soviet-influenced central management was imposed in some locales, the lasting result was decreased capacity of local forest and range management institutions to allocate limited resources, settle land use disputes, and address other watershed management issues at the community level. When the central government collapsed during the early 1980's, no mechanism remained to assume this function. Furthermore, expanding local populations from returning refugees added additional pressure to the water and land base as communities continued to lack both the knowledge and authority to address these worsening natural resource management conditions. Poor security in many locales made safe access and repeated visits by natural resource professionals from outside the locality difficult to impossible.

The credibility of the provincial courts is spurious at best, with accountability and transparency of procedures weak, and often divisive to rural communities. In the courts, similar disputes may be concluded using different standards. Securing the land rights of rural communities over commonly held land in such a system is more doubtful and thereby such properties and the resources contained therein are highly vulnerable to exploitation and eventual degradation. Often, some individuals gain superior rights over others for cultivation and grazing rights through a practice of mortgaging (pawning); whereby,

poor landowners pawn their lands for short term credit or cash, only to lose their property rights based on extenuating repayment schemes and terms (Roe 2008). As a result, poor farmers are adversely affected and are being marginalized by the inconsistent legal system and ineffective land rights protection system. Thus, poor farmers and herdsman are facing the prospect of losing the only lands available for subsistence.

Most villages continue to rely on local committees to solve land disputes. According to most NGO reports, most communities prefer such indigenous dispute resolution to that offered by provincial judges who are often removed from the local situation or are otherwise politically motivated. Under these conditions, communities perceive high ranking government officials and other powerful parties using the formal system for personal gain. The unfamiliar formal system and its ambiguity have alienated the rural poor from exercising their land rights relations in an equitable manner while also undermining the customary land ownership relations.

Solutions

Given the instability and inconsistency of the government's role in supporting agriculture and underlying resources, we suggest that improvements to livelihoods are most likely to occur at the family, village and farm levels (**Table 2**).

Water harvesting procedures combined with pasture restoration and reforestation, where community control of land can be enforced, can improve water management, increase the amount of water available for human and livestock consumption as well as that needed for irrigation, and strengthen the fragile Afghanistan economy (Azimi and McCauley 2002). Water management focused on improved rainfall infiltration and harvesting methods can significantly reduce water losses and improve yields and water productivity (Wheeler and Kay 2010). Water conservation efforts through better soil, pasture, and vegetative and forest cover manage-

Ownership	Primary example	Challenges	Locally-based institutional strategies
Private	Irrigated land, farmer owned or sharecropped	Decayed physical infrastructure and limited farmer capacity to increase productivity	Village level dispute resolution, training water masters and extension agents to improve farming techniques
Community land	Irrigation systems, watersheds, riverbanks	Decayed infrastructure, degraded watersheds, silted karezes	Community natural resource management councils addressing forest range and water resources
Government land	Wasteland, but also including some rough grazing lands	<i>De facto</i> open access land, baseless land claims in the face of projects that add value to lands	Strengthen capacity of communities to manage and defend nearby lands critical to their welfare
Open access	Forests and rangeland	Degradation of watershed values through timber, fuel wood and range exploitation	Strengthen harbekai and other local protective institutions

Table 2: Land ownership conditions and locally-based institutional strategies to address watershed health issues.

ment, including the construction of check dams and other methods that conserve water and enhance groundwater recharge in watersheds, will provide improved water resources to sustain economic growth (Azimi and McCauley 2002.). The improvement of on-farm practices can increase crop yields per unit of water consumed (Walters et al. 2012). Some successful practices implemented over the past several years include the increased use of compost, incorporating wheat straw and other bio-products into irrigated croplands, the modification of field drainage patterns, and the growing use of bee-keeping for crop pollination.

Many resources have been focused on supporting institutional improvements at the level of the Directorate, or local representatives of the central government Ministries. This is in accordance with national and international community policy but not always with the views and preferences of rural communities. In our experience,

and consistent with Afghan history and culture, technically competent individuals, regardless of institutional affiliation, who also possess strong communication skills, can be expected to hold more sway in pursuing development work than can appointed government officials. In some instances, local religious institutions may be valuable partners in agricultural and development work. This stands in stark contrast with the international community-backed emphasis on supporting local representatives of a distrusted central government.

Despite an overemphasis on promoting the central government to provide short term stability, some institutional progress can be reported that may serve as a model for future gains if broader trust is established. The reinstatement of huquqs, the development of sub-basin water councils, training opportunities for extension agents, the growth of farm input services and emergence of producer-trader associations all represent signs of

positive government engagement with rural areas. The U.S. military has positively changed its approach from paying karez managers for cleaning and maintenance, a socially degrading practice initiated during the Soviet era, to now providing only needed training and tools so that the work can resume its traditionally voluntarily status within the local community. Engaging Afghan National Security Forces to assume a role in supporting agricultural development may also warrant consideration in some locations.

Emerging threats

A peaceful Afghanistan and growing economic opportunities increases the risks of settlement from outside Afghanistan, further straining limited resources. Emerging warlords and trade cartels offer some short-term protection to local people but the long term consequences of these must also be considered. Farmers may be financially beholden to a strong man or dependent on them for personal security, further limiting opportunities for local self-determination. On the other hand, this scenario has often been viewed by local people as the best option in places with a tendency toward violent conflicts whenever a community accumulates resources that rivals would seek to usurp.

Every conceivable aspect of Afghanistan's social and governmental institutions, natural resource base, and water management infrastructure has been depleted. Development plans tout the need for integrated watershed management programs to achieve long-term sustainable agriculture production and potential economic growth. However, these projects will most likely take several years before substantial results are seen in downstream communities and smaller-scale projects with tangible results in the short-term would have more immediate impact. Watershed projects are both expensive and highly vulnerable to neglect, particularly through over grazing, and require some community investment in the process to insure long-term success (Groninger and Lasko 2011). Such cooperation

cannot be expected unless local populations believe they have a long term stake in maintaining resources they presently lack the capacity and motivation to manage.

Conclusion

Even when acknowledging Afghanistan's strong tribal traditions, the international community, has attempted to follow a model assuming a level of uniformity and central government influence that has proven unrealistic. Agricultural and underlying natural resource improvements need to consider farmer and land user motivations and the actual social structures and institutions that exert the most influence. In many areas of Afghanistan, assuming a constructive role of central government-backed institutions has proven counterproductive. A thorough assessment of social assets and liabilities, including a realistic view of the limitations of present and future government support, needs to be considered, before any tangible actions are undertaken to improve the status of agricultural or natural resources. This approach also warrants consideration for insecure rural areas in Africa, the Middle East, and Central Asia.

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