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# Insurance and deliberation as drought disaster risk reduction strategies

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**Abstract** As the international community is moving from response to disaster risk reduction, it becomes imperative to take the whole risk chain into consideration, from prevention to rehabilitation of a drought-stricken area. To assess impacts on drought-stricken groups, it is useful to take a close look at risk spreading strategies these groups already use, which reduce their vulnerability to shocks. In Turkey, there is a very little coordination between adjacent water user groups on a river or in an irrigation scheme. This means there is no mutual coordination mechanism in times of unexpected drought. The article argues that a deliberative multi-stakeholder approach can enhance Disaster Risk Reduction, as currently practiced in Latin America and South Asia, and explores avenues for mutual crop and drought insurance initiatives such as currently practiced as pilot projects in India, and assess its applicability for the drought prone regions in Turkey, which experienced a coordination gap in the 2007-2008 droughts.

**Keywords.** Micro-insurance – Drought insurance – Disaster Risk Reduction – Turkey.

## *L'assurance et la délibération comme stratégies de réduction du risque de catastrophe liée à la sécheresse*

**Résumé.** Pendant que la communauté internationale se déplace de la réponse à la réduction de risque de désastre, il devient impératif de prendre en compte la chaîne entière de risque, d'empêchement à la réadaptation d'un secteur sinistré. Pour évaluer les impacts sur les groupes sinistrés, il sera utile d'examiner les stratégies de répartition des risques utilisées par ces groupes, qui réduisent leur vulnérabilité aux chocs. En Turquie, il y a très peu de coordination entre les groupes d'utilisateurs adjacents de l'eau sur un fleuve ou dans un système d'irrigation. Ceci signifie qu'il n'y a aucun mécanisme mutuel de coordination en période de sécheresse inattendue. L'article argumente qu'une approche délibérative à multiples parties prenantes peut augmenter la réduction de risques de désastre, ainsi qu'actuellement pratiquée en Amérique latine et Asie du sud, et explore des voies pour des initiatives mutuelles d'assurance des récoltes contre la sécheresse présentement mises en place comme projets-pilote en Inde, et évalue leur applicabilité pour la région d'Anatolie centrale, prédisposée à la sécheresse, qui a subi un manque de coordination pour les sécheresses de 2007-2008.

**Mots-clés.** Micro-assurance – Assurances contre la sécheresse – Réduction des risques de catastrophes – Turquie.

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## I – Introduction

Projections of increasing climate variability lend force to the oft-signalled need for adaptivity to external shocks. Small-scale producers and rural households in developing countries often prove highly adaptive, multiple risk management and risk spreading strategies, including ways of spreading risk throughout a community, taking advantage of social capital (Scoones, 1996; Patt *et al.*, 2010) which rather than maximize efficiency optimize resilience to multiple hazards<sup>1</sup>. Also, regional food crises these days do not have to stem from a lack of information and preparation. With the help of remote sensing-GIS, meteorological information and crop growth scenarios can be available several months in advance, which enable timely preparation. However, while farmers are well-adjusted to a bad season, they may not cope so well with

multiple drought years. This not only goes for rain-fed farmers, but also for irrigators, who are only marginally buffered against a sequence of bad years. Also the political economy is an important variable: access to entitlements, whether to food or financial resources, often proves a crucial limiting factor in surviving a period of scarcity (Sen, 1981). The availability of credit and alternative coping mechanisms is therefore important to increasing the resilience of vulnerable, risk prone agricultural areas.

## II – Insurance and risk spreading

In the past few decades, disasters have been claiming fewer victims, but causing more economic and social damage. The intensity and frequency are also held to be on the increase, although the latter observation is affected by better sensing and reporting.

Disaster Risk Reduction is central to the Hyogo Framework for Action, benefiting from its timing just after the tsunami of 2004. It puts local action at its centre, incorporates climate change and development concerns in disaster risk reduction, and shifts the attention from disaster response from reaction to pro-action, and in so doing to the whole disaster reduction cycle (mitigation, preparedness, response, recovery/rehabilitation and aftercare). If successfully implemented, micro-insurance can hit all these bases – it is community based, aimed at risk reduction and climate change adaptation goals and mitigates disaster. Insurance is an important vulnerability reducing mechanism to help meet the urgent and immediate needs of developing countries that are particularly vulnerable to the adverse effects of climate change (UNFCCC, 2007). While the Netherlands government has been regrettably slow to put word into action, Turkey has at least developed an action plan. Given its susceptibility to natural hazards like earthquakes, droughts but also occasional floods, this is an important step forward. It is however not very clear about how this will be concretised.

For the purposes of this paper we will concentrate on disaster risk to groups affected by weather-related disasters, notably drought. High-risk farmers are the most likely to look for insurance, which may lead to the phenomenon of "adverse selection" – they may be excluded because the underwriter expects to lose if there is an overrepresentation of high-risk insurance policies. Agricultural risk brings extra problems for underwriters as the risks are uncontrollable, multi-factor and fraud-prone.

Risk transfer, a key strategy in risk financing, is "defined as shifting the responsibility or burden for disaster loss to another party through legislation, contract, insurance or other means", can help "mitigate or minimise disaster losses". Risk transfer mechanisms include catastrophe bonds, catastrophe pools, index-based insurance and micro-insurance schemes, as well as safety nets and calamity funds (<http://www.proventionconsortium.org>). This contribution especially zooms in on micro-insurance as a promising pro-poor alternative. Micro-insurance is defined by "the protection of low-income people against specific perils in exchange for regular monetary payments (premiums) proportionate to the likelihood and cost of the risk involved." ([www.CGAP.org](http://www.CGAP.org)).

Micro-insurance has grown out of the micro-finance movement, where savings, credit and other services have proven successful in helping low-income communities better manage their resources and create their own opportunities. While standard micro-finance products can provide some risk management, the subject of micro-insurance is attracting wide interest as a growing body of evidence demonstrates the potential benefits of micro-insurance for low-income houses and businesses that are traditionally excluded from conventional insurance services. The intent of micro-insurance is to provide easily accessible insurance cover for small-scale assets at affordable premiums by keeping transaction costs low. The first micro-insurance programmes generally focused on health care and funeral cost products, with new developments and innovations not only improving existing products but also expanding to cover new risks like natural disasters.

While the demand for micro-insurance has never been quantified (Roth and McCord, 2008), there is some experience: micro-insurance, which grew out of micro-finance, is finding application in Africa and Asia. Notoriously flood-prone Bangladesh has worked with micro-insurance against flooding since the early 1990s (Provention-IIASA, 2006 quoted in UNFCCC, s.d). Another such scheme is PAID, the world's first typhoon insurance scheme' conceived as a lifeline for disadvantaged Filipinos. If a poor family needs to rebuild their home after a natural disaster, they are often forced to sell important means of production, such as land, livestock or boats. So they easily find themselves spiralling downward into extreme poverty. The PAID Plan allows Filipinos for as little as €3.50 a year reassurance of a starting capital of 142 euros in the event of a natural disaster completely destroying their home. "People need a basic level of [human] security to encourage them to take risks and invest in their own futures" (Morsink in UT Nieuws, 2009).

In the context of drought management, India's DHAN (Development for Human Action Foundation, <http://www.dhan.org>) covers 3 million households. The policyholder takes out a policy from a delivery channel created by the insurer, which in turn relies on a reinsurance company. The government is often involved as reinsurer of last resort as well as a regulator (Roth and McCord, 2008). In the case of DHAN, Dutch reinsurance companies historically rooted in mutual insurance themselves (united under the Eureka umbrella) are supporting this initiative citing corporate responsibility.

### III – Coping with downsides

Micro-insurance easily runs into practical problems. Also, the sums involved are small while administrative (including verification costs) are high. These need to be brought down to become accessible for the poor (Roth and McCord, 2008; Patt *et al.*, 2010). Morsink notes that it may be preferable to insure the means of production, not the crop (pers. comm., 2009). A fundamental worry is also that commercially supported reinsurance could erode the beneficiaries' own coping mechanisms. Poor access to the mechanism for the most marginal groups can undo the intended benefits. In so doing, it increases rather than reduces vulnerability. Also, when access is there but the mechanism is misapplied, it can be like marketing baby milk to perfectly healthy young mothers. The Indian NGO, DHAN, therefore does not advocate this as a stand-alone solution, but in combination with complementary social and financial mechanisms.

Morsink (in UT Nieuws, 2009) notes in explaining the lack of uptake in developing countries of successful technologies from the developed world we should focus on the different socio-institutional and cultural framework in these countries. One missing institutional arrangement is the absence of multi-stakeholder coordination between adjacent water user groups, who would clearly benefit from coordination. Research suggests that farmers tend to have a poor understanding of insurance, and as a result are less likely to use it (Roth and McCord, 2008). It is important that extension is not one-way, but takes the form of a dialogue, in which all parties can express their needs and concerns – a multi-stakeholder process.

### IV – Insurance in Turkey

Turkey is at a crossroads in many respects – between developing and developed world, between European, Asian and Middle Eastern cultures. This has made Turkey highly adaptive to new ideas. Turkish policies are still largely oriented at Europe, notably with a view to promoting Small and Medium Enterprise. This makes Turkey a hugely interesting candidate for risk transfer mechanisms such as micro-insurance. We propose that since Turkey has seen reforms toward participation and decentralization of water management, and the fact that disaster response in Turkey is organised along regional lines, the conditions for such policies are to a large degree present.

Despite the steady growth of the industry and services sector and continuing urbanization,

agriculture is still a highly important economic and livelihood activity in Turkey, and the basis for the growth of other sectors (Topçu, 2010). The agricultural sector is subject to considerable drought risk, which may be increasing. Topçu (2010) notes that the west Mediterranean, the Southeast and the Aegean Regions and Konya – the main wheat production area in Turkey, which on average receives about 300 mm precipitation – received insufficient rain during the past few years. The overuse of groundwater resources is also a significant problem in Konya so that supplemental irrigation for cereals in critical growth stages (vulnerable to water stress) could not be applied. Shortages both in rainfall amount and water resources led to drastic yield declines. Banks preferred to give credits to less vulnerable regions or less risky farming systems such as protected cultivation (greenhouse production), thus the bank loans for farmers in Central Anatolia are limited. However, this appears to be changing: during the last two years, the banks are giving attractive loans to the farmers using drip irrigation systems in their fields.

While the state lends support to farmers affected by drought within the state aid system, it does not cover all risks. Agricultural insurance has long enjoyed policy interest in Turkey, but penetration of insurance policies in Turkey has "historically been much lower than in European countries, especially Western Europe" (<http://www.oxfordbusinessgroup.com/publication.asp?country=1>). There is a national-level disaster insurance programme, but this is aimed at homeowners<sup>2</sup>. Currently, Turkish agricultural insurance for drought hazards only covers wheat, barley and two other forage (feed) crops, and producers are only eligible for payout if at least 25% is lost. In 2007 the loss due to drought was about 30% of harvest. Agricultural Engineering chambers and farmers' unions want that agricultural insurance cover also drought hazards for many crops. The most vulnerable and also affected regions were/still are the Aegean coast, Marmara and Central Anatolia.

After the severe drought events in Turkey in 2007, various measures for monitoring, assessing, controlling, preventing and preparedness at different level in State and community level (universities, research institutions, local authorities) gained momentum. Within the framework of those activities, the Ministry of Agriculture and Rural Affairs in collaboration with State Planning Organization, the Ministry of Environment and Forestry, the Ministry of Energy and Natural Resources and the Ministry of the Interior prepared and enacted a detailed action plan called "Strategies for Struggling Agricultural Drought and Action Plan" or "Turkish Agriculture Drought Master Plan (TAKEP)" for the period 2008-2012 on 7 August 2007. Each province has to prepare an appropriate "Agricultural Action Plan" according to their special conditions.

A Monitoring and Early Warning and Prediction Committee as well as a Risk Assessment Committee work under the Headquarters of the Agricultural Drought Management Board-Council in Ankara, while at provincial level the action plan will be implemented under the Governors' coordination with the participation of directors of relevant governmental organizations (such as provincial Agriculture Ministry offices, State Meteorological Services, State Hydraulic Works, etc.), water users, municipalities (mayors), NGOs. The action plan goes beyond crisis management: it also seeks to deal with long-term drought and strengthen the coordination between relevant institutions and efficient and appropriate use of public resources. The Risk Assessment Committee analyses the data provided by the Monitoring, Early Warning and Prediction group (MEP), assesses the risk and then prepares appropriate action plans for the Agricultural Drought Management Council<sup>3</sup>. The MEP committee's report showed that 2006-2007 winter rains decreased about 43% in Turkey and significant decreasing trends in the last few years, which also indicates hydrological and agricultural droughts. The recorded water levels in almost all dams were under 50% of their reservoir capacities, whereas 191 dams which have irrigation purposes were filled up to only 14.5% of their reservoir capacities in October 2008. Rainfall and water levels in dams were similar or even worse in 2007 (Anonymous, 2008).

Turkey has been working on diverse reforms among the other agriculture and environment sectors in the context of harmonisation with the EU. After assessing different agricultural insurance systems in the USA, Mexico and Spain within the framework of agricultural reform, the country decided on a similar system to Spain, which has a comprehensive and successful

insurance system covering natural hazards. Recently, "a new agricultural scheme involving some managerial and legal changes has been launched. In this framework, evolving technologies used in finance and insurance sector have also started to be implemented for agricultural insurance operations. Another specific point of this new scheme is the inclusion of a new insurance flow network accompanied by an intense research and development (R&D) to be made especially for system improvement." (Orçun Sakarya *et al.*, 2006)

Yet drought insurance is not obligatory within the Agricultural Insurance pool system in Turkey. Because drought with its properties like high frequency and potential for causing severe hazards in large areas, insurance premia are high. Although farmers can participate on an optional basis, particularly small farmers cannot afford insurance premia. Index-based insurance, for example "precipitation index" could be an alternative worth exploring.

## **V – Multi-stakeholder processes for micro-insurance?**

Research from Cukurova University suggests that in Turkey drought spells are going to be more frequent and intense, as a consequence of factors such as reduced rainfall, reduced snow depth and increased evapotranspiration (Topçu *et al.*, 2008, 2009). Yet in Turkey, there is as yet very little coordination between adjacent water user groups on a river or in an irrigation scheme. This means there is a lack of mutual coordination mechanism in place for times of unexpected prolonged drought. Asked what to do after multiple dry years, a water users' association (WUA) leader in the Menderes river – where 12 WUAs are located along the river – interviewed in 2004, shrugged: "We can only pray". In 2007 and 2008, consecutive drought years indeed took place, and saw indeed little coordination.

We feel that Turkey can do better than fatalism, if it puts efforts into risk spreading (pooling) and deliberative strategies that promote cooperation and solidarity with the poorer strata of the population. One inroad is to promote a consultative process bringing together governments, financial institutions, donor institutions, civil society, the private sector and stakeholders, as have been taken place in the microfinance industry around the world in 2004 and 2005. The United Nations Capital Development Fund's concept of inclusive finance, which promotes micro-finance and micro-insurance <http://www.uncdf.org/english/microfinance/> not only targets better access for the poor but also participatory structures.

Multi-stakeholder platforms (MSP) have been hailed as a useful coordination, alternative dispute resolution and/or social learning mechanism where different actors show both cooperative and conflictive interests (Warner, 2007). It reduces transaction costs by facilitating the exchange of information needed both between adjoining WUAs and between WUAs, knowledge institutions such as the Meteorological Office, the university as well as the public water manager. Decision-making in a multi-stakeholder platform does not take place on the basis of majority vote, but on the basis of deliberative argument. Representation likewise is not based on numerical or financial criteria, but on accurately representing the diversity of interests and perspectives, and (expert and practitioner) knowledge. Since the turn of the century, multi-stakeholder fora have become widespread in water resource management, as well in other common pool resources such as forestry and fisheries as forms of co-management with users (Edmunds and Wollenberg, 2002; Warner, 2007; for stakeholder identification in insurance see Funenseg 2009)

While MSPs can go some way to mitigating the downsides of transplanting reinsurance to non-Western contexts, there are considerable downsides to multi-stakeholder participation that need to be taken into account – the deliberation process is time- and energy-intensive, there is a clear risk of cooptation of the powerless by the powerful because the field is usually not very level (Edmunds and Wollenberg, 2002), exclusion or self-exclusion of important stakeholder as well as breach of faith by working around the MSP. MSPs are normally non-formal, therefore voluntary and often non-mandated, either participants always have direct action, lobbying, litigation and obstruction as their Best Alternative to a Negotiated Agreement (BATNA). Notably

the poor have high opportunity costs to participation (Warner, 2009). These however may be overcome by specifically targeting the poor and taking their needs seriously.

## References

- Anonymous, 2008.** Turkish strategies for struggling with agricultural drought and Action Plan 2008-2012, Risk Assessment Committee Evaluation Report, No: 2. Turkish Ministry of Agriculture and Rural Affairs, Ankara (Turkey).
- Edmunds D. and Wollenberg E., 2002.** Disadvantaged groups in multistakeholder negotiations. CIFOR Programme Report.
- Funenseg, 2009.** III Interim Report. Object: Identification of stakeholders in Microinsurance and their roles, May 2009. Microinsurance Work Group, SUSEP. Available at: <http://www.funenseg.org.br/arquivos/report3.pdf>
- Kazianga K. and Udry C., 2006.** Consumption smoothing? Livestock, insurance and drought in rural Burkina Faso. In: *Journal of Development Economics*, 79, p. 413-446.
- Meze-Hausken E., Patt A. and Fritz S., 2009.** Reducing climate risk for micro-insurance providers in Africa: A case study of Ethiopia. In: *Global Environmental Change*, 19(1), p. 66-73.
- Morsink K., 2009.** Catching them before they fall! The context of micro insurance adoption. Research summary, Twente University. [http://www.utwente.nl/cstm/research/summary/microinsuranceadoption\\_morsink.doc/](http://www.utwente.nl/cstm/research/summary/microinsuranceadoption_morsink.doc/)
- Orçun Sakarya A. and Aluftekin N., 2006.** Usage of Information Technologies in Agricultural Insurance Systems in Turkey. In: *Computers in Agriculture and Natural Resources*, 4th World Congress Conference, Proceedings of the 24-26 July 2006 (Orlando, Florida USA). <http://asae.frymulti.com/abstract.asp?aid=21956>
- Patt A., Pablo Suarez P. and Hess U., 2010.** How do small-holder farmers understand insurance, and how much do they want it? Evidence from Africa. In: *Global Environmental Change*, 20(1), p. 153-161.
- Provention-IIASA, 2006.** Microinsurance for Natural Disaster Risk in Developing Countries: Benefits, Limitations and Viability. ProVention/IIASA study – draft for discussion. January 2006
- Roth J. and McCord M.J., 2008.** Agricultural Microinsurance, Global practices and Prospects, Microinsurance Network. [http://www.microinsurancenetwork.org/file/Agriculture\\_Microinsurance\\_Global\\_Practices\\_and\\_Prospects.pdf](http://www.microinsurancenetwork.org/file/Agriculture_Microinsurance_Global_Practices_and_Prospects.pdf).
- Scoones, I. (1996).** *Hazards and Opportunities: Farming Livelihoods in Dryland Africa. Lessons from Zimbabwe*. London: Zed Books.
- Sen A., 1981.** Ingredients of Famine Analysis: Availability and entitlements. In: *Quarterly Journal of Economics*, 96(3), p. 433-464.
- Topçu S., 2010.** Water for agriculture: A great but inefficient consumer. In: Kibaroglu A., Klaphake A., Kramer A. and Scheumann W. (eds). *Turkey's Water Policy, National Frameworks and International Cooperation*. Berlin: Springer-Verlag (forthcoming 2010).
- Topçu S., Sen B., Giorgi F., Bi X., Kanit E.G. and Dalkilic T., 2008.** Impact of Climate Change on Agricultural Water Use in the Mediterranean Region. In: *XIIIth World Water Congress*, Montpellier (France), 1-4 September 2008.
- Topçu S., Sen B. and Topaloglu F., 2009.** Predicted Climate Change in the Southeastern Anatolia Region 1. In: *National Drought and Desertification Symposium Proceedings*, Konya (Turkey), 16-18 June 2009, p. 320-328.
- UNFCCC (United Nations Framework Climate Change Convention), 2007.** Bali Action Plan. Decision 1/CP.13 UNFCCC, 2007.
- UNFCCC (United Nations Framework Climate Change Convention), (s.d.).** Risk management approaches to address adverse effects of climate change. Adverse effects and response measures- [url unfccc.int/adaptation/implementing\\_adaptation/4970](http://unfccc.int/adaptation/implementing_adaptation/4970).
- UT Nieuws, 2009.** Tyfoonverzekering stimuleert ondernemingszin arme Filippino's, 16 December.
- Warner J. (ed.), 2007.** *Multi-Stakeholder Platforms for Integrated Water Management*. Ashgate.
- Warner J., 2009.** Learning and fighting in multi-stakeholder negotiation. In: Chinyio E. and Olomolaiye P. (eds). *Construction Stakeholder Management*. London: Wiley-Blackwell, p. 138-159.

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## Notes

<sup>1</sup> Kazianga and Udry (2006) however may serve as a cautionary note that this is not a hard and fast

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rule. Based on work among pastoralists in Burkina Faso they found little or no evidence of smoothing of droughts by risk sharing.

<sup>2</sup> Turkey has a national disaster programme, the Turkish Catastrophe Insurance Pool (TCIP) aimed at protecting homeowners and modelled after earthquake policies in California, France and New Zealand. This pool was set up to provide earthquake coverage for homeowners and relied mainly on international reinsurance and capital markets for their risk capital capacity.

<sup>3</sup> In the Risk Assessment Committee the experts from different institutions and organizations such as Directorates of Strategy Development, Agricultural Research, Agricultural Production and Development, Protection and Control, Turkish Grain Board, Agricultural Enterprises, State Hydraulic Works, State Meteorological Services, Environmental Management, Turkish Agricultural Chambers Union, Turkish Union of Chambers and Exchange Commodities participate.