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## Groundwater and socioeconomic development in Latin America

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The role that groundwater plays in the economy and in promoting social welfare in Latin American countries is underestimated. The tube wells are mainly drilled to provide water to private initiative. Many of these are not registered, which makes it challenging to evaluate the type of use, the volumes extracted, and the economic and social values. Except in regions where groundwater dependence is very high, or water conflicts are exacerbated, such as in Mexico or some regions in Chile, the illegality of tube wells is generally over 60-70%, even in countries with organized management systems such as Argentina, Colombia, and Brazil. Groundwater is a sole or complementary source of 45-55% of economic activities in the city and the countryside, and it has increased exponentially in recent decades. The difficulty in controlling catchments within a traditional management model, supported by "command and control" mechanisms, is due to: i) the detection of the impacts, caused by excessive extraction, can take decades; ii) the cause of the impact is usually associated with numerous users, making their quantification and liability difficult; and iii) as a rule, control and enforcement institutions have insufficient budgets and personnel. Such reality brings to the discussion the need to implement new mechanisms to improve groundwater governance. Among them, it is becoming increasingly evident that schemes that affect the participation of users (bottom-up approaches) in the management process are essential and should complement the control exerted by governmental institutions.