

# Willem K. Klein Haneveld

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Coming from Stochastics to OR, Wim Klein Haneveld's early contributions center around the concept of "LP problems in probabilities," inspired by the conjugate duality theory of R. T. Rockafellar. They consist of results on marginal problems, moment problems, and dynamic programming. Another class of problems he introduced is the so-called SP model with Integrated Chance Constraints. These models constitute an early predecessor of the concept of conditional value-at-risk concept. He also proposed the so-called Multiple Simple Recourse model, which allows for more refined penalty costs compared to the traditional simple recourse model. Most of his early work can be found in his 1986 book entitled *Duality in Stochastic Linear and Dynamic Programming*.

Wim Klein Haneveld was among the first to study stochastic programs with integer variables, both in theory and applications (plenary lecture in Vancouver, 1998; co-organizer of workshop in Groningen, 2004). Further illustrations of his interest in applications are his leading role in the long-term project *Technical Planning under Uncertainty* for the Dutch natural gas company Gasunie, and the application of stochastic programming concepts to agricultural problems in developing countries (with C. Schweigman).

Throughout his career, Wim Klein Haneveld has been very involved in teaching stochastic programming. He was co-founder and the first Director of the *Dutch Network on the Mathematics of Operations Research* (LNMB), which offers Master and PhD-courses (including stochastic programming) to all Dutch OR students.



## Selected Contributions

- "A dual of a dynamic inventory control model: the deterministic and stochastic case." in *Recent results in stochastic programming*, vol. 179, Lecture Notes in Econom. and Math Systems, (1980).
- "Some linear programs in probabilities and their duals," in *Convexity and duality in optimization*, vol. 256 of Lecture Notes in Econ. and Math. Systems, (1985).
- "Distributions with known marginals and duality of mathematical programming with application to PERT" in *Proceedings of the seventh conference on probability theory, 1982* (appeared in 1985)
- *Duality in stochastic linear and dynamic programming*, vol. 274 of Lecture Notes in Econ. and Math. Systems (1986)
- "On integrated chance constraints," *Stochastic programming* (Gargnano, 1983) vol. 76 of Lecture Notes in Control and Inform. Sci. (1986)
- Robustness against dependence in PERT: an application of duality and distributions with known marginals. *Math. Programming Study*, (1986).I.
- Stochastic integer programming: general models and algorithms (with M.H. van der Vlerk), *Ann. Oper. Res.* (1999).