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# Role of Mathematics in Spotting Soft Corruption

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Corruption existing in a society acts as dissipative force, which should be modeled and minimized. 'Soft Corruption' is defined as corruption, in which hiring and bidding processes follow all rules and regulations. However, there is favoritism and nepotism. This happens because rules are set in such a way as to give advantage to certain individuals or groups. There is a need for mathematical modeling to spot and isolate such type of corruption. This can be done by constructing models of accountability and transparency for all public-policy decisions and actions. The word soft corruption was used in 1988 by Weisburd, McElroy and Hardyman in the context of community policing. Holstein in 2005 used it in contrast to hard corruption. Soft corruption can be minimized, if the appointment processes of public officials, who are supposed to act as functionaries of government, include screening for plagiarism, financial corruption and moral turpitude. There should be entrance legitimacy, as per appointment criteria, and performance legitimacy, determined through monitoring (follow-through) and evaluation (follow-up) of policies and accomplishments. Judiciary, military and civil society are the three-way, check-and-balance instruments for spotting soft corruption in government organizations (Fig. 1). According to an extension of economic version of first law of thermo-dynamics, invested money, $M_{\mathrm{INV}}$, is, partly, used in developing infrastructure, $M_{\mathrm{INF}}$, and providing services/ fabricating products, $M_{\mathrm{S\&P}}$, and partly, wasted in soft corruption (lacking fairness), $M_{\mathrm{STC}}$, and hard corruption (lacking honesty), $M_{\mathrm{HDC}}$ **:**

$$M_{\mathrm{INV}} = M_{\mathrm{INF}} + M_{\mathrm{S\&P}} + M_{\mathrm{STC}} + M_{\mathrm{HDC}}$$

The efficiency of a project, therefore, comes out to be one minus the ratio of money wasted in corruption (soft and hard) to the invested money**:**

$$Efficiency = 1 - \frac{M_{\mathrm{STC}} + M_{\mathrm{HDC}}}{M_{\mathrm{INV}}}$$

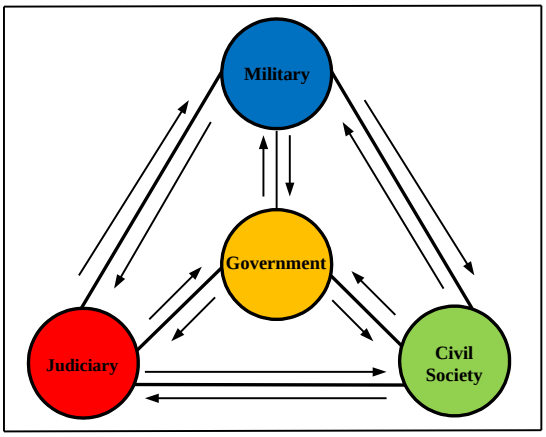


**Fig. 1. Three-way, check-and-balance instruments for spotting soft corruption**

*Keywords***:** Bidding process • Financial corruption • Hiring process • Moral turpitude • Plagiarism
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Professor Kamal has widely contributed in social sciences, *e. g.*, intelligent power and smart-intelligent power, mathematical modeling of corruption, social implications of underage and forced marriages, conflict-resolution mechanisms as well as introduction of *z* axis (innovative skills — out of the box thinking) https://www.ngds-ku.org/Presentations/Leader-Integrator.pdf along with *x* axis (technical skills — subject) as well as *y* axis (performance skills — managerial). He led teams in 20 different capacities with progressively increasing responsibilities.