Introduction to supergravity 2015: Exercise 10.

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We have a gauged chiral model coupled to supergravity [1] with vanishing superpotential ($P = 0$) and with

$$K + \Gamma = -3 \operatorname{Log}\left[-\bar{\Phi} \mathrm{e}^{V} \Phi \operatorname{Log}\left(\bar{\Phi} \mathrm{e}^{V} \Phi\right)\right]. \tag{1}$$

This model contains a chiral superfield Φ and a gauge superfield V.

- Identify the Kaehler potential K. Identify the Killing potential $\mathrm{D}^{(1)}$.
- Notice that the vector becomes massive via the Stueckelberg mechanism. Describe the mechanism.
- Write down the bosonic sector, and show that it gives the Starobinsky model of inflation.

References

[1] J. Wess and J. Bagger, "Supersymmetry and supergravity," Princeton, USA: Univ. Pr. (1992).