Each country has their own version of this model. The coupling term which allows for transit of exposes individuals between countries is ϕ_{ij}. Let's say that ϕ_{12} is from Liberia to Guinea, $\phi 21$ is from Guinea to Liberia, ϕ_{13} is from Liberia to Sierra Leone, and etc. I assume that only exposed are transferred since the susceptibles moving around doesn't matter much, and I assume that once you're infected, you won't be going anywhere. Likewise, people in a hospital will be stationary. And the dead can't go anywhere either, unless we allow for zombies.

$$\begin{cases} \frac{dS_i}{dt} = \alpha S_i - \beta_1 S_i I_i - \beta_2 S_i R_{I,i} - \beta_3 S_i H_i \\ \frac{dE_i}{dt} = \beta_1 S_i I_i + \beta_2 S_i R_{I,i} + \beta_3 S_i H_i - \delta E_i - \phi_{ij} E_i + \phi_{ji} E_j \\ \frac{dI_i}{dt} = \delta E_i - \gamma_1 I_i - \psi I_i \\ \frac{dH_i}{dt} = \psi I_i - \gamma_2 H_i \\ \frac{dR_{I,i}}{dt} = \rho_1 \gamma_1 I_i - \omega R_{I,i} \\ \frac{dR_{B,i}}{dt} = \omega R_{I,i} + \rho_2 \gamma_2 H_i \\ \frac{dR_{R,i}}{dt} = (1-\rho_1)\gamma_1 I_i + (1-\rho_2)\gamma_2 H_i \end{cases} \tag{1}$$

The above equation is valid for $i = 1, 2, 3$ representing Liberia, Guinea, and Sierra Leone respectively.