962-35-721 **C. Y. Chan** (chan@louisiana.edu), Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504-1010, and **Haiyan Tian*** (hxt4077@louisiana.edu), Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504-1010. *Blow-up of solutions for degenerate parabolic problems due to local and nonlocal nonlinear sources.*

Let q and m be any real numbers such that $q \geq 0$ and $m > 1$, and $T \leq \infty$. This article studies the following degenerate semilinear parabolic initial-boundary value problem:

$$x^q u_t(x,t) - u_{xx}(x,t) = a^{m(q-1)+2}\delta(x-b) f\left(u(x,t)\right) U^m(t) \text{ for } 0 < x < 1,\ 0 < t < T,$$
$$u(x,0) = \psi(x) \text{ for } 0 \leq x \leq 1,$$
$$u(0,t) = u(1,t) = 0 \text{ for } 0 < t < T,$$

where f and ψ are given functions, and

$$U(t) = \int_0^1 x^q \left|u(x,t)\right| dx.$$

Existence, uniqueness and blow-up of a solution are discussed. (Received September 23, 2000)